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CREDIT OPINION

18 July 2022

Update


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RATINGS

EDP - Energias de Portugal, S.A.

Domicile	Lisbon, Portugal
Long Term Rating	Baa3
Type	LT Issuer Rating
Outlook	Positive

Please see the [ratings section](#) at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

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CLIENT SERVICES

Americas 1-212-553-1653

Asia Pacific 852-3551-3077

Japan 81-3-5408-4100

EMEA 44-20-7772-5454

EDP - Energias de Portugal, S.A.

Update to credit analysis following rating affirmation

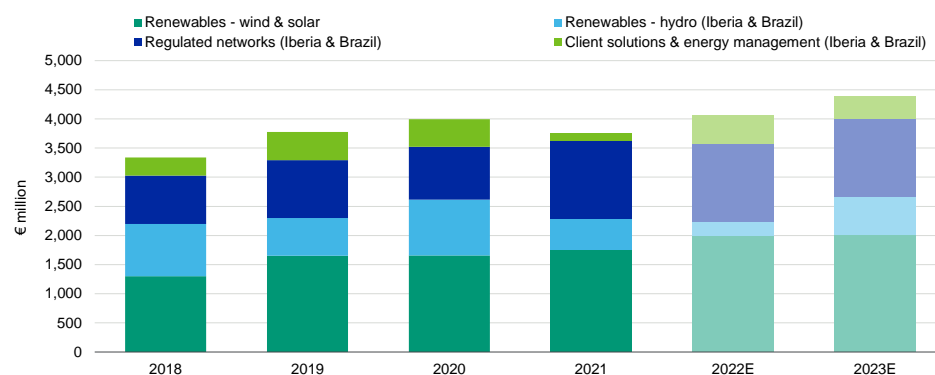
Summary

The credit profile of [EDP - Energias de Portugal, S.A.](#) (EDP, Baa3 positive) is supported by the company's diversified business and geographical mix, which helps moderate earnings volatility; the stable earnings stemming from contracted generation and regulated networks, which account for over 75% of group EBITDA; the low carbon intensity of its power generation fleet and the strategy to exit coal-fired power generation by 2025, which positions it well in the context of the energy transition; and the group's track record of rotating assets to alleviate financing needs.

These positives help offset certain potential risks, including the earnings volatility stemming from variations in hydro output in Iberia and, to a lesser extent, wind resource globally; the residual exposure to volatile power prices of EDP's merchant generation and supply activities; the execution risks associated with the group's significant capital spending over 2021-25, with €24 billion of gross investments planned over the period; the exposure to political and regulatory risks in [Portugal](#) (Baa2 stable) and [Spain](#) (Baa1 stable); EDP's relatively high dividend payout, which constrains financial flexibility; and the minority holdings in the group, which add to complexity.

Exhibit 1

Renewables will increasingly drive EDP's credit profile as the company executes its strategy EBITDA by segment



The 2022-23 estimates represent Moody's forward view and not the view of the issuer

Source: Company data and Moody's Investors Service

Credit strengths

- » The diversified business and geographical mix helps moderate earnings volatility
- » Regulated and contracted activities account for over 75% of EBITDA
- » Low carbon intensity of power generation fleet and strategy to exit coal-fired power generation by 2025
- » Track record of rotating assets to alleviate financing needs

Credit challenges

- » Earnings volatility stemming from variations in hydro output and wind resource
- » Execution risks associated with significant capital spending programme
- » Political and regulatory risks in Portugal and Spain
- » Relatively high dividend payout

Rating outlook

The positive outlook reflects our expectation that EDP's credit metrics could strengthen in the medium term as the company continues to execute its strategy and hedges in the merchant power generation business in Iberia roll off, thus potentially allowing it to benefit from higher achieved wholesale power prices.

Factors that could lead to an upgrade

The ratings could be upgraded if EDP's progress on the delivery of its strategy were to result in a sustained strengthening of its financial profile, with funds from operations (FFO)/net debt in the high teens and retained cash flow (RCF) to net debt trending towards the low teens (both in percentage terms).

Factors that could lead to a downgrade

Given the positive outlook, downward pressure on the ratings is unlikely. The outlook could be stabilised if credit metrics appear likely to remain persistently below the guidance for the higher rating. The ratings could be downgraded if EDP's credit metrics fell below the guidance for the Baa3 rating, which includes FFO/net debt in the mid-teens and RCF/net debt in the low double digits (both in percentage terms).

Key indicators

Exhibit 2

EDP - Energias de Portugal, S.A.

	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	2022E	2023E
(CFO Pre-W/C) / Net Debt	13.9%	13.6%	14.7%	16.8%	16.8%	16-18%	17-19%
RCF / Net Debt	8.6%	7.9%	9.3%	11.1%	10.0%	10-12%	11-13%
(FFO + Interest Expense) / Interest Expense	3.9x	3.9x	4.2x	5.2x	4.9x	4-6x	4-6x

All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. Moody's estimates (E) are Moody's opinion and do not represent the view of the issuer.

Source: Moody's Financial Metrics™

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody.com> for the most updated credit rating action information and rating history.

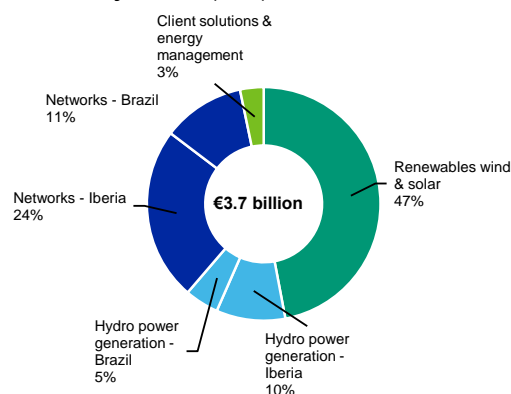
Profile

EDP - Energias de Portugal, S.A. (EDP) is a vertically integrated utility company, with consolidated revenue of €15.0 billion and EBITDA of €3.7 billion in 2021. It is the largest electric utility in Portugal and also has a small share of Portugal's gas supply market. Through its operations in Spain, EDP is among the four largest electricity generation companies in the Iberian peninsula.¹

EDP's 75.0%-owned subsidiary EDP Renovaveis SA (EDPR) holds its wind and solar renewables activities worldwide. EDPR is one of the largest onshore wind power operators globally, with a particular focus on the [US](#) (Aaa stable) and Iberia. EDP is also present in [Brazil](#) (Ba2 stable) via its 56.0% holding in EDP - Energias do Brasil S.A. (EDP Brasil).

Exhibit 3

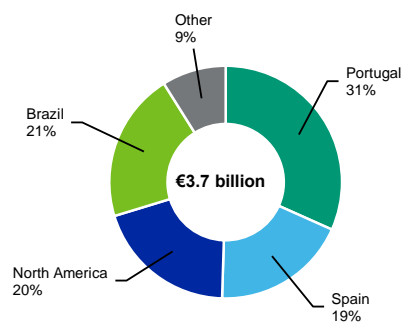
Business mix is focused on renewables and regulated activities
EBITDA breakdown by business (2021)



Source: Company reports

Exhibit 4

Iberia accounts for around half of EDP's EBITDA
EBITDA breakdown by geography (2021)



Source: Company reports

EDP is listed on the Lisbon stock exchange, with a market capitalisation of around €18.3 billion. Its largest shareholder is [China Three Gorges Corporation](#) (CTG, A1 stable), with 20.2% of the shares. Other shareholders include [BlackRock, Inc.](#) (Aa3 stable, 9.37%), investment holding company Oppidum Capital (7.2%) and [Canada Pension Plan Investment Board](#) (Aaa stable, 5.16%).

Detailed credit considerations

Diversified business mix moderates earnings volatility

EDP's credit profile benefits from its scale (total assets as of 31 March 2022: €57.4 billion) and leading position in Portugal, as well as its diversification by geography, asset type and fuel mix, which helps moderate aggregate earnings volatility.

EDP's geographical diversification, however, exposes it to exchange-rate risk, notably in respect of the US dollar and the Brazilian real against the euro. This risk is partly mitigated by the group's policy of hedging its foreign-currency exposure by raising debt in local currency and through derivatives. As of 31 March 2022, 33% of EDP's debt was denominated in US dollars and 14% was in Brazilian real.

Renewables benefit from long-term contracts but are exposed to volume volatility, whereas merchant generation in Iberia is exposed to volatile power prices

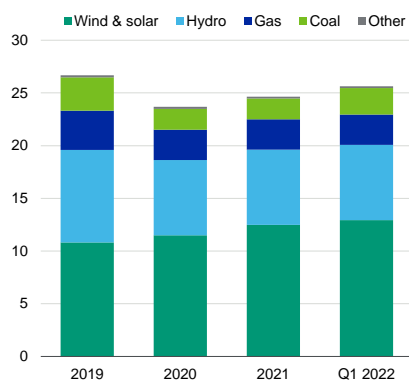
The group's wind and solar power generation portfolio, held by EDPR, which has a total capacity of 12.9 gigawatts (GW) and accounted for 47% of group EBITDA in 2021, benefits in large part from the protection provided by feed-in tariffs, prices with caps and floors or long-term power purchase agreements (PPAs).² The group's onshore wind farms are nevertheless subject to output variability, which is dependent on wind conditions and asset availability.

In Brazil, EDP's hydro and thermal generation assets, which accounted for 7% of group EBITDA in 2021, also operate under inflation-linked PPAs, with reduced hydro risk exposure since 2016, when the Generation Scaling Factor (GSF) insurance agreement was put in place to transfer part of the hydrological risk.

Exhibit 5

Coal and gas-fired generation are declining, while wind is growing

Split of installed capacity (GW)

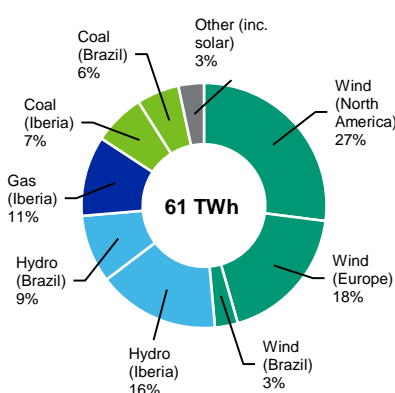


Source: Company reports

Exhibit 6

Around 75% of EDP's output is renewables

Output split by fuel and geography (2021)



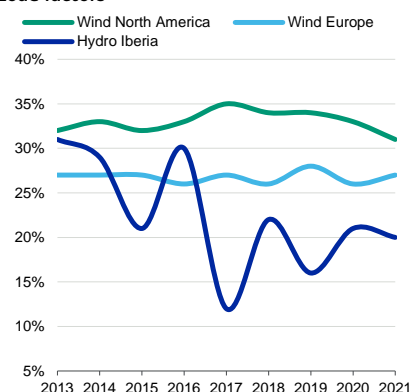
Percentages may be rounded.

Source: Company reports

Exhibit 7

Renewables are exposed to resource volatility

Load factors



Source: Company reports

In Iberia, EDP's hydro, nuclear, gas-fired and coal-fired generation, which accounted for 7% of group EBITDA in 2021, is exposed to volume risk and market prices. The group mitigates its commodity price exposure through forward sales (for 2023-25, EDP has hedged approximately 45% of its expected baseload power production at an average price of close to €60/MWh) and through its strong position in supply, where it has market shares in Portugal of 75% and of 45% in terms of customer numbers and volume, respectively, as of March 2022.

Nonetheless, EDP remains highly exposed to variations in hydro output, as illustrated by a shortfall of hydro production of 2.6 TWh in Q1 2022, compared to the historical average, because of a severe drought in both Portugal and Spain. This was only partly mitigated by increased thermal power generation.

Regulated networks in Iberia provide cash flow stability and predictability

Earnings volatility is mitigated by the contribution from electricity distribution and transmission networks, whose tariffs are regulated in their concession areas in Portugal, Spain and Brazil. They accounted for 36% of group EBITDA in 2021 and had a combined regulated asset base (RAB) of over €6.7 billion as of March 2022.

Exhibit 8

Regulated electricity distribution networks provide cash flow stability

	Portugal - high/medium voltage	Portugal - low voltage	Spain	Brazil - Espirito Santo	Brazil - Sao Paulo	Brazil - Transmission
EBITDA (2021)	€531 million		€369 million	BRL854 million	BRL889 million	BRL985 million
Regulator	ERSE	ERSE	CNMC	ANEEL	ANEEL	ANEEL
Distributed electricity (2021)	23.5 TWh	21.2 TWh	14.1 TWh	10.2 TWh	15.8 TWh	n/a
Concessions maturity	2044	2021-26 [1]	Perpetuity	2025	2028	2051
RAB (March 2022)	€1.7 billion	€1.2 billion	€1.9 billion	BRL2.6 billion	BRL2.6 billion	BRL5.9 billion [2]

[1] Most concessions expire in 2021-22 and a few concessions end in 2026. [2] Corresponds to financial assets, not RAB.

Source: Company reports

The regulatory framework for electricity distribution networks in Portugal is relatively established and stable; there has been a reasonable degree of continuity of principles over the past few regulatory periods, which is credit supportive. Revenue is regulated by Entidade Reguladora dos Servicos Energeticos (ERSE). For the current four-year regulatory period which started in January 2022, the allowed return (which was 4.8%, pretax nominal, in Q1 2022) is indexed on the evolution of the 10-year sovereign bond yield with a floor and a cap. In addition, the RAB and total expenditure (totex) will be adjusted for inflation after applying an efficiency factor of 0.75%.

No decision has been made yet on the renewal of EDP's low-voltage concessions, 92% of which expire in 2021-22. Nonetheless, Portuguese law establishes that in return for the assets returned to the granters of the concessions, compensation corresponding to the assets' book value, net of amortisations, financial contributions and nonrefundable subsidies will be paid.

In Spain, there is good visibility into revenue for the six-year regulatory period for electricity networks, which started in January 2020. The allowed return was set at 5.58% (pretax, nominal) by the National Commission of Markets and Competition (CNMC, the regulator), which represents a decrease of more than 90 basis points from 6.5% for the previous period.

EDP Brasil's electricity distribution activities provide lower earnings predictability because of the exposure to economic risk in Brazil. Nonetheless, we expect tariff adjustments and regulatory support to help maintain stability.

Exposure to macroeconomic, political and regulatory risk in Portugal and Spain

EDP generated approximately half of its EBITDA in Iberia in 2021. The company is therefore exposed to macroeconomic conditions and related financial, regulatory or political strain in Portugal and Spain. Notably, the current high inflation environment raises risks of adverse regulatory or political intervention to support consumers' affordability, in particular in Spain.

For example, the Spanish government introduced in September 2021 a new tax to limit the impact of rising wholesale gas prices on consumers' electricity and gas tariffs (see [New tax on Spanish nuclear and hydro is credit negative](#), 16 September 2021). This tax was further extended until year-end 2022.³ More recently, the Spanish government said in June 2022 that it would seek to impose a new tax on the extraordinary profits of energy companies, possibly following the example of Italy.⁴ There is a high level of uncertainty surrounding the implementation of some of the measures announced and their potential impact on EDP's credit profile, but they illustrate the increased risk of government intervention for utilities in the context of an evolving macroeconomic and operating environment.

Strategic focus on renewables and networks is positive for business mix, but execution risks remain

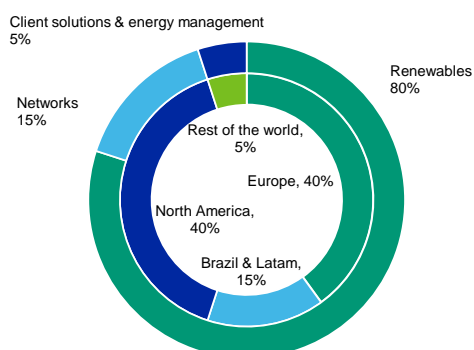
EDP's 2021-25 strategic plan published in February 2021 provides for a capital spending programme of €24 billion for the five years, equivalent to €4.8 billion per annum, which implies a 65% increase from €2.9 billion per annum under the previous plan; a renewable asset rotation programme of €8 billion; and a cost reduction programme targeting €100 million of cumulative savings over the period.

Around 95% of capital spending will be directed at renewables and electricity distribution networks. EDP targets (1) an additional 13 GW of net renewable capacity, comprised mostly of onshore wind and solar in the US and Europe; (2) to grow its networks asset base to around €7 billion, mostly driven by investments in Brazil; and (3) increasing the efficiency of its client solutions and energy management business, which encompasses supply and thermal generation in Iberia and Brazil, as well as scaling up energy services such as solar distributed generation and e-mobility. The acquisition of a 91% stake in Sunseap for €0.7 billion announced in November 2021 is aligned with this strategy and will allow EDP to establish a growth platform in Asia-Pacific. Sunseap is a renewables company with a portfolio of 5.5 GW of solar projects primarily located in south east Asia.

Overall, we expect that the group's business risk profile will continue to develop favourably over the plan period given the focus on contracted and regulated activities.

Exhibit 9

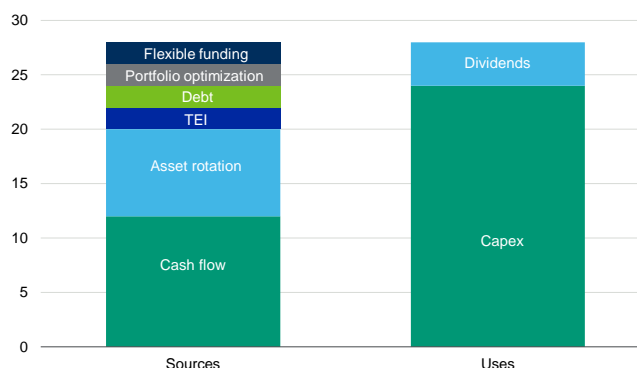
Investment is focused on renewables Split of capital spending by business and geography (2021-25)



Outer circle: business; inner circle: geography.
Source: Company reports

Exhibit 10

EDP will rely on asset rotation Sources and uses of cash over 2021-25 in € billion



Portfolio optimization includes hybrids, regulatory receivables, forex and other; flexible funding includes EDPR capital increase, additional hybrids, disposals and asset rotations.
Source: Company reports

EDP's strategy implies some risks because of the scale of investment, which can present operational challenges. The plan includes the build-out of 20 GW of gross installed renewable capacity over 2021-25, equivalent to 4 GW per annum over the later years of the plan, although this is partly conditional upon the execution of the asset rotation programme, which contemplates the disposal of more than 7 GW. The company added 2.6 GW of new renewable capacity in 2021, and has further secured a total of 6 GW of new renewable capacity to be commissioned over 2022-23. However, it faces delays to capacity additions due to supply chain issues and regulatory uncertainty in the US. In addition, EDP is exposed to higher capex costs driven by rising commodity and metal prices, which could in turn exert downward pressure on returns. These have nonetheless been offset so far by higher bid prices achieved in PPAs and auctions.

Execution risks are further moderated by:

- » EDP's sizeable renewables pipeline, which has enabled it to already secure with long-term contracts 9.6 GW of the targeted renewable capacity additions over 2021-25;
- » the limited technological risks associated with the targeted development of renewables, which is focused mostly on onshore wind (46%) and solar (40%),⁵ whereas country focus will remain on North America (45% of capacity additions), Europe (35%) and Brazil (15%);
- » the limited complexity associated with network investments;
- » the track record demonstrated by EDP in rotating renewable assets and crystallising value, with €2.6 billion of asset rotation proceeds already agreed;
- » the front-loading of a number of creditor-friendly financing measures, including the €1.5 billion capital increase completed by EDPR in April 2021.

Credit metrics could strengthen further as the company executes its strategy

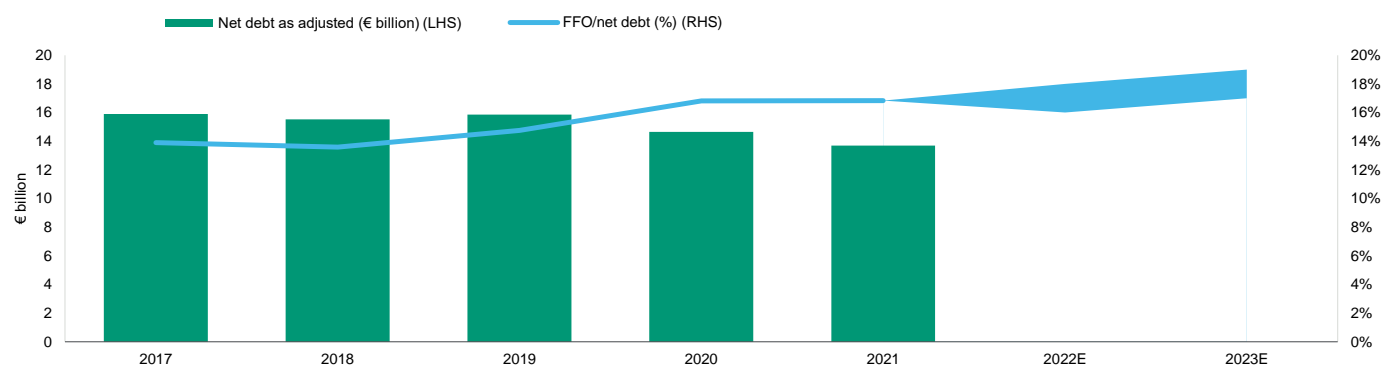
EDP's ratio of FFO/net debt was around 17% in 2021 (in line with the prior year's level), reflecting solid operating performance, notably in the wind and solar and the electricity networks businesses, partly offset by adverse working capital movements associated with higher commodity prices. Given the challenges experienced so far this year in the Iberian hydro power business, we expect that EDP will exhibit broadly stable credit metrics in 2022.

Nevertheless, we expect that the company's credit metrics could strengthen in the medium term as it continues to execute its strategy and hedges in the merchant power generation business in Iberia roll off, thus potentially allowing it to benefit from higher achieved wholesale power prices.

At the same time, the group's dividend policy, which includes a payout ratio of 75-85% with a €0.19 dividend floor per share, will continue to constrain financial flexibility, although we note positively that EDP's management has also committed to take steps to reinforce its balance sheet, if needed, to maintain a sustainable leverage.

Exhibit 11

EDP's credit metrics could strengthen further



The 2022-23 estimates represent Moody's forward view and not the view of the issuer.

Source: Moody's Investors Service

EDP has moderate exposure to rising interest rates. This is because 29% of the group's gross debt was at floating rates as of March 2022, with the remaining 71% at fixed rates.

ESG considerations

EDP - ENERGIAS DE PORTUGAL, S.A.'s ESG Credit Impact Score is Moderately Negative CIS-3

Exhibit 12

ESG Credit Impact Score

CIS-3

Moderately Negative



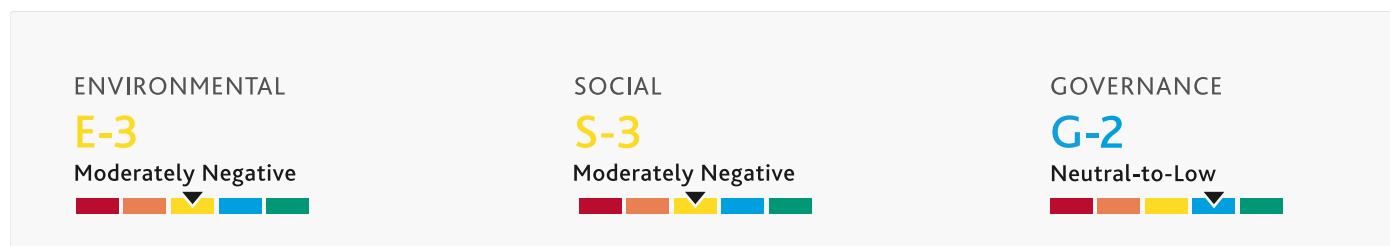
For an issuer scored CIS-3 (Moderately Negative), its ESG attributes are overall considered as having a limited impact on the current rating, with greater potential for future negative impact over time. The negative influence of the overall ESG attributes on the rating is more pronounced compared to an issuer scored CIS-2.

Source: Moody's Investors Service

EDP's ESG Credit Impact Score is moderately negative (**CIS-3**), reflecting moderate environmental, and social risks, as well as low governance risks.

Exhibit 13

ESG Issuer Profile Scores



Source: Moody's Investors Service

Environmental

EDP's moderate environmental risk (**E-3** issuer profile score) reflects the company's exposure to physical climate risks, including the exposure of hydro power generation to resource volatility. These risks are balanced by EDP's neutral to low exposure to carbon transition risk given its relatively low carbon intensity, with scope 1 and 2 emissions of 176 gCO₂/kWh in 2021. We expect carbon intensity to decrease further as the company shuts down coal-fired plants in Iberia and continues its build-out of renewables. EDP targets to exit coal-fired generation by 2025 and have 100% renewable generation by 2030.

Social

EDP's social risk is moderately negative (**S-3**), reflecting the risk, common to all utilities, that public concern over environmental, social or affordability issues could lead to adverse regulatory or political intervention. These risks are balanced by neutral to low risks to health and safety, human capital, customer relationships and responsible production.

Governance

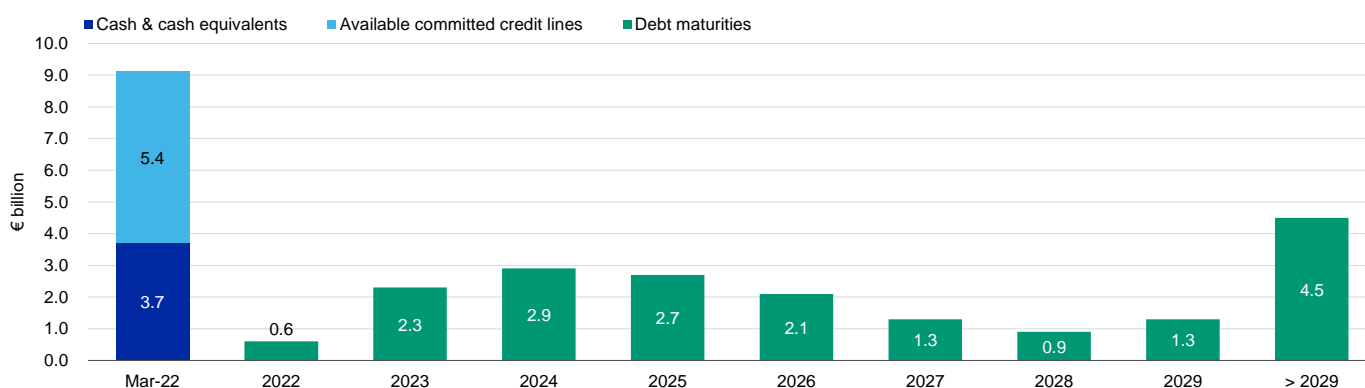
Governance risks are neutral/low (**G-2**). Although ownership concentration can be a credit risk, CTG's track record of support for EDP mitigates this risk. CTG has been a major shareholder with representation on the company's General and Supervisory Board since May 2012 when it acquired its initial stake and stabilised EDP during the euro area crisis. At the same time, EDP faces moderate risks relative to the existence of significant minority shareholders in large subsidiaries of the group, as well as the potential risks that could arise from the ongoing investigation regarding the early termination of certain power purchase agreements and certain payments in relation to the extension of hydro power concessions.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Liquidity analysis

EDP has sound liquidity, underpinned by cash and cash equivalents of €3.7 billion; a total of €5.4 billion undrawn revolving credit facilities, including notably a €3.3 billion revolving credit facility maturing in October 2024 and a €2.2 billion revolving credit facility maturing in March 2025; and short-term credit facilities of €256 million as of March 2022. Combined with operating cash flow, these are available to cover expected average annual net investments of around €2.5-3.0 billion; debt maturities (see Exhibit 14 below); and annual dividend payments including minorities of around €0.9 billion.

Exhibit 14

EDP's liquidity sources will comfortably cover debt maturities in the medium term

Source: Company reports

In addition, EDP has demonstrated a good track record of accessing the debt capital markets. The company has also been able to securitise regulatory receivables associated with Portugal's tariff deficit, reflecting good interest from investors, as illustrated by a €562 million non-recourse sale in January 2022.

Structural considerations

EDP Finance B.V. is the group's main issuer under the €13.5 billion euro medium-term note programme which benefits from a keep well agreement with EDP. EDP is the issuer of the group's €3.75 billion hybrid securities.

As of 31 March 2022, 19% of the group's gross debt was raised at the subsidiary level, reflecting the existence of significant minority shareholders at EDP Brasil. The structural subordination of bondholders at the holding company level is nevertheless mitigated by the existence of intercompany loans from EDP to EDPR.

Exhibit 15

EDP's debt structure as of 31 March 2022

In € million	Gross debt	Gross debt in %	Cash	Net debt	Net debt in %
EDP SA and EDP Finance BV	14,997	81%	2,040	12,957	87%
EDPR	1,272	7%	1,202	70	0%
EDP Brasil	2,332	13%	480	1,852	12%
EDP Espanha	0	0%	1	0	0%
Total	18,601	100%	3,723	14,878	100%

Source: Company reports

Methodology and scorecard

EDP is rated in accordance with our rating methodology for [Unregulated Utilities and Power Companies](#), published in May 2017. EDP's Baa3 rating is two notches lower than the scorecard-indicated outcome of Baa1, reflecting the comparison with peers, including [ENEL](#) (Baa1 stable), [Iberdrola](#) (Baa1 stable), [Naturgy](#) (Baa2 stable) and [Orsted](#) (Baa1 stable), among other.

Exhibit 16

Rating factors

EDP - Energias de Portugal, S.A.

Unregulated Utilities and Unregulated Power Companies Industry [1][2]			Current FY 12/31/2021		Moody's 12-18 Month Forward View As of July 2022 [3]	
Factor 1 : Scale (10%)	Measure	Score	Measure	Score	Measure	Score
a) Scale (USD Billion)	Aa	Aa	Aa	Aa	Aa	Aa
Factor 2 : Business Profile (40%)						
a) Market Diversification	A	A	A	A	A	A
b) Hedging and Integration Impact on Cash Flow Predictability	A	A	A	A	A	A
c) Market Framework & Positioning	Baa	Baa	Baa	Baa	Baa	Baa
d) Capital Requirements and Operational Performance	Ba	Ba	Ba	Ba	Ba	Ba
e) Business Mix Impact on Cash Flow Predictability	Aa	Aa	Aa	Aa	Aa	Aa
Factor 3 : Financial Policy (10%)						
a) Financial Policy	Baa	Baa	Baa	Baa	Baa	Baa
Factor 4 : Leverage and Coverage (40%)						
a) (CFO Pre-W/C + Interest) / Interest (3 Year Avg)	4.7x	Baa	4x - 6x	Baa	4x - 6x	Baa
b) (CFO Pre-W/C) / Net Debt (3 Year Avg)	16.1%	Ba	16% - 19%	Ba	16% - 19%	Ba
c) RCF / Net Debt (3 Year Avg)	10.1%	Ba	10% - 13%	Ba	10% - 13%	Ba
Rating:						
a) Scorecard-Indicated Outcome		Baa1		Baa1		Baa1
b) Actual Rating Assigned						Baa3

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

[2] As of 12/31/2021.

[3] This represents Moody's forward view, not the view of the issuer, and unless noted in the text, does not incorporate significant acquisitions and divestitures.

Source: Moody's Financial Metrics™

Ratings

Exhibit 17

Category	Moody's Rating
EDP - ENERGIAS DE PORTUGAL, S.A.	
Outlook	Positive
Issuer Rating	Baa3
Senior Unsecured -Dom Curr	Baa3
Jr Subordinate -Dom Curr	Ba2
Commercial Paper -Dom Curr	P-3
EDP FINANCE B.V.	
Outlook	Positive
Bkd Senior Unsecured	Baa3
Bkd Commercial Paper -Dom Curr	P-3

Source: Moody's Investors Service

Appendix

Exhibit 18

Peer comparison

EDP - Energias de Portugal, S.A.

(in EUR million)	EDP - Energias de Portugal, S.A. Baa3 Positive			Iberdrola S.A. (P)Baa1 Stable			Endesa S.A. Baa1 Stable			Naturgy Energy Group SA Baa2 Stable		
	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-19	FYE Dec-20	FYE Dec-21
Revenue	14,333	12,448	14,983	36,438	33,145	39,114	19,258	16,717	20,527	20,761	15,345	22,140
EBITDA	3,177	2,828	3,019	9,569	9,555	11,644	3,709	3,739	4,278	4,259	3,328	3,685
Total Assets	42,179	43,201	50,903	122,146	122,369	141,607	31,972	32,062	39,968	41,138	39,545	38,249
Total Debt	17,399	17,595	16,977	43,959	44,230	48,382	8,365	8,596	11,688	19,217	20,421	17,946
Net Debt	15,856	14,643	13,705	41,846	40,803	44,349	8,142	8,193	10,985	16,532	16,109	13,981
FFO / Net Debt	14.7%	16.8%	16.8%	18.5%	19.7%	21.7%	41.8%	41.2%	31.5%	20.8%	16.2%	18.0%
RCF / Net Debt	9.3%	11.1%	10.0%	14.0%	11.5%	15.8%	23.1%	22.0%	12.0%	9.5%	5.6%	6.0%
(FFO + Interest Expense) / Interest Expense	4.2x	5.2x	4.9x	6.3x	7.4x	7.6x	17.8x	18.8x	21.6x	6.6x	5.7x	5.6x
Debt / Book Capitalization	56.6%	55.3%	51.1%	44.4%	45.1%	43.4%	48.4%	50.2%	62.4%	55.5%	62.6%	64.6%

All metrics are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

Source: Moody's Financial Metrics™

Exhibit 19

Adjusted net debt calculation

EDP - Energias de Portugal, S.A.

(in EUR million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21
As Reported Total Debt	16,918	16,085	17,409	17,342	17,867
Pensions	763	759	631	630	487
Leases	928	842	0	0	0
Hybrid Securities	(370)	(370)	(867)	(869)	(1,859)
Non-Standard Public Adjustments	3	130	226	492	481
Moody's Adjusted Total Debt	18,242	17,447	17,399	17,595	16,977
Cash & Cash Equivalents	(2,344)	(1,913)	(1,543)	(2,952)	(3,272)
Moody's Adjusted Net Debt	15,898	15,534	15,856	14,643	13,705

All metrics are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

Source: Moody's Financial Metrics™

Exhibit 20

Adjusted EBITDA breakdown

EDP - Energias de Portugal, S.A.

(in EUR million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21
As Reported EBITDA	4,013	3,230	3,727	3,774	3,759
Unusual Items - Income Statement	(581)	(211)	(207)	(625)	(325)
Pensions	17	18	9	37	7
Leases	129	95	0	0	0
Non-Standard Public Adjustments	(235)	(194)	(205)	(202)	(285)
Interest Expense - Discounting	(162)	(154)	(146)	(156)	(137)
Moody's Adjusted EBITDA	3,181	2,783	3,177	2,828	3,019

All metrics are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

Source: Moody's Financial Metrics™

Exhibit 21

Select historical adjusted financial data

EDP - Energias de Portugal, S.A.

(in EUR million)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-20	FYE Dec-21
INCOME STATEMENT					
Revenue	15,746	15,278	14,333	12,448	14,983
EBITDA	3,181	2,783	3,177	2,828	3,019
EBIT	1,663	1,354	1,742	1,409	1,519
Interest Expense	762	725	737	591	589
Net income	898	445	630	503	236
BALANCE SHEET					
Net Property Plant and Equipment	23,658	23,549	20,457	21,350	22,015
Total Assets	42,860	42,353	42,179	43,201	50,903
Total Debt	18,242	17,447	17,399	17,595	16,977
Cash & Cash Equivalents	2,344	1,913	1,543	2,952	3,272
Net Debt	15,898	15,534	15,856	14,643	13,705
Total Liabilities	33,306	33,475	33,096	33,296	40,273
CASH FLOW					
Funds from Operations (FFO)	2,212	2,111	2,339	2,463	2,307
Cash Flow From Operations (CFO)	1,675	2,485	1,888	1,938	1,553
Dividends	851	878	868	832	931
Retained Cash Flow (RCF)	1,361	1,233	1,471	1,632	1,376
Capital Expenditures	(2,013)	(1,761)	(2,338)	(2,380)	(3,320)
Free Cash Flow (FCF)	(1,189)	(154)	(1,318)	(1,273)	(2,698)
INTEREST COVERAGE					
(FFO + Interest Expense) / Interest Expense	3.9x	3.9x	4.2x	5.2x	4.9x
LEVERAGE					
FFO / Debt	12.1%	12.1%	13.4%	14.0%	13.6%
RCF / Debt	7.5%	7.1%	8.5%	9.3%	8.1%
Debt / EBITDA	5.7x	6.3x	5.5x	6.2x	5.6x
Net Debt / EBITDA	5.0x	5.6x	5.0x	5.2x	4.5x

All metrics are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

Source: Moody's Financial Metrics™

Moody's related publications

Industry outlook

- » [Unregulated electric and gas utilities – EMEA: 2022 outlook stable as intervention risk, high capex overshadow earnings growth](#), 9 December 2021

Sector research

- » [Long Russia-Ukraine crisis would hit EMEA & Latam utilities and non-US airports](#), 26 April 2022
- » [European utilities have limited operations in Russia and Ukraine but are exposed to higher energy prices](#), 23 February 2022
- » [Europe's electricity markets: In Iberia, higher energy prices raise political risk, but economics continue to support decarbonisation](#), 30 November 2021
- » [Europe's electricity markets: In Europe, high energy prices will not derail the energy transition](#), 30 November 2021
- » [Unregulated electric and gas utilities – Europe: Higher energy prices raise affordability concerns and political risk](#), 7 October 2021
- » [New tax on Spanish nuclear and hydro is credit negative](#), 16 September 2021

Endnotes

- ¹ Together with [Iberdrola S.A.](#) (Baa1 stable), [Endesa S.A.](#) (Baa1 stable) and [Naturgy Energy Group SA](#) (Baa2 stable).
- ² For example, as of March 2022, 90% of the group's renewables capacity in North America benefits from long-term PPAs or hedges, with the remaining 10% only exposed to merchant price risk.
- ³ See Real Decreto-ley 11/2022 on www.boe.es/eli/es/rdl/2022/06/25/11.
- ⁴ See [Italy: Extraordinary levy is credit neutral, but points to increasing political risks](#), 25 March 2022.
- ⁵ Offshore wind is developed by Ocean Winds, the dedicated joint venture between EDPR and [ENGIE SA](#) (Baa1 stable).

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REPORT NUMBER

1313306