Euroxx Research – Renewable Energy

Company Update Report

May 7, 2021

Terna Energy

Overweight

Previous Rating: Overweight

Share Price: €11.98 (close of May 6)

12M Price Target: €16.50

Previous Target: €15.80
Expected Total Return: 41%

Estimates

	2020a	2021e	2022e	2023e
Sales (€m)	328.1	265.3	282.4	398.6
EBITDA (€m)	198.8	155.4	165.4	253.1
margin (%)	*60.6%*	*58.6%*	*58.6%*	*63.5%*
Net profit (€m)	71.8	-12.7	60.1	90.9
Net profit adj. (€m)	54.4	59.5	60.1	90.9
EPS (€)	0.62	-0.11	0.52	0.78
EPS adj. (€)	0.47	0.51	0.52	0.78
EPS adj. chng (%)	*-0.1%*	*9.5%*	*1.0%*	*51.2%*
EPS adj. Old (€)	0.55	0.59	0.70	0.96
EPS New vs. Old	-	*-12.7%*	*-26.0%*	*-17.9%*
DPS/Cap. return (€)	0.37	0.38	0.41	0.45

Source: Terna Energy, Euroxx Research

Ratios

	2020a	2021e	2022e	2023e
P/E adj. (x)	25.5	23.3	23.1	15.3
EV/EBITDA (x)	11.8	14.9	15.5	9.7
EV/EBIT adj.(x)	18.2	19.7	21.2	15.2
EV/Sales (x)	7.1	8.7	9.1	6.2
Dividend Yield (%)	3.1%	3.2%	3.4%	3.7%
P/BV (x)	2.9	3.2	3.1	2.8
Net Debt*/EBITDA (x)	4.7	5.9	7.0	4.2

*Source: Terna Energy, Euroxx Research * net debt incl. tax equity*

Stock Performance

	3M	6M	12M	YTD
Absolute	-15.2%	5.3%	45.0%	-9.2%
Difference (ATG)	-34.2%	-49.5%	-6.5%	-21.8%

Stock Data:

Market Cap (€ m)	1,387.9
Outstanding shares (#)	115,855,090
Daily volume (#)	400,427
Low / High 52 w (€)	8.09 / 14.80
Free float	45.0%
Bloomberg / Reuters	TENERGY GA / TENr.AT

Company Description:

Terna Energy (TE) is a vertically organized RES company undertaking the Development, Construction, Financing, and Operation of renewable energy projects (wind, hydro, solar, biomass, waste management). With 1,373MW of RES installed capacity, TE is the market leader in Greece (728MW), while it has also set footprint in Poland, Bulgaria and the USA where it operates a total of 645MW in wind parks. TE now aims at 3.0GW of installed capacity by 2025e.

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Remains the Best Proxy for the Attractive Greek RES Market

Upcoming Energy Market Transition is Key – Greece's 2030 targets, its lignite phase-out, the streamlining of the RES permitting process and the finalization of the new legislative framework for offshore wind and storage projects (expected in June'21) are positive steps that will assist the unlocking of sizeable investments in the domestic RES sector. In our view, TE, with its solid track record and execution capabilities, is well-placed to grab a significant share of the needed capacity additions.

Wind Capacity in Texas Faced Challenges Due to Unprecedented Weather Conditions in Feb'21: TE owns three wind projects in Texas aggregating 513MW (c38% of its total installed capacity). All three projects had been operationally constrained during this unprecedented period, hence in order to meet its own delivery obligations, TE had to buy electricity at abnormally high prices leading to a claim of $179m from Hedge providers. However, the management has stressed that the maximum loss in no way will exceed €95m (equity value of $130m minus $15m accumulated losses).

TE After the Disengagement of Texas Assets: Strong Earnings Momentum Still in Place Driven by Greece - according to the management, the disengagement from the projects in Texas is the most possible scenario for TE, in order to constrain the losses at its US subsidiary's equity value of €95m. As a result, after deducting 513MW from TE's total RES installed capacity of 1,373MW (1,204MW wind, 18MW hydro, 9MW solar/PV and 1MW biomass), we now expect capacity to reach 1,687MW by end-2023e, implying 827MW new additions in Greece. We believe financing for the 2021-24e CapEx of c€943m is mostly secured by a combination of strong FCF generation and TE's leverage capacity (2020 net debt/EBITDA of 4.7x). We have fine-tuned our previous forecasts to account for the retired capacity in Texas and the inclusion of 400MW of PV parks in Greece (expected to come on stream in 2022-23e). All in, our new estimates still suggest a strong earnings momentum, with 2020-24e sales/EBITDA/adj. EPS CAGRs of 5.8%/7.9%/15.6%. We also continue to assume a generous shareholder remuneration policy, with total yield (DPS and/or capital return) of 3.1-4.1% in 2020-24e, well ahead of European peers.

Remains at O/W / TP Raised to €16.50 (41% Total Upside) – from €15.80, largely due to our lower WACC assumption of 7.1% (from 7.5% previously) and the new PVs in Greece, which more than offset the negative impact from Texas assets disengagement.

Valuation wise, following the Texas-driven price drop (down 9% YTD, underperforming the domestic market by 22%), and accounting also for the lower EBITDA but also leverage, TE's 2021e EV/EBITDA of 14.9x still implies a 5% discount against its foreign/European peers (hefty discounts in P/E terms remain). Note that TE's EV/EBITDA of 9.7x in 2023e (upon deployment of Kafireas project) implies a 23% discount against peers, while our new TP implies a target EV/EBITDA of 11.3x (i.e. 2024e upon full deployment of the PV parks).

Summary of Financials

in € m, unless otherwise stated

PROFIT & LOSS (€m)	2020	2021e	2022e	2023e	2024e
Sales	**328.1**	**265.3**	**282.4**	**398.6**	**410.9**
% chng	*9.7%*	*-19.1%*	*6.4%*	*41.2%*	*3.1%*
EBITDA	**194.7**	**155.4**	**165.4**	**253.1**	**263.6**
% chng	*7.0%*	*-20.2%*	*6.4%*	*53.0%*	*4.1%*
Depreciation	-70	-38	-44	-91	-96
EBIT	**124.5**	**117.2**	**121.2**	**161.9**	**167.8**
% chng	*1.3%*	*-5.9%*	*3.4%*	*33.6%*	*3.6%*
Adj. EBIT	**128.6**	**117.2**	**121.2**	**161.9**	**167.8**
% chng	*2.5%*	*-8.9%*	*3.4%*	*33.6%*	*3.6%*
Net Financials	-61.8	-36.9	-40.2	-40.4	-37.3
Other	0.2	0.2	0.2	0.2	0.2
Pre-tax profit	**90.0**	**-14.6**	**81.2**	**121.7**	**130.8**
% chng	*29.2%*	*n/a*	*n/a*	*49.9%*	*7.4%*
Adj. EBT	**67.1**	**80.4**	**81.2**	**121.7**	**130.8**
% chng	*-7.1%*	*19.9%*	*0.9%*	*49.9%*	*7.4%*
Income tax	16.6	-3.5	19.5	29.2	31.4
% effective tax rate	18.5%	24.0%	24.0%	24.0%	24.0%
Minority stake	1.6	1.6	1.6	1.6	1.6
Net profit	**71.8**	**-12.7**	**60.1**	**90.9**	**97.8**
% chng	*39.3%*	*n/a*	*n/a*	*51.2%*	*7.6%*
Adj. Net Profit	**54.4**	**59.5**	**60.1**	**90.9**	**97.8**
% chng	*1.6%*	*9.5%*	*1.0%*	*51.2%*	*7.6%*
EPS (in €)	**0.62**	**-0.11**	**0.52**	0.78	0.84
% chng	*36.9%*	*n/a*	*n/a*	*51.2%*	*7.6%*
Adj. EPS (€)	**0.47**	**0.51**	**0.52**	**0.78**	**0.84**
% chng	*-0.1%*	*9.5%*	*1.0%*	*51.2%*	*7.6%*
Dividends and Capital Return	**43.3**	**44.2**	**47.3**	**52.0**	**57.2**
Distributions per Share (€)	0.37	0.38	0.41	0.45	0.49
% chng	*-26.7%*	*2.0%*	*7.0%*	*10.0%*	*10.0%*

BALANCE SHEET (€m)	2020	2021e	2022e	2023e	2024e
Net fixed assets	1,408.9	1,339.2	1,644.8	1,603.6	1,557.9
Other non-current assets	83.6	83.6	83.6	83.6	83.6
Total non current assets	**1,492.5**	**1,422.8**	**1,728.4**	**1,687.2**	**1,641.5**
Inventory	5.8	2.8	3.1	4.5	4.9
Trade receivables, of which	84.9	87.6	85.8	85.4	83.6
…LAGIE & DEDDIE receivables	85.9	83.9	81.9	79.9	77.9
…other trade receivables	-1.0	3.6	3.9	5.5	5.6
Other current assets	100.4	84.9	87.5	119.6	119.2
Cash & other liquid assets	290.9	286.7	348.5	352.1	316.8
Total current assets	**482.1**	**462.0**	**524.9**	**561.6**	**524.4**
TOTAL ASSETS	**1,974.6**	**1,884.8**	**2,253.3**	**2,248.8**	**2,165.8**
Total Group Debt	**954.1**	**1,198.0**	**1,512.2**	**1,415.2**	**1,291.3**
Total Adj. Group Debt *	**1,235.3**	**1,198.0**	**1,512.2**	**1,415.2**	**1,291.3**
Group Adj. Net Debt / (Cash) *	**944.4**	**911.3**	**1,163.7**	**1,063.1**	**974.6**
Share capital	34.8	34.8	34.8	34.8	34.8
Share premium	209.9	209.9	209.9	209.9	209.9
Reserves & retained earnings	239.8	183.8	199.7	243.3	289.0
Shareholders' equity	**484.4**	**428.4**	**444.3**	**487.9**	**533.7**
Minority interest	11.3	12.9	14.5	16.1	17.6
Long-term liabilities	**1,259.3**	**1,243.7**	**1,495.7**	**1,413.8**	**1,293.0**
Long - term loans	857.2	1,083.8	1,313.9	1,228.1	1,118.4
Provisions	22.1	22.1	22.1	22.1	22.1
Deferred tax liability	32.5	32.5	32.5	32.5	32.5
Grants	82.1	105.3	127.2	131.2	120.1
Other long-term liabilities (Tax Equity)	265.4	0.0	0.0	0.0	0.0
Short-term liabilities	**219.6**	**199.9**	**298.9**	**331.1**	**321.5**
Short - term loans	96.9	114.2	198.3	187.1	172.9
Other short-term liabilities	122.8	85.7	100.6	143.9	148.6
TOTAL EQUITY & LIABILITIES	**1,974.6**	**1,884.8**	**2,253.3**	**2,248.8**	**2,165.8**

CASH FLOW (€m)	2020	2021e	2022e	2023e	2024e
EBT	**90.0**	**-14.6**	**81.2**	**121.7**	**130.8**
Depreciation	71.9	38.3	44.2	91.2	95.8
Net Financials	61.8	36.9	40.2	40.4	37.3
Other (mainly amortisation of subsidies)	-29.0	85.2	-11.1	-11.1	-11.1
Change in inventories	1.8	3.0	-0.3	-1.4	-0.4
Change in trade receivables	-10.6	-2.6	1.8	0.4	1.8
Change in trade creditors	9.0	-6.8	3.4	17.2	1.4
Change in other assets/liabilities	-14.6	-11.3	-10.6	-35.1	-27.7
Tax paid	-8.6	-5.9	-9.8	-25.1	-30.5
Working Capital change	-5.9	-11.8	4.1	6.2	5.6
Net Interest Expense paid	-61.8	-36.9	-40.2	-40.4	-37.3
CF from operations	**118.4**	**91.1**	**108.6**	**182.9**	**190.5**
CapEx	**-105.3**	**-543.5**	**-349.8**	**-50.0**	**-50.0**
Proceeds from Sales of Fixed Assets	45.8	0.0	0.0	0.0	0.0
Grants	0.0	33.0	33.0	15.0	0.0
CF from investing activities	**-59.5**	**-510.5**	**-316.8**	**-35.0**	**-50.0**
Operating FCF	**58.9**	**-419.4**	**-208.2**	**147.9**	**140.5**
FCFE (Exx)	**81.7**	**-409.7**	**-197.3**	**158.8**	**151.4**
Change in Capital	67.1	0.0	0.0	0.0	0.0
Dividends and Capital Return	-60.9	-43.3	-44.2	-47.3	-52.0
Debt change	55.7	458.5	314.2	-97.0	-123.9
Tax Equity	-52.5	0.0	0.0	0.0	0.0
CF from financing activities	**9.5**	**415.2**	**270.0**	**-144.3**	**-175.9**
Change in Cash	68.3	-4.2	61.8	3.6	-35.4
Cash at the beginning	257.5	290.9	286.7	348.5	352.2
Cash at end	**325.8**	**286.7**	**348.5**	**352.2**	**316.8**

RATIO ANALYSIS	2020	2021e	2022e	2023e	2024e
P/E (x) - adj.	**25.5x**	**23.3x**	**23.1x**	**15.3x**	**14.2x**
EV/Sales (x)	7.1x	8.7x	9.1x	6.2x	5.8x
EV/EBITDA (x) *	**11.8x**	**14.9x**	**15.5x**	**9.7x**	**9.0x**
EV/EBIT (x) - adj.	18.2x	19.7x	21.2x	15.2x	14.2x
P/BV (x)	2.9x	3.2x	3.1x	2.8x	2.6x
Dividend Yield (%)	**3.1%**	**3.2%**	**3.4%**	**3.7%**	**4.1%**
FCF Yield (%)	6.0%	-30.0%	-14.5%	11.6%	0.0%
Net debt / EBITDA (x)	**3.3x**	**5.9x**	**7.0x**	**4.2x**	**3.7x**
Adj. Net debt / EBITDA (x) *	**4.7x**	**5.9x**	**7.0x**	**4.2x**	**3.7x**
Adj. Net debt / Equity (x)	1.9x	2.1x	2.5x	2.1x	1.8x
ROE (%)	14.8%	-3.0%	13.5%	18.6%	18.3%
ROCE (%)	7.1%	6.6%	5.7%	7.9%	8.5%
EBITDA margin (%)	**60.6%**	**58.6%**	**58.6%**	**63.5%**	**64.1%**
EBIT margin (%)	38.0%	44.2%	42.9%	40.6%	40.8%
Pre-tax profit margin (%)	27.4%	-5.5%	28.8%	30.5%	31.8%
Adj. Pre-Tax margin (%)	20.4%	30.3%	28.8%	30.5%	31.8%
Net profit margin (%)	21.9%	-4.8%	21.3%	22.8%	23.8%
Adj. Net profit margin (%)	16.6%	22.4%	21.3%	22.8%	23.8%

Source: Terna Energy, Euroxx Research *Note: Total Adj. Group Debt and Adj. Group Net Debt includes tax equity liability*

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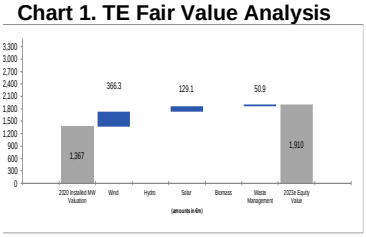
Valuation & Rating Update

We still value TE with a 2-stage DCF, which now returns a TP of €16.50 (from €15.80); Remains at O/W

In our base-case scenario, we assume the disengagement of US projects. We continue to apply a two-stage DCF model, in which we continue to form an explicit set of forecasts for the period up to 2024e, after which we assign a terminal growth of 1.0%. We lower the WACC at 7.1% (from 7.5% previously) in order to account mainly for the drop in 10-year GGB yield below 1%. Our updated DCF model returns a TP of **€16.50** per TE's share (from €15.80 previously), which implies 40.8% total upside potential from the current share price levels. Hence, we reiterate our **Overweight** rating on TE.

Chart 1. TE Fair Value Analysis



Note that the TP increase largely reflects our lower WACC assumption in Greece and the inclusion of new PV parks. Our new TP implies a target EV/MW of €1.36m, or alternatively a target EV/EBITDA multiple of 11.3x based on full deployment, i.e. 2024e installed capacity of 1.74GW, EBITDA of €263m and net debt of €1.05bn. Our €16.50 TP implies a fair value of c€11.79/sh, €3.16/sh, c€1.11/sh and €0.41/sh for existing installed capacity, wind parks under construction, solar parks under construction and Peloponese waste management project, respectively (please see Chart 1).

Table 1. TE DCF Valuation

DCF Valuation (in €m)	2020a	2021e	2022e	2023e	2024e	Terminal
Revenues	**328**	**265**	**282**	**399**	**411**	**415**
EBIT	129	117	121	162	168	170
Less: Adjusted Tax	17	(3)	19	29	32	27
NOPAT	**112**	**121**	**102**	**133**	**135**	**143**
Depreciation & Other	70	38	44	91	96	97
Working Capital Δ	6	12	(4)	(6)	(6)	-
CapEx	60	511	317	35	50	35
Cash Flow to the Firm (FCFF)	**117**	**(363)**	**(167)**	**195**	**187**	**204**
Present Value of Cash Flows	-	(339)	(145)	159	142	2,551

% Terminal Value of Total	107.8%
Enterprise Value	**2,367**
Less: Net debt (FY'20a)*	444
Minorities (FY'20a)	11
Value of Equity	**1,911**
Number of Shares (m)	115.86
Current Price (€)	11.98
Value of share (€)	**16.50**
% total upside potential	***41%***

Source: Euroxx Research

TP sensitivity to WACC and terminal growth

	0.0%	0.5%	1.0%	1.5%	2.0%
6.1%	€ 16.2	€ 18.3	€ 20.8	€ 23.8	**€ 27.6**
6.6%	€ 14.5	€ 16.3	€ 18.4	€ 20.9	€ 24.0
7.1%	€ 13.2	€ 14.7	**€ 16.5**	€ 18.6	€ 21.1
7.6%	€ 11.9	€ 13.3	€ 14.8	€ 16.6	€ 18.8
8.1%	**€ 10.9**	€ 12.0	€ 13.4	€ 14.9	€ 16.8

Source: Euroxx Research *Note: FY'20a Net Debt adjusted for the reduction of the deleverage due to Texas disengagement*

TP sensitivity to WACC and long-term growth

The table above shows our sensitivity analysis based on WACC and long-term growth. For every 50bps delta in our 7.1% WACC assumption there is c€1.8/share sensitivity (c11%) on average in our DCF-based appraised value, and for every 50bps delta in our 1% long-term growth assumption the sensitivity in our TP stands at €2.0/share (c12%).

Scenario Analysis

For illustration purposes, we present below a scenario analysis, which also includes the (unlikely according to TE's management) event of NY Courts ruling in favour of TE in early Q2'21 (note that TE has taken legal actions to invocate the unprecedented weather conditions as a force majeure event). Under a best-case scenario of zero impact from the Texas storm, our TP would amount to €18.5/share.

Table 2. Scenario Analysis

	2020		2021e				2022e				2023e			
(amounts in €m)		*y-o-y*	Best Case	Base Case	*Δ %*	*y-o-y*	Best Case	Base Case	*Δ %*	*y-o-y*	Best Case	Base Case	*Δ %*	*y-o-y*
- RES EBITDA	194.1	*10.2%*	205.5	150.1	*-27.0%*	*-22.6%*	209.5	157.4	*-24.9%*	*4.9%*	296.4	242.1	*-18.3%*	*53.8%*
% of total EBITDA	*99.7%*		*97.5%*	*96.6%*			*96.3%*	*95.2%*			*96.4%*	*95.7%*		
EBITDA margin	*71.0%*		*71.5%*	*72.9%*			*71.3%*	*72.5%*			*72.7%*	*111.5%*		
Group EBITDA	**194.7**	***7.0%***	**210.8**	**155.4**	***-26.3%***	***-20.2%***	**217.5**	**165.4**	***-23.9%***	***6.4%***	**307.3**	**253.1**	***-17.6%***	***53.0%***
EBITDA margin	*59.4%*		*60.8%*	*58.6%*			*60.6%*	*58.6%*			*64.2%*	*89.6%*		
Depreciation	70.2	*18.9%*	67.1	38.3	*-43.0%*	*-45.5%*	70.1	44.2	*-36.9%*	*15.6%*	100.2	91.2	*-9.0%*	*106.2%*
Group EBIT	**124.5**	***18.2%***	**143.7**	**117.2**	***-18.4%***	***-5.9%***	**147.4**	**121.2**	***-17.8%***	***3.4%***	**147.4**	**121.2**	***-17.8%***	***0.0%***
EBIT margin	*38.0%*		*41.5%*	*44.2%*			*41.1%*	*42.9%*			*30.8%*	*42.9%*		
Net financials	(61.8)	*1.8%*	(73.4)	(36.9)	*-49.7%*	*-40.2%*	(76.9)	(40.2)	*-47.7%*	*8.8%*	(67.9)	(40.4)	*-40.5%*	*0.5%*
Group EBT	**90.0**	***57.8%***	**70.8**	**-14.6**	***n/a***	***n/a***	**71.0**	**81.2**	***14.3%***	***n/a***	**139.7**	**81.2**	***-41.9%***	***0.0%***
EBT margin	*27.4%*		*20.4%*	*-5.5%*			*19.8%*	*28.8%*			*29.2%*	*28.8%*		
Taxes	*(16.6)*	*1.3%*	*(17.0)*	*3.5*	*n/a*	*n/a*	*(17.0)*	*(19.5)*	*14.3%*	*n/a*	*(33.5)*	*(29.2)*	*-12.9%*	*49.9%*
Effective tax rate	*18.5%*		*24.0%*	*24.0%*			*24.0%*	*24.0%*			*24.0%*	*36.0%*		
Group Net Profit	71.8	*39.3%*	52.1	-12.7	*n/a*	*n/a*	52.3	60.1	*15.0%*	*n/a*	104.5	90.9	*-13.0%*	*51.2%*
Net margin	*21.9%*		*15.0%*	*-4.8%*			*14.6%*	*21.3%*			*21.8%*	*32.2%*		
Group Adj. Net Profit	**54.4**	***1.6%***	**52.1**	**59.5**	***14.2%***	***9.5%***	**52.3**	**60.1**	***15.0%***	***1.0%***	**104.5**	**90.9**	***-13.0%***	***51.2%***
Adj. net margin	*16.6%*		*15.0%*	*22.4%*			*14.6%*	*21.3%*			*21.8%*	*32.2%*		
EPS (€)	0.62	*36.9%*	0.43	-0.11	*n/a*	*n/a*	0.44	0.52	*19.2%*	*n/a*	0.87	0.78	*-9.8%*	*51.2%*
Adjusted EPS (€)	**0.47**	***-0.1%***	**0.43**	**0.51**	***18.4%***	***9.5%***	**0.44**	**0.52**	***19.2%***	***1.0%***	**0.87**	**0.78**	***-9.8%***	***51.2%***
DPS & Capital Return (€)	**0.37**	***-26.7%***	**0.41**	**0.38**	***-7.3%***	***2.0%***	**0.45**	**0.41**	***-9.8%***	***7.0%***	**0.50**	**0.45**	***-9.8%***	***10.0%***

Source: Terna Energy, Euroxx Research

Compelling investment case

Overall, we continue to favour TE due to the following factors:

a) its relatively immune to Covid-19 business model and profitability,

b) Following the imminent disengagement of Texas assets (513MW), TE will focus on the attractive Greek RES market, which through a stable regulatory regime and favourable wind resources, offers visible cash flows; moreover, in our view, the domestic renewables sector is poised to play a key role in Greece's recovery from the economic impact of the pandemic and should benefit considerably from funding from the EU's Green Recovery Fund,

c) its strong growth potential (sales, EBITDA and adj. EPS 2020-24e CAGRs of 5.8%, 7.9% and 15.6%, respectively), driven by new capacity additions, for which financing is mostly secured, in our view; note that the recent wind farm sale in Idaho and the €68.5m SCI in cash should also assist TE to cover its CapEx in future investments,

d) its solid share price performance on a yearly basis (up 45.0% y-o-y, and despite the recent Texas-driven share price weakness) and dividend sustainability

e) the stock's defensive qualities and limited downside risk, since the return on wind farm assets is fairly predictable and TE's RES revenue stream is mostly determined from state-incentivized FiTs, PPAs over the life of the asset and relatively stable wind conditions.

Attractive Relative Valuation; High Returns to Shareholders

TE trades at 23% discount vs. European peers on 2023e EV/EBITDA (upon deployment of Kafireas project); TE also offers a higher return to shareholders

On a yearly basis, TE has gained 45.0% in absolute terms (excluding the €0.17 capital return paid in June'20 and the €0.17/share paid in Dec'20); that said, the stock is down 9% YTD, due to the Texas event. Accounting also for the Texas disengagement-driven decrease in leverage and related EBITDA loss, TE's 2021e EV/EBITDA of 14.9x still implies a 5% discount against its foreign/European peers. The discount turns into a premium in 2022e, as net debt increases due to the heavy CapEx; TE's EV/EBITDA of 9.7x in 2023e (upon deployment of Kafireas project) implies a 23% discount against peers, while TE's EV/EBITDA falls to a very comfortable 9.0x in 2024e, courtesy of the full contribution of the new investments and the declining CapEx.

In a similar fashion, valuation discounts get even higher in P/E terms (c50% relative to European peers), while TE offers a significantly higher return to shareholders (either in terms of ordinary dividend or capital return) of 3.2-3.7% in 2021-23e vs. 0.5-0.7% for peers. Finally, TE trades at par vs. its peers in terms of EV per installed MW. Bear in mind, however, that direct cross-border comparisons should be treated with caution, due to differences in size, geographical dispersion, regulatory framework and production mix.

Table 3. Peer Group Valuation

Company	Bloomberg Ticker	Price (€)	Mcap (€m)	EV* (€m)	-----EV/Sales (x)------ 2021e	2022e	2023e	-----EV/EBITDA (x)------ 2021e	2022e	2023e	--------P/E (x)--------- 2021e	2022e	2023e	---Div. Yield (%)--- 2021e	2022e	2023e	-Net Debt/EBITDA (x)- 2021e	2022e	2023e	Installed MW	EV / MW (€m)
EDP Renovaveis	EDW GR	18.54	17,809	23,247	12.2x	11.2x	10.3x	13.7x	13.1x	12.4x	35.0x	31.7x	28.7x	0.5%	0.6%	0.6%	1.9x	2.2x	2.5x	11,500	2.02
Falck Renewables	FKR IM	5.57	1,623	2,429	5.9x	5.4x	5.4x	12.6x	11.6x	11.2x	44.6x	31.3x	27.9x	1.2%	1.2%	1.3%	-	-	-	1,196	2.03
Voltalia	VLTSA FP	21.70	2,069	2,738	8.7x	7.0x	6.3x	18.5x	15.6x	13.0x	63.3x	43.4x	29.8x	0.0%	0.2%	0.3%	5.6x	5.6x	4.9x	1,015	2.70
Neoen	NEOEN FP	34.24	3,663	5,932	15.8x	12.6x	10.1x	17.6x	15.4x	13.4x	89.6x	64.4x	45.4x	0.0%	0.2%	0.7%	5.8x	6.0x	5.8x	2,615	2.27
ERG	ERG IM	24.16	3,632	5,189	4.8x	4.7x	4.6x	10.2x	9.3x	8.9x	32.5x	26.9x	26.0x	3.1%	3.1%	3.0%	2.9x	2.6x	2.4x	3,116	1.67
Solaria Energia	SLR SM	15.50	1,936	2,275	22.3x	12.4x	9.1x	34.3x	20.3x	16.0x	62.2x	30.7x	23.6x	-	-	-	10.2x	7.1x	6.3x	550	4.14
Foreign Peers Median					**10.4x**	**9.1x**	**7.7x**	**15.6x**	**14.2x**	**12.7x**	**53.4x**	**31.5x**	**28.3x**	**0.5%**	**0.6%**	**0.7%**	**5.6x**	**5.6x**	**4.9x**		**2.15**
Terna Energy	**TENERGY GA**	**11.98**	**1,388**	**1,844**	**14.9x**	**15.5x**	**9.7x**	**14.9x**	**15.5x**	**9.7x**	**23.3x**	**23.1x**	**15.3x**	**3.2%**	**3.4%**	**3.7%**	**5.9x**	**7.0x**	**4.2x**	**860**	**2.14**
Premium / (discount) to foreign peers					*42%*	*70%*	*27%*	*-5%*	*9%*	*-23%*	*-56%*	*-27%*	*-46%*	*542%*	*480%*	*413%*	*4%*	*25%*	*-15%*		*0%*

Source: Bloomberg, Euroxx Research, Companies presentations. Closing prices as of 21Apr'21 Note: EV reduced by €500m US net debt

Investment Risks & Future Potential Catalysts

Medium risk profile with currently stable cash flows but in heavily regulated industry with the latest RES bill calling for lower IRR in future projects

We believe TE offers a medium risk profile. The revenue stream of the units that were operational by 2020 is determined largely from State-incentivized FiTs, PPAs over the life of the wind farm and relatively stable wind conditions in recent years. On the other hand, TE operates in heavily regulated markets both in Greece and abroad, while the latest RES bill calls for downward pressure in tariffs, which implies lower IRR in future projects, despite the lower required CapEx in new RES technology (c€1m/MW from c€1.25m/MW).

In our view, TE's key downside risks include the following:

- **Future Price Fluctuation/Pressure -** The latest RES bill calls for a tender/auction process for the entrance of the units to the system at a price that will be equal to the wholesale price plus a feed-in premium, contrary to the current fixed FiT. This implies that any additional capacity beyond 2019 should be subject to potential downward pressures (mainly from international players, which enjoy lower financing costs), while TE will also need to start accounting for risk (and costs) linked to market participation and imbalances which could negatively affect profitability. Greece's current auction system was expiring at the end of 2020 however following the approval of Brussels the RES auctions (a system which still secures a fixed 20-year tariff for new wind and solar energy installations) will be extended by 2024e. That said, the 330MW out of the 427MW which are going to be installed by 2022e are awarded with tariffs significantly higher (c€98/MWh) than the prices which were shaped at the latest RES capacity auctions (average auction price at €63/MWh). Furthermore, TE, through its aggregator/subsidiary "Optimus Energy", will have the ability to hedge its market imbalance risks.

- **Execution Risks -** the coronavirus outbreak may have slowed TE's solar and wind energy investments as it has caused delays in licensing process as well as in the schedules of equipment deliveries. That said, the streamlining of the permitting process for renewables by the Greek authorities may partly mitigate these delays.

- **Project Financing / Borrowing Costs –** Covid-19 has caused a turmoil in credit/equity markets and/or Greek banks' limited flow of financing to Greek enterprises which may affect TEs' ability to raise the necessary capital to develop its pipeline, or at rates that will be attractive enough to generate an adequate ROI. In addition, the Covid-19 crisis poses a risk to the energy market's liquidity: specifically, a sharp increase in the level of unpaid electricity bills, the significant drop of CO_2 emission rights and the drop in electricity demand, could destabilize the RES Special Account's financial standing. According to DAPEEP, the RES Special Account is estimated to end up with a surplus of €11.07m in 2021e benefited by the recent measures announced by Ministry of Energy and Environment and despite the fact that the year started with a deficit of €263.76m, which increased in January to €315.29m. It is worth noting here that according to Afry which was assigned by RAE to conduct a study on RES special account in its baseline scenario with all the proposed measures by Ministry of Energy & Environment implemented is projected to accumulate a surplus ranging between €2.5bn and €2.7bn by 2030e. In its adverse scenario, the surplus accumulated in 2030e is just €36m.

- **Political & Macro Risks in Greece**: Although the operation of wind farms per se has little to do with the domestic economic or political environment, in our view, a worsening macro environment could increase the country's risk premium and hence borrowing costs.
- **Lower-than-Expected Wind Capacity Factors** - at the company's domestic and/or foreign sites may adversely impact profitability.

On the contrary, future potential catalysts to TE's performance include:

- **The Implementation of its Large RES Pipeline** - Higher-than-expected installation rates in wind parks would positively affect TE's long-term financials.
- **Lower Wind Turbine Prices** - Further cuts in RES technology/facility purchase and installation costs for both solar and wind energy, coupled with higher productivity gains for new technology turbines could enable the development of sustainable projects even with lower future tariffs and in areas offering lower wind energy potential.
- **Lower Financing Costs** – for domestic players, following the recent drop in GGB yields, could render them more competitive vis-à-vis their foreign rivals.
- **Storage & Offshore Wind Parks –** The finalization of the legislative framework (expected in June'21) and license permission procedure could pave the way for the launch of the development of the pumped storage projects in the area of Amfilochia and Amari, or the offshore wind parks such as the three (3) floating photovoltaic (FPV) systems in the area of Kastraki and Pournari. More specifically, assuming a target EV/EBITDA of 11.3x, the project of Amfilochia (€50m EBITDA, €80m Equity, €270m Debt and €150m subsidy) could create a fair value of up to €295m or €2.5/share (construction phase is 3-4 years).

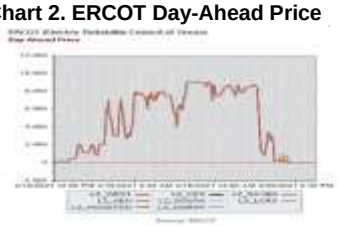
Recent Developments

TE's wind capacity in Texas, USA, faces challenges due to the unprecedented weather conditions in the area in Feb'21

TE's wind capacity in Texas US faces challenges due to the unprecedented weather conditions in the area in Feb'21

In more detail, the deep freeze has forced the shutdown of refineries and oil wells, froze essential components of the state's electricity and gas distribution systems and severely disrupted electricity generation by thermal and renewable assets in large parts of West/Central Texas. TE owns three wind projects in Texas aggregating 520MW (c38% of its total installed capacity) in installed capacity. All three projects have been operationally constrained and have been unable to provide electricity during this unprecedented period, facing potentially adverse financial impact. In order to meet its own delivery obligations (PPA agreements for c85% of its expected production), TE had to buy electricity for several days at abnormally high pricing conditions, because the lack of availability drove up wholesale market prices to more than $9,000/MWh from less than $50/MWh before the storm (see Chart 2)

Chart 2. ERCOT Day-Ahead Price



TE's parks in Texas could be valued at c€231m or c€2.0/share based on the assumptions of €55m EBITDA p.a. and c€500m net debt

In financial terms, all the three projects generate c5.5GWh per day and c2,000GWh annually, while they contribute c€50m EBITDA p.a. (c25% and c16% of TE's total 2020 and 2022e Exx EBITDA estimates, respectively). According to the management, the Equity contribution to these projects amounts to $130m, net debt (incl. TEI) is shaped at c€500m (all the loans are non-recourse) and CapEx spent at $700m. TE has disclosed that the total claim from Hedge providers during the period from 13Feb'21 to 19Feb'21 reached $179m, however, they stressed that the maximum loss in no way will exceed €95m (Equity value of $130m minus $20m accumulated losses).

However, the company is considering a number of measures for the optimal management of any financial impact, including the invocation of the abovementioned unprecedented weather conditions as a force majeure event (the case could be decided in NY Courts in Q2'21) We should note here that TE's management expects the Courts to decide negatively on the case and has stressed that the most possible scenario is TE's disengagement from its US Assets. Finally, in valuation terms, US foreign peers trade at 13.3x 2021e EV/EBITDA, hence TE's parks in Texas could be valued at c€231m or €2.00/share based on the assumptions of €55m EBITDA p.a. and c€500m net debt.

TE was the winning bidder of the tender for the project "Hybrid system for the production of electricity & heat from RES on the island of Agios Efstratios"

TE was the winning bidder of the tender of the Centre for Renewable Sources & Energy Saving (CRES) for the project "Hybrid system for the production of electricity & heat from RES on the island of Agios Efstratios"

TE was the winning bidder of the tender of the Centre for Renewable Sources & Energy Saving (CRES) for the project "Hybrid system for the production of electricity & heat from RES on the island of Agios Efstratios". Total budget of the project (construction of the hybrid system and operation and maintenance service fees for 12 years) stands at €7.7m (inclusive of VAT) while construction period is 25 months.

The project refers to the design, procurement, installation and commissioning of: a) a Hybrid Power Plant for generating power from Renewable Energy Sources (RES) on Agios Efstratios island, comprising a wind turbine, a photovoltaic station, storage accumulators and an Energy Management and Monitoring System, and b) an integrated system of remote heating of the Ai Stratis community, including building facilities. The remote heating system will include central units for heat production and storage (hot water tanks), as well as the distribution network of thermal energy to end consumers. Thermal energy produced will suffice for covering heating and hot water needs of all houses at the entire Agios Efstratios settlement. The two subsystems will correlate and function as one. The aim is a penetration of 85% or more of the Renewable Energy Sources in the island's electricity system, as well as deploying RES to meet community needs in heat and hot water to the largest extend.

Corporate Actions: Share Buyback and Dividend Distribution

EGM on 20Oct'20 approved a new share buy-back programme up to 10% of total shares

The EGM on 20Oct'20 approved among others the cessation of share buyback which was approved on 29April'20, the cancellation of all treasury shares and the decrease of TE's share capital by the amount of €1,287,980. Furthermore, it approved a new share buyback programme up to 10% of the total shares at a price range of €0.30-30.0/share, which will take place within a period of 24 months, i.e. no later than 19Oct'22, in order to decrease TE's share capital and cancel all treasury shares that will be acquired and / or give to members of its personnel and/or Management.

TE distributed on 28Dec'20 an extra dividend of 0.17/share

The EGM on 16Dec'20 approved a) the distribution of extra dividend of €0.17/share (DY at 1.3%) from profits and provisional reserves of the financial years up to 2019 with ex-date and payment on 21Dec'20 and 28Dec'20, respectively, and b) the granting of shares to executive members of the BoD and senior executives by issuing up to 2.5m new shares through capitalization of share premium reserves. Recall that TE also distributed on 29June'20 a DPS of €0.17/share and a capital return of €0.17/share on 11March'20 (total distribution yield at c4.0%).

BoD proposed a dividend distribution of €0.17/share with ex-date and payment on 22June'21 and 28June'21, respectively

Finally, on 27Apr'21, the BoD proposed distribution of dividends from TE's reserves of FY'20, of a total amount of €19,695,365, i.e. €0.17/share with ex-date and payment on 22June'21 and 28June'21, respectively.

Changes in Shareholder Structure

Mr. G. Peristeris, Chairman of the BoD, reduced his stake in TE to 11.00% (from 19.5%)

Mr. Georgios Peristeris, executive member, Chairman of the BoD, reduced his stake in TE to 11.05% (from 19.5%) through three transactions in March'21 and April'21 at a total value of €103.7m (i.e. at €13.0/share). The reason for the sale was to raise funds to finance the increase of his stake in GEK TERNA, TE's parent, following the decision of GEK TERNA's major shareholder Reggeborgh Invest to disinvest, after a successful and profitable investment presence in the company. Part of this stake (6.0% or 6,923,053 shares) was acquired by the Greek shipowner Mr. E. Marinakis (through legal entity Atale Enterprises Ltd). TE's remaining shareholders are GEK TERNA (37.93%), while the rest is free float (45.02%).

Measures Announced By Ministry of Energy and Environment to Balance RES Special Account

Ministry of Energy and Environment submitted on 3Dec'20 to the Parliament the new measures in order to balance the RES special account

The Ministry of Energy and Environment submitted on 3Dec'20 to the Parliament the new measures in order to balance the RES special account including among other a €220m contribution of RES producers and energy suppliers (€110m each) for 2020 and some corrective actions to enhance the transition to Target Model i.e. the extension of RES auctions to 2024 and the inclusion of PV below 500kw in the auction procedure. TE's contribution for 2020 was c€5.2m (before tax) and €3.95m (after tax) or c€0.034/share.

More specifically the measures to balance the RES special account are:

- the permanent increase of the percentage of revenues from emission rights (specifically to 78% from 65%) which will strengthen the Special Account by €65m in 2020
- €25m revenues from the special fee for the issuance of Electricity Producer Certificate already paid to RAE in favor of ELAPE
- €110m contribution by RES producers (6% of RES projects' revenues under FiT scheme which are operational before 1Jan'16)
- €110m (€2/MWh for 2021) by energy suppliers (PPC has clarified that it will not pass on this cost to the consumers)
- €100m from the imposition of a green tax on the consumption of diesel equal to €0.03/lt

- the adoption of a mechanism of equal fluctuation between PSOs and ETMEAR that will be achieved through the gradual interconnection of the Non-Interconnected Islands with the mainland, without any cost for consumers (€50m p.a. from Crete-Peloponnese Interconnection since early 2021 and €200m p.a. from Crete-Attica Interconnection since 2024)
- €200m from the EU Recovery Fund

TE and Grid Telecom JV

TE will participate in the tender of UFBB through a 50-50% JV with Grid Telecom

During a press conference in Dec'20, the President and CEO of IPTO Mr. Manousakis said that Grid Telecom (100% IPTO's subsidiary) will participate in the tender of UltraFast Broadband (UFBB) through a 50-50% joint venture with TE. It should be noted that this JV will provide its services only to the wholesale market.

Submission of applications for three floating photovoltaic (FPV) systems with total capacity of 265MW

TE announced on 19Jan'21 the submission of applications for 3 floating photovoltaic (FPV) systems with total capacity of 265MW, an investment under progress which exceeds €170m

TE announced on 19Jan'21 the submission of applications for three (3) floating photovoltaic (FPV) systems with total capacity of 265MW, an investment under progress which exceeds €170m. More specifically, the applications for the development of projects of this innovative clean energy production technology concern the installation of: i) 120MW in the Artificial Reservoir of Kastraki, ii) 103MW in the Artificial Reservoir of Pournari, and iii) 42MW in the Artificial Army Reservoir. This investment is a new addition to TE's investment plan for the production and storage of clean energy that has already been announced by the management and concerns the development of wind farms as well as the implementation of energy storage projects in Greece via pumped storage. Therefore, the implementation of the three floating photovoltaic systems will increase the existing target for total installed capacity in the next five years from 2.8GW to over 3GW.

Ministry Planning Support Mechanism for Green PPAs

The Ministry of Energy is seeking to establish yet another support mechanism, one subsidizing electricity absorbed by energy-intensive industries and other enterprises from renewable energy stations, whose cost the ministry aims to incorporate into the recovery fund. Power purchase agreements (PPAs) reached between major-scale RES producers or aggregators with industries and other energy-intensive enterprises need to be reasonably priced if they are to ultimately prove beneficial for companies. Green energy prices can be low and beneficial for industries and energy-intensive enterprises as RES stations have minimal operating costs once installed. These units merely have to cover investment costs and eventually make a profit for investors, once launched. However, balancing market costs in target model markets, which significantly increase the cost of green electricity, also need to be factored into the equation. The Energy Ministry will seek to subsidize balancing market costs by using Recovery Fund money as part of the effort.

The plan promises to help achieve two key goals: firstly, RES stations will ensure supply channels for their production and thereby cement long-term performance figures, creating favorable conditions for banks financing green-energy investments. This would gradually increase the number of RES installations around the country. As for the plan's second key goal, energy-intensive industries and other enterprises with elevated energy costs would be ensured low-cost, eco-friendly electricity, subsequently boosting their level of competitiveness. The support mechanism planned by the Energy Ministry will need to be endorsed by the European Directorate for Competition. The government has high expectations for the success of this support mechanism as it acknowledges energy cost is a burden for Greek producers and other enterprises, including in the tourism sector.

Earnings Update

We have fine-tuned our previous 2021-23e forecasts to account mainly for the imminent decommissioning of Texas assets, the contribution of 400MW solar parks by 2023e as well as other minor adjustments in TE's pipeline.

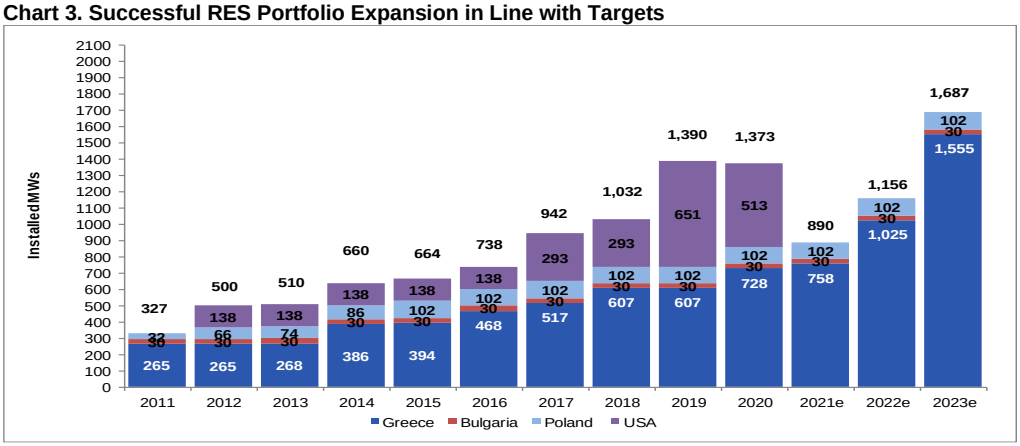
Installed RES Capacity: 2020-24e CAGR of 6.1%

In case of Texas assets disengagement, we still expect TE's installed capacity to reach 1,687MW by end-2023e

As a reminder, TE has commissioned in 2020 120MW new wind parks in Evia, Greece. As a result and following the sale of the 138MW wind farm in the US, TE's current total RES installed capacity stands at 1,373MW, including 1,345MW of wind parks, 17.8MW of hydro parks, 8.5MW of solar and 1MW of biomass. In case the management decides to disengage from the projects in Texas, in order to constrain its losses at the US subsidiary's equity value of €90m, we expect TE's installed capacity to drop to 890MW by end-2021e (30MW new additions in Greece and 513MW decommissioned in US). However, we still expect TE's installed capacity to reach 1,687MW by end-2023e (assuming 827MW new additions in Greece and 513MW decommissioned in the US), while TE's stressed that its five-year target at 3.0GW remains intact despite the decommissioning of 513MW supported also by new storage and offshore projects

Overall, despite the imminent disengagement of Texas assets (513MW) TE has achieved a good geographical diversification in prime locations around Greece (728MW, the largest domestic RES player), Bulgaria (30MW), and Poland (102MW), containing the exposure to local weather conditions. At present (excluding US assets), 85% or 728MW of installed RES capacity is located in Greece, 11% or 102MW in Poland, while the remaining 4% is located in Bulgaria.

Chart 3. Successful RES Portfolio Expansion in Line with Targets



2021-23e: We Still Expect TE to Install another 427MW of Wind Parks

2021-22e: we still expect TE to add another 30MW of Wind parks in 2021e and 397MW by 2023e…

We continue to account for another two new wind parks (secured in one of the last RES auctions), namely Taratsa (30MW) and Evritania (67MW), which should come on stream in 2021e and 2022e, respectively. Following the acquisition of "RF Omalies S.A." (270MW of fully or partially licensed projects) in March'20, we now account for another 330MW (combination of TE's licensed projects and RF's projects) to be installed in South Evia (Project Kafireas) in Q1'23e (vs. H2'22e in our previous report).

TE to Install another 400MW of P/V Parks by 2023e

…and another 400MW of P/V parks by 2023e…

TE has already applied for 500MW of P/V parks and as a result we now incorporate 400MW (vs. 50MW in our previous report) of P/V parks to be installed by 2023e.

…hence implying a total 2020-24e installed RES capacity CAGR of 6.1%

All in all, we now anticipate TE's total installed capacity to reach 1,687MW by end-2023e (1,259MW wind parks, 18MW hydro parks, 408.5MW solar and 1MW biomass). Beyond 2023e, we still account for annual net additions of 50MW of wind park capacity (at a cost of €1m/MW) implying a 2020-24e RES capacity CAGR of 6.1%.

Table 4. TE's Installation Forecasts 2020-24e

RES - Wind parks (MW)	2020	2021e	2022e	2023e	2024e	2020 y-o-y	2021e y-o-y	2022e y-o-y	2023e y-o-y	2024e y-o-y	CAGR 2020-24e
Existing installed capacity (start of year)	**1,362.7**	**1,345.2**	**862.2**	**929.2**	**1,259.2**	***35.6%***	***-1.3%***	***-35.9%***	***7.8%***	***35.5%***	***-2.0%***
- Greece	579.7	700.2	730.2	797.2	1127.2	*0.0%*	*20.8%*	*4.3%*	*9.2%*	*41.4%*	*18.1%*
- Abroad	783.0	645.0	132.0	132.0	132.0	*84.2%*	*-17.6%*	*-79.5%*	*0.0%*	*0.0%*	*-35.9%*
…of which in Poland	*102.0*	*102.0*	*102.0*	*102.0*	*102.0*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
…of which in Bulgaria	*30.0*	*30.0*	*30.0*	*30.0*	*30.0*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
…of which in USA	*651.0*	*513.0*	*0.0*	*0.0*	*0.0*	*122.2%*	*-21.2%*	*-100.0%*	*n/a*	*n/a*	*-100.0%*
Capacity additions	**-17.5**	**-483.0**	**67.0**	**330.0**	**50.0**						
- Greece	120.5	30.0	67.0	330.0	50.0						
- Abroad	-138.0	-513.0	0.0	0.0	0.0						
…of which in Poland	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*						
…of which in Bulgaria	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*						
…of which in USA	*-138.0*	*-513.0*	*0.0*	*0.0*	*0.0*						
Total installed capacity (end of year)	**1,345.2**	**862.2**	**929.2**	**1,259.2**	**1,309.2**	***-1.3%***	***-35.9%***	***7.8%***	***35.5%***	***4.0%***	***-0.7%***
- Greece	700.2	730.2	797.2	1127.2	1177.2	*20.8%*	*4.3%*	*9.2%*	*41.4%*	*4.4%*	*13.9%*
- Abroad	645.0	132.0	132.0	132.0	132.0	*-17.6%*	*-79.5%*	*0.0%*	*0.0%*	*0.0%*	*-32.7%*
…of which in Poland	*102.0*	*102.0*	*102.0*	*102.0*	*102.0*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
…of which in Bulgaria	*30.0*	*30.0*	*30.0*	*30.0*	*30.0*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
…of which in USA	*513.0*	*0.0*	*0.0*	*0.0*	*0.0*	*-21.2%*	*-100.0%*	*n/a*	*n/a*	*n/a*	*-100.0%*

RES - Hydro plants (MW)	2020	2021e	2022e	2023e	2024e	2020 y-o-y	2021e y-o-y	2022e y-o-y	2023e y-o-y	2024e y-o-y	CAGR 2020-24e
Existing installed capacity (start of year)	**17.8**	**17.8**	**17.8**	**17.8**	**17.8**	***0.0%***	***0.0%***	***0.0%***	***0.0%***	***0.0%***	***0.0%***
- Greece	17.8	17.8	17.8	17.8	17.8	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Capacity additions	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**						
- Greece	0.0	0.0	0.0	0.0	0.0						
Total installed capacity (end of year)	**17.8**	**17.8**	**17.8**	**17.8**	**17.8**	***0.0%***	***0.0%***	***0.0%***	***0.0%***	***0.0%***	***0.0%***
- Greece	*17.8*	*17.8*	*17.8*	*17.8*	*17.8*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

RES - PV farms (MW)	2020	2021e	2022e	2023e	2024e	2020 y-o-y	2021e y-o-y	2022e y-o-y	2023e y-o-y	2024e y-o-y	CAGR 2020-24e
Existing installed capacity (start of year)	**8.5**	**8.5**	**8.5**	**208.5**	**408.5**	***0.0%***	***0.0%***	***0.0%***	***2344.7%***	***95.9%***	***163.1%***
- Greece	8.5	8.5	8.5	208.5	408.5	*0.0%*	*0.0%*	*0.0%*	*2344.7%*	*95.9%*	*163.1%*
Capacity additions	**0.0**	**0.0**	**200.0**	**200.0**	**0.0**						
- Greece	0.0	0.0	200.0	200.0	0.0						
Total installed capacity (end of year)	**8.5**	**8.5**	**208.5**	**408.5**	**408.5**	***0.0%***	***0.0%***	***2344.7%***	***95.9%***	***0.0%***	***163.1%***
- Greece	*8.5*	*8.5*	*208.5*	*408.5*	*408.5*	*0.0%*	*0.0%*	*2344.7%*	*95.9%*	*0.0%*	*163.1%*

RES - Biomass plants (MW)	2020	2021e	2022e	2023e	2024e
Existing installed capacity (start of year)	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
- Greece	1.0	1.0	1.0	1.0	1.0
Capacity additions	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
- Greece	0.0	0.0	0.0	0.0	0.0
Total installed capacity (end of year)	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**
- Greece	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*

Total RES (MW)	2020	2021e	2022e	2023e	2024e	2020 y-o-y	2021e y-o-y	2022e y-o-y	2023e y-o-y	2024e y-o-y	CAGR 2020-24e
Existing installed capacity (start of year)	**1,390.0**	**1,372.5**	**889.5**	**1,156.5**	**1,686.5**	***34.7%***	***-1.3%***	***-35.2%***	***30.0%***	***45.8%***	***5.0%***
- Greece	607.0	727.5	757.5	1024.5	1554.5	*0.0%*	*19.9%*	*4.1%*	*35.2%*	*51.7%*	*26.5%*
% of total	*44%*	*53%*	*85%*	*89%*	*92%*						
- Abroad	783.0	645.0	132.0	132.0	132.0	*84.2%*	*-17.6%*	*-79.5%*	*0.0%*	*0.0%*	*-35.9%*
% of total	*56%*	*47%*	*15%*	*11%*	*8%*						
…of which in Poland	*102.0*	*102.0*	*102.0*	*102.0*	*102.0*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
…of which in Bulgaria	*30.0*	*30.0*	*30.0*	*30.0*	*30.0*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
…of which in USA	*651.0*	*513.0*	*0.0*	*0.0*	*0.0*	*122.2%*	*-21.2%*	*-100.0%*	*n/a*	*n/a*	*-100.0%*
Capacity additions	**-17.5**	**-483.0**	**267.0**	**530.0**	**50.0**						
- Greece	120.5	30.0	267.0	530.0	50.0						
% of total	*-689%*	*-6%*	*100%*	*100%*	*100%*						
- Abroad	-138.0	-513.0	0.0	0.0	0.0						
% of total	*789%*	*106%*	*0%*	*0%*	*0%*						
…of which in Poland	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*						
…of which in Bulgaria	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*						
…of which in USA	*-138.0*	*-513.0*	*0.0*	*0.0*	*0.0*						
Total installed capacity (end of year)	**1,372.5**	**889.7**	**1,156.5**	**1,686.5**	**1,736.5**	***-1.3%***	***-35.2%***	***30.0%***	***45.8%***	***3.0%***	***6.1%***
- Greece	727.5	757.5	1024.5	1554.5	1604.5	*19.9%*	*4.1%*	*35.2%*	*51.7%*	*3.2%*	*21.9%*
% of total	*53%*	*85%*	*89%*	*92%*	*92%*						
- Abroad	*645.0*	*132.0*	*132.0*	*132.0*	*132.0*	*-17.6%*	*-79.5%*	*0.0%*	*0.0%*	*0.0%*	*-32.7%*
% of total	*47%*	*15%*	*11%*	*8%*	*8%*						
…of which in Poland	*102.0*	*102.0*	*102.0*	*102.0*	*102.0*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
…of which in Bulgaria	*30.0*	*30.0*	*30.0*	*30.0*	*30.0*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
…of which in USA	*513.0*	*0.0*	*0.0*	*0.0*	*0.0*	*-21.2%*	*-100.0%*	*n/a*	*n/a*	*n/a*	*-100.0%*

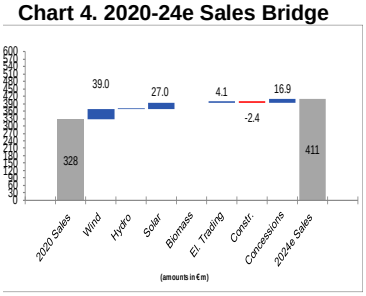
Source: Terna Energy, Euroxx Research

Group Revenues: 2020-24e CAGR of 5.8% due to New Wind and PV Parks

RES revenues to grow at 2020-24e CAGR of 5.6%

Reflecting the imminent decommissioning of 513MW in US in 2021e, some short delays in Evritania Project (67MW) and Kafireas Project (330MW), as well as the contribution of another 350MW (totaling 400MW vs. 50MW previously) of solar parks by end-2023e (200MW by end-2022e and another 200MW by end-2023e), we now forecast 2021e RES revenues of €206m (from €304m previously), €217.2m in 2022e (from €346.4m) €327m in 2023e (from €415m) and €340m in 2024e, exhibiting a 2020-24e CAGR of 5.6%. We estimate the group average load factor to range between 27.7% and 25.8% in 2021-24e.

Chart 4. 2020-24e Sales Bridge



Source: Euroxx Research

Leaving our other divisional sales estimates unchanged, except for Concessions, we now pencil in TE's group revenues to drop by 19.1% y-o-y in 2021e to €265m, and reach €282m in 2022e (+6.4% y-o-y) , €399m (+41.2% y-o-y) in 2023e and €411m in 2024e, which implies a 2020-24e CAGR of 5.8%. On our estimates, RES (mainly wind parks) will account for 82.7% of total revenues in 2024e, with concessions contributing 7.3% and electricity trading 9.7%.

Table 5. TE's Group Revenue Forecasts 2020-24e

Group RES Capacity (MW)	2020	2021e	2022e	2023e	2024e	2020 y-o-y	2021e y-o-y	2022e y-o-y	2023e y-o-y	2024e y-o-y	CAGR 2020-24e
Total Group Installed Capacity (MW)	**1,372.5**	**889.5**	**1,156.5**	**1,686.5**	**1,736.5**	***-1.3%***	***-35.2%***	***30.0%***	***45.8%***	***3.0%***	***6.1%***
....of which Wind Parks	**1,345.2**	**862.2**	**929.2**	**1,259.2**	**1,309.2**	*-1.3%*	*-35.9%*	*7.8%*	*35.5%*	*4.0%*	*-0.7%*
% of total	*98.0%*	*96.9%*	*80.3%*	*74.7%*	*75.4%*						
....of which Hydro Plants	**17.8**	**17.8**	**17.8**	**17.8**	**17.8**	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
% of total	*1.3%*	*2.0%*	*1.5%*	*1.1%*	*1.0%*						
....of which P/V Farms	**8.5**	**8.5**	**208.5**	**408.5**	**408.5**	*0.0%*	*0.0%*	*2344.7%*	*95.9%*	*0.0%*	*163.1%*
% of total	*0.6%*	*1.0%*	*18.0%*	*24.2%*	*23.5%*						
....of which Biomass Plants	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**						
% of total	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*						
Group RES Production (MWh/year)	**4,109,850**	**2,122,922**	**2,315,987**	**3,655,468**	**3,926,380**	***34.8%***	***-48.3%***	***9.1%***	***57.8%***	***7.4%***	***-1.1%***
....of which Wind Parks	**4,039,442**	**2,052,513**	**2,220,283**	**3,263,556**	**3,263,556**	*35.6%*	*-49.2%*	*8.2%*	*47.0%*	*0.0%*	*-5.2%*
....of which Hydro Plants	**59,253**	**59,253**	**59,253**	**59,253**	**59,253**	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
....of which P/V Farms	**11,156**	**11,156**	**36,452**	**332,660**	**603,572**	*0.0%*	*0.0%*	*226.8%*	*812.6%*	*81.4%*	*171.2%*
....of which Biomass Plants	**1,314**	**1,314**	**1,314**	**1,314**	**1,314**	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Group Average Capacity Load Factor	**34.1%**	**27.7%**	**28.7%**	**27.8%**	**25.8%**						
Wind Parks	34.2%	27.7%	28.8%	29.6%	28.5%						
Hydro Plants	38.0%	38.0%	38.0%	38.0%	38.0%						
P/V Farms	14.9%	14.9%	16.5%	16.9%	16.9%						
Biomass Plants	15.0%	15.0%	15.0%	15.0%	15.0%						
Average FiTs (€/MWh)	**66.5**	**97.1**	**93.8**	**89.6**	**86.5**	***-14.5%***	***45.9%***	***-3.4%***	***-4.5%***	***-3.4%***	***6.8%***
Wind Parks	66.4	96.4	93.6	93.4	93.4	*-13.6%*	*45.2%*	*-2.9%*	*-0.2%*	*0.0%*	*8.9%*
Hydro Plants	87.0	87.0	87.0	87.0	87.0	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
P/V Farms	251.4	251.4	108.2	51.9	49.0	*0.0%*	*0.0%*	*-57.0%*	*-52.0%*	*-5.6%*	*-33.6%*
Biomass Plants	200.0	200.0	200.0	200.0	200.0						
Group Revenues (€m)	**328.1**	**265.3**	**282.4**	**398.6**	**410.9**	***9.7%***	***-19.1%***	***6.4%***	***41.2%***	***3.1%***	***5.8%***
RES revenues	**273.4**	**206.0**	**217.2**	**327.4**	**339.7**	***15.2%***	***-24.6%***	***5.4%***	***50.8%***	***3.8%***	***5.6%***
% of total revenues	***83.3%***	***77.7%***	***76.9%***	***82.1%***	***82.7%***						
Wind Parks	268.2	197.8	207.8	304.7	304.7	*17.1%*	*-26.2%*	*5.0%*	*46.7%*	*0.0%*	*3.2%*
% of total revenues	*81.7%*	*74.6%*	*73.6%*	*76.4%*	*74.2%*						
Hydro Plants	5.2	5.2	5.2	5.2	5.2	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
% of total revenues	*1.6%*	*1.9%*	*1.8%*	*1.3%*	*1.3%*						
Solar Farms	2.8	2.8	3.9	17.3	29.6	*0.0%*	*0.0%*	*40.6%*	*338.0%*	*71.2%*	*80.2%*
% of total revenues	*0.9%*	*1.1%*	*1.4%*	*4.3%*	*7.2%*						
Biomass Plants	0.3	0.3	0.3	0.3	0.3						
% of total revenues	*31.5%*	*33.8%*	*34.2%*	*32.0%*	*31.8%*						
Electricity trading	**35.9**	**40.0**	**40.0**	**40.0**	**40.0**	***-2.8%***	***11.3%***	***0.0%***	***0.0%***	***0.0%***	***2.7%***
% of total revenues	*11.0%*	*15.1%*	*14.2%*	*10.0%*	*9.7%*						
Construction revenues	**5.5**	**1.0**	**1.0**	**1.0**	**1.0**	***-62.3%***	***-81.7%***	***0.0%***	***0.0%***	***0.0%***	***-34.6%***
% of total revenues	*1.7%*	*0.4%*	*0.4%*	*0.3%*	*0.2%*						
Concessions revenues	**13.3**	**18.2**	**24.2**	**30.2**	**30.2**	***27.4%***	***37.2%***	***32.7%***	***24.8%***	***0.0%***	***22.8%***
% of total revenues	*4.1%*	*6.9%*	*8.6%*	*7.6%*	*7.3%*						

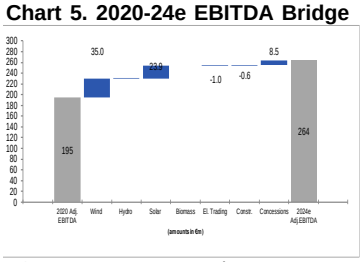
Source: Terna Energy, Euroxx Research

Group EBITDA: 2020-24e CAGR of 7.9%, Driven by RES

RES EBITDA to post a 2020-24e CAGR of 6.8%

In a similar fashion, we have cut our previous 2021-23e RES EBITDA estimates to €150m (from €220m), €157m (from €252m), and €242m (from €303m), respectively, while we expect EBITDA to shape at €253m in 2024e, accounting for RES EBITDA margins of c74.4% and implying a 2020-24e CAGR of 6.8%. RES EBITDA growth is mainly attributed to incremental capacity additions of c314MW (despite the decommissioning of Texas assets in 2021e, which were contributing c€50-60m p.a.).

Chart 5. 2020-24e EBITDA Bridge



Source: Euroxx Research

Similarly, leaving our previous divisional EBITDA forecasts unchanged, except for Concessions, we now expect TE's group EBITDA to drop by 20.2% y-o-y in 2021e to €155m, reach €165m in 2022e (+6.4% y-o-y), €253m (+53.0% y-o-y) in 2023e, and €264m in 2024e, which implies a 2019-24e CAGR of 7.3%. On our estimates, RES (and mainly wind parks) will contribute 95.8% of total EBITDA in 2024e, with concessions accounting for 3.6% of total.

Table 6. TE's EBITDA Forecasts 2020-24e

(€m)	2020	2021e	2022e	2023e	2024e	2020 y-o-y	2021e y-o-y	2022e y-o-y	2023 y-o-y	2024 y-o-y	CAGR 2020-24e
-Total RES EBITDA	**194.1**	**150.1**	**157.4**	**242.1**	**252.6**	***10.2%***	***-22.6%***	***4.9%***	***53.8%***	***4.3%***	***6.8%***
% of total group EBITDA	***99.7%***	***96.6%***	***95.2%***	***95.7%***	***95.8%***						
EBITDA margin	***71.0%***	***72.9%***	***72.5%***	***73.9%***	***74.4%***						
- Wind Parks	**187.9**	**144.0**	**150.2**	**223.1**	**222.6**	***10.6%***	***-23.4%***	***4.4%***	***48.5%***	***-0.2%***	***4.3%***
% of total RES Adj. EBITDA	*96.8%*	*95.9%*	*95.4%*	*92.1%*	*88.1%*						
% of total group EBITDA	*96.5%*	*92.6%*	*90.8%*	*88.1%*	*84.5%*						
EBITDA margin	*70.0%*	*72.8%*	*72.3%*	*73.2%*	*73.0%*						
- Hydro Plants	**4.0**	**3.9**	**3.9**	**3.9**	**3.9**	***-0.1%***	***-0.1%***	***-0.1%***	***-0.1%***	***-0.1%***	***-0.1%***
% of total RES Adj. EBITDA	*2.0%*	*2.6%*	*2.5%*	*1.6%*	*1.6%*						
% of total group EBITDA	*2.0%*	*2.5%*	*2.4%*	*1.6%*	*1.5%*						
EBITDA margin	*76.7%*	*76.6%*	*76.5%*	*76.4%*	*76.3%*						
- Solar Farms	**2.2**	**2.2**	**3.3**	**15.1**	**26.1**	***0.0%***	***0.0%***	***45.2%***	***364.7%***	***72.4%***	***84.7%***
% of total RES Adj. EBITDA	*1.2%*	*1.5%*	*2.1%*	*6.2%*	*10.3%*						
% of total group EBITDA	*1.2%*	*1.4%*	*2.0%*	*6.0%*	*9.9%*						
EBITDA margin	*79.8%*	*79.8%*	*82.5%*	*87.5%*	*88.1%*						
- Biomass Plants	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**						
% of total RES Adj. EBITDA	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*						
% of total group EBITDA	*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*						
- Electricity trading EBITDA	**0.8**	**1.2**	**1.2**	**1.2**	**1.2**	***-65.9%***	***56.5%***	***0.0%***	***0.0%***	***0.0%***	***11.8%***
% of total group EBITDA	***0.4%***	***0.8%***	***0.7%***	***0.5%***	***0.5%***						
EBITDA margin	***2.1%***	***3.0%***	***3.0%***	***3.0%***	***3.0%***						
- Construction EBITDA	**-0.8**	**0.2**	**0.4**	**0.4**	**0.4**	***n/a***	***n/a***	***75.0%***	***0.0%***	***0.0%***	***n/a***
% of total group EBITDA	***-0.4%***	***0.1%***	***0.2%***	***0.1%***	***0.1%***						
EBITDA margin	***-15.3%***	***20.0%***	***35.0%***	***35.0%***	***35.0%***						
- Concessions EBITDA	**0.9**	**3.9**	**6.4**	**9.4**	**9.4**	***57.6%***	***315.4%***	***66.0%***	***46.6%***	***0.0%***	***78.3%***
% of total group EBITDA	***0.5%***	***2.5%***	***3.9%***	***3.7%***	***3.6%***						
EBITDA margin	***7.0%***	***21.3%***	***26.6%***	***31.2%***	***31.2%***						
Total Group EBITDA	**194.7**	**155.4**	**165.4**	**253.1**	**263.6**	***7.0%***	***-20.2%***	***6.4%***	***53.0%***	***4.1%***	***7.9%***
EBITDA margin	*59.4%*	*58.6%*	*58.6%*	*63.5%*	*64.1%*						

Source: Terna Energy, Euroxx Research

Group Adj. EPS: 2020-24e CAGR of 15.6%

We have lowered our previous 2021-23e EPS forecasts to account mainly for the decommissioning of Texas assets

All-in, we have lowered our previous 2021-23e adj. EPS estimates (excluding the c€25m capital gain from Idaho sale & the €95m loss from the Texas assets in 2020 and 2021e, respectively) mainly due the lost operating profitability of Texas assets and the short delays in the development of the projects in Evritania and Kafireas. Summing up, we still expect TE's strong earnings momentum to persist, with 2020-24e group EPS CAGR of 15.6%, with adj. EPS seen at €0.84/share in 2024e, benefited also by the full deployment of the new PV projects (the last 200MW to be installed in late 2023e).

We continue to assume a generous shareholder remuneration policy, with total yield of 3.1-4.1% in 2020-24e

Finally, despite our revisions, we continue to assume a generous shareholder remuneration policy. Note that i) TE paid on 11March'20 a capital return of €0.17/share (ex-date was on 5March'20), ii) distributed in June'20 an additional FY'19 DPS of €0.17 (DY 1.5%), and iii) paid an extra dividend of €0.17/share from profits and provisional reserves of the financial years up to 2019 with ex-date on 21Dec'20 and payment on 28Dec'20, implying a total distribution of c€58.1m in 2020 (or €0.51/share, total yield at 4.3%). Finally on 27April'21, the BoD proposed a FY'20 dividend distribution of €0.17/share with ex-date and payment on 22June'21 and 28June'21, respectively. All

in all, we still project TE's total yield (DPS and/or capital return) to reach 3.1-4.1% in 2020-24e based on distributions of €0.37-0.49 per share. Last but not least, TE's strong operating cash flow generation may lead to upside risks on future distributions to shareholders.

Table 7. TE's Forecast Revisions (2020-24e)

			2021e				2022e				2023e				2024e		2020-24e
(amounts in €m)	2020	*y-o-y*	Old	New	*chng %*	*y-o-y*	Old	New	*chng %*	*y-o-y*	Old	New	*chng %*	*y-o-y*	New	*y-o-y*	CAGR
- RES revenues	273.4	*15.2%*	303.7	206.0	*-32.2%*	*-24.6%*	346.4	217.2	*-37.3%*	*5.4%*	414.7	327.4	*-21.0%*	*50.8%*	339.7	*3.8%*	*5.6%*
% of total sales	*83.3%*		*81.1%*	*77.7%*			*83.5%*	*76.9%*			*85.9%*	*82.1%*			*82.7%*		
- Construction revenues	5.5	*-62.3%*	1.0	1.0	*0.0%*	*-81.7%*	1.0	1.0	*0.0%*	*0.0%*	1.0	1.0	*0.0%*	*0.0%*	1.0	*0.0%*	*-34.6%*
% of total sales	*1.7%*		*0.3%*	*0.4%*			*0.2%*	*0.4%*			*0.2%*	*0.3%*			*0.2%*		
- Electricity Trading revenues	35.9	*-2.8%*	40.0	40.0	*0.0%*	*11.3%*	40.0	40.0	*0.0%*	*0.0%*	40.0	40.0		*0.0%*	40.0	*0.0%*	*2.7%*
% of total sales	*11.0%*		*10.7%*	*15.1%*			*9.6%*	*14.2%*			*8.3%*	*10.0%*			*9.7%*		
- Concessions	13.3	*27.4%*	30.0	18.2	*-39.2%*	*37.2%*	27.3	24.2	*-11.4%*	*32.7%*	27.3	30.2		*24.8%*	30.2	*0.0%*	*22.8%*
% of total sales	*4.1%*		*8.0%*	*6.9%*			*6.6%*	*8.6%*			*5.7%*	*7.6%*			*7.3%*		
Group Sales	**328.1**	***9.7%***	**374.7**	**265.3**	***-29.2%***	***-19.1%***	**414.7**	**282.4**	***-31.9%***	***6.4%***	**483.0**	**398.6**	***-17.5%***	***41.2%***	**410.9**	***3.1%***	***5.8%***
- RES EBITDA	194.1	*10.2%*	220.5	150.1	*-31.9%*	*-22.6%*	252.1	157.4	*-37.5%*	*4.9%*	302.9	242.1	*-20.1%*	*53.8%*	252.6	*4.3%*	*6.8%*
% of total EBITDA	*99.7%*		*96.0%*	*96.6%*			*95.2%*	*95.2%*			*96.0%*	*95.7%*			*95.8%*		
EBITDA margin	*71.0%*		*72.6%*	*72.9%*			*72.8%*	*72.5%*			*73.0%*	*73.9%*			*74.4%*		
- Construction EBITDA	-0.8	*n/a*	0.2	0.2	*0.0%*	*n/a*	0.4	0.4	*0.0%*	*75.0%*	0.4	0.4	*0.0%*	*0.0%*	0.4	*0.0%*	*n/a*
% of total EBITDA	*-0.4%*		*0.1%*	*0.1%*			*0.1%*	*0.2%*			*0.1%*	*0.1%*			*0.1%*		
EBITDA margin	*-15.3%*		*20.0%*	*20.0%*			*35.0%*	*35.0%*			*35.0%*	*35.0%*			*35.0%*		
- Electricity Trading EBITDA	0.8	*-65.9%*	1.2	1.2	*0.0%*	*56.5%*	1.2	1.2	*0.0%*	*0.0%*	1.2	1.2	*0.0%*	*0.0%*	1.2	*0.0%*	*11.8%*
% of total EBITDA	*0.4%*		*0.5%*	*0.8%*			*0.5%*	*0.7%*			*0.4%*	*0.5%*			*0.5%*		
EBITDA margin	*2.1%*		*3.0%*	*3.0%*			*3.0%*	*3.0%*			*3.0%*	*3.0%*			*3.0%*		
- Concessions EBITDA	0.9	*57.6%*	7.7	3.9	*-49.5%*	*315.4%*	11.2	6.4	*-42.6%*	*66.0%*	11.2	9.4	*-15.9%*	*46.6%*	9.4	*0.0%*	*78.3%*
% of total EBITDA	*0.5%*		*3.3%*	*2.5%*			*4.2%*	*3.9%*			*3.6%*	*3.7%*			*3.6%*		
EBITDA margin	*7.0%*		*25.6%*	*21.3%*			*41.1%*	*26.6%*			*41.1%*	*31.2%*			*31.2%*		
Group EBITDA	**194.7**	***7.0%***	**229.6**	**155.4**	***-32.3%***	***-20.2%***	**264.8**	**165.4**	***-37.5%***	***6.4%***	**315.6**	**253.1**	***-19.8%***	***53.0%***	**263.6**	***4.1%***	***7.9%***
EBITDA margin	*59.4%*		*61.3%*	*58.6%*			*63.9%*	*58.6%*			*65.3%*	*63.5%*			*64.1%*		
Depreciation	70.2	*18.9%*	67.1	38.3	*-43.0%*	*-45.5%*	79.3	44.2	*-44.3%*	*15.6%*	96.0	91.2	*-5.0%*	*106.2%*	95.8	*5.0%*	*8.1%*
Group Adj. EBIT	**128.6**	***2.5%***	**162.4**	**117.2**	***-27.9%***	***-8.9%***	**185.5**	**121.2**	***-34.7%***	***3.4%***	**219.6**	**161.9**	***-26.3%***	***33.6%***	**167.8**	***3.6%***	***6.9%***
Adj. EBIT margin	*39.2%*		*43.3%*	*44.2%*			*44.7%*	*42.9%*			*45.5%*	*40.6%*			*40.8%*		
Net financials	(61.8)	*1.8%*	(67.6)	(36.9)	*-45.4%*	*-40.2%*	(73.0)	(40.2)	*-44.9%*	*8.8%*	(66.9)	(40.4)	*-39.6%*	*0.5%*	(37.3)	*-7.8%*	
Group Adj. EBT	**67.1**	***-7.1%***	**95.3**	**80.4**	***-15.6%***	***19.9%***	**113.0**	**81.2**	***-28.2%***	***0.9%***	**153.3**	**121.7**	***-20.6%***	***49.9%***	**130.8**	***7.4%***	***18.2%***
Adj. EBT margin	*20.4%*		*25.4%*	*30.3%*			*27.3%*	*28.8%*			*31.7%*	*30.5%*			*31.8%*		
Taxes	*(16.6)*	*1.3%*	*(22.9)*	*3.5*	*n/a*	*n/a*	*(27.1)*	*(19.5)*	*-28.2%*	*n/a*	*(36.8)*	*(29.2)*	*-20.6%*	*49.9%*	*(31.4)*	*7.4%*	*17.2%*
Effective tax rate	*18.5%*		*24.0%*	*24.0%*			*24.0%*	*24.0%*			*24.0%*	*24.0%*			*24.0%*		
Group Net Profit	71.8	*39.3%*	70.8	-12.7	*n/a*	*n/a*	84.2	60.1	*-28.6%*	*n/a*	114.8	90.9	*-20.8%*	*51.2%*	97.8	*7.6%*	*8.0%*
Group Adj. Net Profit	**54.4**	***1.6%***	**70.8**	**59.5**	***-15.9%***	***9.5%***	**84.2**	**60.1**	***-28.6%***	***1.0%***	**114.8**	**90.9**	***-20.8%***	***51.2%***	**97.8**	***7.6%***	***15.8%***
Adj. net margin	*16.6%*		*18.9%*	*22.4%*			*20.3%*	*21.3%*			*23.8%*	*22.8%*			*23.8%*		
EPS (€)	0.62	*36.9%*	0.59	-0.11	*n/a*	*n/a*	0.70	0.52	*-26.0%*	*n/a*	0.96	0.78	*-17.9%*	*51.2%*	0.84	*7.6%*	*8.0%*
Adjusted EPS (€)	**0.47**	***-0.1%***	**0.59**	**0.51**	***-12.7%***	***9.5%***	**0.70**	**0.52**	***-26.0%***	***1.0%***	**0.96**	**0.78**	***-17.9%***	***51.2%***	**0.84**	***7.6%***	***15.8%***
DPS & Capital Return (€)	**0.37**	***-26.7%***	**0.41**	**0.38**	***-7.3%***	***2.0%***	**0.45**	**0.41**	***-9.8%***	***7.0%***	**0.45**	**0.45**	***-0.8%***	***10.0%***	**0.49**	***10.0%***	***7.2%***

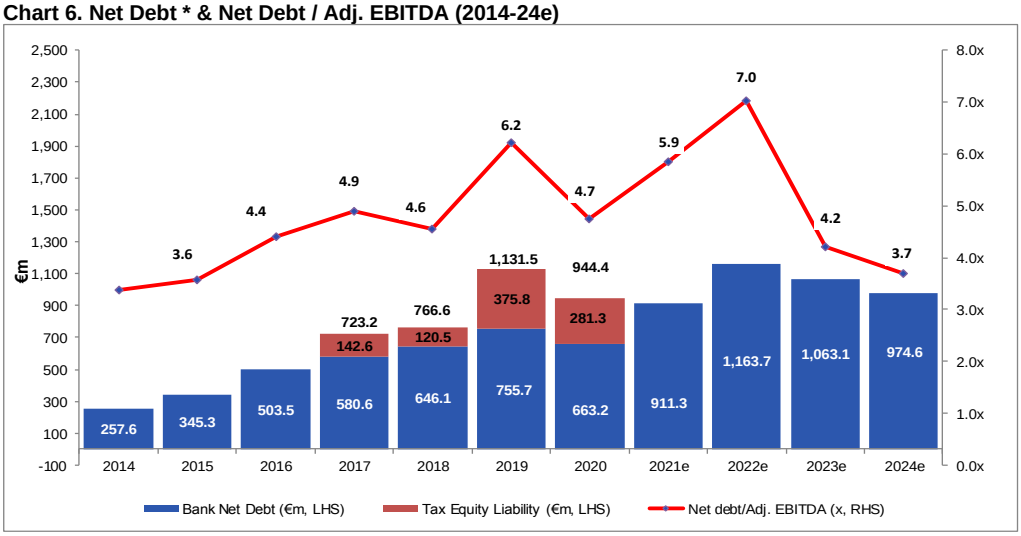
Source: Terna Energy, Euroxx Research *Note: net financials in 2020 include capital gains from the sale of Idaho*

Balance Sheet: Recent Idaho Transaction & SCI Improve Net Debt and Related Metrics

In 2020, adj. net debt / EBITDA fell to 4.7x from 6.2x in 2019 due to the deleverage achieved with Idaho sale, the SCI in cash and the increase in EBITDA

In 2020, accounting for the Idaho wind farm sale for an EV of US$215m, the €68.5m SCI in cash and the lower y-o-y CapEx due to some delays in the 330MW Kafireas project in Evia, adj. group net debt dropped to €944.4m, or 4.7x EBITDA (from 6.2x in 2019).

Chart 6. Net Debt * & Net Debt / Adj. EBITDA (2014-24e)



Source: Terna Energy, Euroxx Research *Note: Net Debt Includes Tax Equity Liability*

Following the US assets disengagement, we project adj. net debt / EBITDA to surge to 7.0x in 2022e and to drop again to 4.2x in 2023e and 3.7x in 2024e, upon the full deployment of the projects in the pipeline

Looking ahead, despite the deleverage achieved due to the elimination of Tax Equity Liability post the disengagement from the US assets, the concurrent EBITDA loss (c€50m-€60m) from the related assets and the increased CapEx of €893m in 2021-22e (vs. €772m previously) due the inclusion of PVs parks, we now expect adj. net debt / EBITDA to peak to 7.0x in 2022e (from 4.6x). That said, we now expect a large decline to 4.2x in 2023e, supported by higher group profitability (upon the deployment of group's upcoming 427MW in wind parks, 400MW in solar and the implementation of waste management projects) as well as cumulative OpCF of €378m in 2021-23e.

Q4/FY'20 Results: Strong Operating Performance Driven by RES; Bottom line benefited also by c€27m profit from Idaho sale offsetting the higher y-o-y financial expenses and depreciation

Strong FY'20 operating performance driven by RES; Bottom line benefited also by c€27m profit from Idaho sale offsetting the higher y-o-y financial expenses and depreciation

Terna Energy's (TE) FY'20 strong operating results were mainly driven by RES, which offset other divisions' weakness. Revenues and EBITDA were in line with our call while Bottom line beat our estimate due to lower than expected Tax Equity expenses post the Idaho sale. In particular, TE's FY'20 group sales increased by 9.7% y-o-y to €328.1m (Exx at €226.6m), with RES revenues up by 15.2% to €273.4m (Exx at €276.5m) supported by the full operation of the two new wind parks of Fluvanna 2 & Bearkat in US and resilient load factor at 34.2% (vs 31.4% in previous year) offsetting the sale of Idaho park. That said, TE posted lower y-o-y Construction and Electricity Trading revenues while Concessions revenues was higher y-o-y

Going down the P&L, EBITDA from RES was up 10.2% y-o-y to €194.1m (Exx at €192.2m) vs. €176.1m in FY'19 despite the contribution to RES Special Account (c€5.2m realized in Q4'20) , Electricity Trading EBITDA decreased to €0.8m from €2.2m, Concessions EBITDA increased to €0.9m from €0.6m, while Construction posted negative EBITDA of €0.8m (vs. profit of €4.5m in FY'19). All in all, group EBITDA rose by 6.2% y-o-y to €194.7m, with the respective margin down to 59.4% from 61.3% in FY'19. Group net income was up by 39,3% y-o-y to €71.8m.(Exx at €63.1m due to lower than expected tax equity expenses) benefited also from the profit of c€27m (realized in Q3'20) from the sale of the 138MW wind farm in IDAHO offsetting the higher financial expenses y-o-y (due to Tax Equity expenses) and the higher depreciation .Following the sale of Idaho park for $215m (EV) the Group's net debt position at the end of FY'20 settled at €613.5m (excl. Tax equity of €281m) from €716.0m (excl. Tax equity of €376m).

Table 8. TE's Q4/FY'20 Results

(in € m)	Q4'19	Q4'20	*y-o-y*	*Q4'20e Exx*	*vs Exx*	FY'19	FY'20	*y-o-y*	*FY'20e Exx*
-RES revenues	**68.0**	**69.8**	***2.6%***	**72.9**	***-4.3%***	**237.3**	**273.4**	***15.2%***	**276.5**
Sales	**88.5**	**86.7**	***-2.0%***	**85.2**	***1.8%***	**299.1**	**328.1**	***9.7%***	**326.6**
-Construction EBITDA	3.7	(0.4)	*n/a*	(0.0)	*>100%*	4.5	(0.8)	*n.a*	(0.5)
EBITDA Margin	*31.2%*	*-10.7%*		*-11.0%*		*31.3%*	*-15.3%*		*-24.0%*
-RES EBITDA	**47.4**	**43.4**	***-8.6%***	**41.5**	***4.4%***	**176.1**	**194.1**	***10.2%***	**192.2**
EBITDA Margin	***69.8%***	***62.2%***		***57.0%***		***74.2%***	***71.0%***		***69.5%***
-Electricity Trading EBITDA	0.4	0.1	*-82.4%*	0.3	*-77.4%*	2.2	0.8	*-65.9%*	1.0
EBITDA Margin	*3.9%*	*0.7%*		*3.6%*		*6.1%*	*2.1%*		*3.0%*
-Concessions EBITDA	0.4	(0.4)	*n/a*	0.4	*n/a*	0.6	0.9	*57.6%*	1.8
EBITDA Margin	*-18.9%*	*-20.2%*		*13.6%*		*5.7%*	*7.0%*		*12.6%*
EBITDA	**52.0**	**42.4**	***-18.4%***	**42.2**	***0.4%***	**183.4**	**194.7**	***6.2%***	**194.5**
EBITDA Margin	*58.7%*	*48.9%*		*49.6%*		*61.3%*	*59.4%*		*59.6%*
Adjusted EBITDA	**51.3**	**46.5**	***-9.4%***	**47.4**		**182.0**	**198.8**	***9.3%***	**199.8**
Adjusted EBITDA Margin						*60.8%*	*60.6%*		*61.2%*
EBIT	**30.6**	**25.8**	***-15.6%***	**29.2**	***-11.4%***	**122.9**	**124.5**	***1.3%***	**127.9**
EBIT Margin	*34.6%*	*29.8%*		*34.3%*		*41.1%*	*38.0%*		*39.2%*
Adjusted EBIT	**33.2**	**29.9**	***-9.8%***	**34.4**	***-12.9%***	**125.5**	**128.6**	***2.5%***	**133.1**
Adjusted EBIT Margin	*37.5%*	*34.5%*		*40.3%*		*41.9%*	*39.2%*		*40.7%*
Net earnings	**10.7**	**13.2**	***23.9%***	**4.5**	***>100%***	**51.6**	**71.8**	***39.3%***	**63.1**
Net margin	*12.0%*	*15.2%*		*5.3%*		*17.2%*	*21.9%*		*19.3%*

Source: Terna Energy, Euroxx Research

Appendix

A Closer Look at Energy Storage

Energy Storage Technologies' Role in Energy Transition

To achieve high levels of penetration of uncontrollable RES plants, as set out in the NECP, in an economically rational way, there is generally a need for energy storage

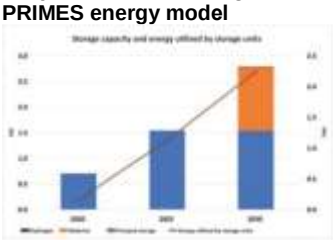
Greece aims to cover 61% of its electricity consumption from renewable sources by 2030. The main contributing technologies are wind and solar photovoltaics. Increasing the penetration of uncontrollable RES plants (wind farms and photovoltaics in particular) will increase the volatility and uncertainty of residual load (load less output of uncontrollable RES) and the flexibility needs of the system. The main categories of flexibility sources are dispatchable power plants, storage, interconnections and demand response. It is worth noting that the current level of RES penetration has been achieved without new storage facilities.

To achieve high levels of penetration of uncontrollable RES plants, as set out in the NECP, in an economically rational way (sufficiently low cuts in their output), there is generally a need for energy storage. For several decades, pumped storage has been the most widespread international method for large-scale storage of electricity. Today, international developments are rapid in terms of other forms of storage, for large or small installations, especially for batteries of different kinds. The coupling of markets via interconnectors in accordance with the provisions of the new electricity market model is important for achieving high levels of penetration. There is also interest in power-to-gas (e.g. hydrogen) storage applications, in the context of which the interconnection of electricity and gas networks is also investigated. Finally, combining RES plants with energy storage systems, i.e. where they share a common connection point, has very positive results for both the system and RES producers. This combination opens up new prospects for participation in additional energy markets, such as the balancing market and the long-term capacity compensation scheme, and offers ancillary services such as voltage control, frequency response, etc., as well as increased network capacity for connecting new RES plants. In addition to that, for producers, it reduces the cuts caused by the inability to feed the energy generated into the system and reduces also deviations from scheduled generation, thus maximizing the options for participation in the individual energy markets.

The total energy transmitted to storage systems for the year 2030 is estimated to be up to 2.2 TWh

The precise additional required power of storage systems, capacity, and technology of storage units will result from relevant studies that will be based on both the economic benefits they provide to the operation of the system and their contribution to power adequacy and flexibility of the System. Based on previous studies on the costs related to the mainland electricity generation system (such as the 2018 Ten-year Development Plan of ENTSO-E), the TIMES model considers that new storage systems are integrated in the years following 2025 (in addition to the existing hydroelectric power stations of Sfikia and Thisavros, which have a pumping capacity), the cost of which is estimated at c€0.5bn. The total energy transmitted to storage systems for the year 2030 is estimated to be up to 2.2 TWh. Specifically, for storage needs, the PRIMES energy model has also analysed specific technologies and hourly uses of these storage systems by the year 2030, including the possibility to operate small decentralised storage systems (batteries) either autonomously or cumulatively. It is worth noting that by 2030 the first electrolysis systems are expected to operate, allowing the electricity generation sector to be coupled with the hydrogen generation sector for energy storage. The results of estimates of storage use by the PRIMES energy model are presented in Chart 3. Policy measures to promote the installation of electricity storage systems may vary depending on the technology and type (centralised, dispersed) of the storage system (such as pumped storage projects in the area of Amfilochia and Amari, Crete). In particular, the promotion of centralised electricity storage systems is possible through the implementation of an appropriate purchasing mechanism, which will motivate the construction of storage systems over other electricity generation plants.

Chart 7. Evolution of installed power and energy for storage by the year 2030 according to the PRIMES energy model



Source: NECP

It is noted that in order to achieve the above figures in new installed power generated from wind farms and solar parks, and the highest possible utilisation rate, it is necessary to also examine gradually new opportunities at the level of technology applications (e.g. storage),

as well as new categories of projects (e.g. marine wind farms), provided that it is deemed that the reduction in the cost of such applications and projects is sufficient so that the total new cost of electricity generation by such applications and projects remains at a low level and is directly competitive under electricity market rules. In this context, the relevant regulatory and operational framework for these projects should be developed.

Regulatory Framework

The Ministry of Environment and Energy has launched a significant pending process to achieve the objectives of the NPEC in relation to the penetration of RES in the country's electricity system

The Ministry of Environment and Energy (ME&E) has launched a significant pending process to achieve the objectives of the NPEC in relation to the penetration of RES in the country's electricity system. It concerns the institutional framework for the development of electricity storage facilities (and offshore wind parks), the absence of which keeps trapped 170 projects that have already been licensed for the installation of hybrid stations on non-interconnected islands and more than 50 awaiting evaluation. Among the projects that are awaiting the issuance of an institutional framework are the emblematic pumping and storage projects of TE in Amfilochia and Amari, and the investment of Eunice, amounting to €280m, in Western Macedonia, for the creation of a central electricity storage unit through lithium ion batteries with a total capacity of 250MW.

The installation of storage units in the electrical system of the country is considered necessary in order to achieve the further penetration of RES. In a study prepared on behalf of RAE, the needs of the Greek system in storage units, considering the penetration of 60% of RES in the electricity generation mix in 2030, as provided by NPEC, are estimated at 1,500-1,750MW. The main benefits of storage technologies are related to the reduction of production costs, the provision of reserves, the greater integration of RES production and the contribution to the adequacy of the power system of the country.

A project team will submit a proposal regarding the regulatory framework for the licensing and operation of storage projects by 15May'21

The ME&E set up a project team to formulate and complete the regulatory framework for the installation of electricity storage projects. The object of the group, chaired by the head of the General Directorate of ME&E Mr. Tsalemis, is to submit a proposal by 15May'21 for the framework that will govern the licensing and operation of:

- Storage stations with an independent point of connection to the grid ("front of the meter"),
- Storage stations inside the production station or consumer ("behind the meter"), and
- Storage stations in the systems of non-interconnected islands.

In particular, the project management team is tasked with examining the institutional gaps identified across the spectrum of storage activity and proposing legislative and regulatory interventions that enable:

- The participation of storage units in the electricity markets as independent participants or through an aggregator, the licensing and contracting framework with the aggregators
- Their relationship with the use of the grid
- The support of investments through their participation in capacity mechanisms and the exemption of the storage stations from unfavorable and abusive charges or other restrictions of development and activity in accordance with the policies of other EU countries
- The compatibility of the framework with EC directives and regulations
- The inclusion of storage stations in portfolios together with other RES units for their joint operation in the electricity markets
- The installation and efficient utilization of scattered storage units in users' facilities (producers - consumers - self-producers)
- The integration of storage devices (BTM) in RES production stations
- The development of storage on non-interconnected islands (MDNs)

Utility-Scale Long Duration Energy Storage Technologies

The utility-scale energy storage market encompasses a range of technologies with differing operating characteristics, strengths, and weaknesses. Some technologies are best suited to provide short-duration grid stability services including frequency regulation and voltage support. Such technologies include flywheels, ultracapacitors, and certain lithium ion (Li-ion) chemistries. Other technologies like pumped hydro storage (PHS) or compressed air energy storage (CAES) systems are best designed for large-scale long duration bulk energy storage. The following sections introduce the five most prevalent technologies competing in the long duration energy storage market:

Pumped Hydro Storage (PHS)

PHS is the most mature and the largest capacity storage technology available, and currently provides approximately 93% of global operational electricity storage capacity; round-trip efficiency of 75%–80%

PHS has traditionally been the technology of choice for delivering long duration storage services. It is the most mature and the largest capacity storage technology available, and currently provides approximately 93% of global operational electricity storage capacity. PHS facilities pump water from one reservoir into another at a higher elevation, typically using lower priced off-peak or surplus renewable electricity. When energy is required, the water in the higher elevation reservoir is released and runs through hydraulic turbines that generate electricity. PHS plants typically have a round-trip efficiency of 75%–80%.

PHS technology has evolved over the years. Variable speed pumps represent the latest generation of the technology and provide significant advantages. A variable speed pump turbine can be regulated to plus or minus 20% of capacity during a pumping cycle, which provides the ability to accurately follow changes in both load and the supply of fluctuating renewable generation. In addition, variable speed PHS facilities can be designed to transition rapidly between pumping and generating. This flexibility, combined with large storage capacity, means that PHS facilities offer grid operators capabilities that are critical to managing high penetrations of renewables and aligning variable renewable energy supply with shifts in load.

Compressed Air Energy Storage (CAES)

CAES systems are advantageous for large-scale storage between 50MW - 300MW of power output and can be brought to full output in around 10 minutes; round-trip efficiencies, ranging from only 48% to 75%

CAES systems compress ambient air, store it under high pressure conditions, and then release it to power generator-tied turbines when electricity is needed. The largest barrier to CAES development arises from geographical restrictions because the systems require either natural underground caverns or underground tanks, which are rarely in convenient locations. CAES systems are advantageous for the purposes of large-scale storage because they typically range from 50MW to 300MW of power output and can be brought to full output in around 10 minutes. However, CAES systems have relatively low round-trip efficiencies, ranging from only 48% for older designs to as high as 75% for more modern systems. There are only two large-scale CAES plants in operation — one in the US state of Alabama and one in Germany, with durations of 26 and 4 hours, respectively.

Flow Batteries

Flow batteries are single-celled batteries that transform the electron flow from activated electrolyte into electric current; The round-trip efficiency ranges from 65%-85%

Flow batteries are single-celled batteries that transform the electron flow from activated electrolyte into electric current. They achieve charge and discharge by pumping a liquid anolyte and catholyte across a membrane. While there are many different flow battery chemistries, the vanadium redox chemistry has emerged as the market's leading technology. The round-trip efficiency for flow batteries ranges from 65%–85%. Flow batteries have several inherent advantages over other battery technologies. Their discharge duration is correlated to the volume of electrolytes stored, so storage can be increased simply by adding additional tanks of electrolyte, with limited marginal costs. The technology is also generally safer than Li-ion or molten salt batteries — the use of nonflammable electrolytes means that most flow battery systems do not present a fire safety hazard. However, the electrolytes used in most flow batteries are corrosive and may be an environmental hazard if spilled. Furthermore, flow batteries experience little

to no depletion of active materials over time, giving them greater cycle life expectancies (10,000+ cycles) than other battery types.

Molten Salt Batteries

Molten salt batteries include sodium sulfur (NaS) and sodium-metal halide (NaMx) systems; the round-trip efficiency ranges between 75%–90%

Molten salt batteries include sodium sulfur (NaS) and sodium-metal halide (NaMx) systems, both of which use a molten sodium anode and a solid beta-alumina electrolyte at high operating temperatures of about 300°C or more. Typical performance characteristics of NaS and NaMx batteries are relatively similar with regard to high energy density, long cycle life, and moderate-to-high round-trip efficiencies of 75%–90%. Molten salt batteries gained traction in the market early on, but the battery storage market has shifted heavily toward Li-ion technologies. This is because molten salt batteries' performance characteristics and high price point (which is driven by expensive betaalumina membranes) make them better suited for long duration applications, while the energy storage industry has recently focused largely on short-duration applications.

Lithium Ion Batteries

Li-ion batteries use the flow of lithium ions between the cathode and anode of the battery to charge and discharge; Their short lifespan makes Li-ion batteries an expensive choice for long-term grid applications.

Li-ion batteries use the flow of lithium ions between the cathode and anode of the battery to charge and discharge. Li-ion batteries have excelled as the primary chemistry of choice in consumer electronics for the last decade and are now finding a limited role on the grid. In general, Li-ion batteries have excellent energy and power densities and round-trip efficiency. However, their average duration of 4 hours limits their ability to support the integration of high percentages of renewable energy. The relatively short cycle life of Li-ion batteries, which can range from 500 to 10,000 cycles depending on usage and the specific Li-ion chemistry that is used, translates into a 3–15-year lifespan. This makes Li-ion batteries an expensive choice for long-term grid applications.

Factors to Consider When Evaluating Costs of Energy Storage Technologies

The five major long duration energy storage technologies discussed below differ widely in terms of their operational benefits, cost structure, typical project scale, and development timelines. This section provides an overview of key points of comparison.

Discharge Duration

Table 9. Average Discharge Duration Assumptions, Long Duration Energy Storage Technologies

Technology	Average Duration
CAES	3–24 hours
Flow Battery	3–12 hours
Lithium Ion Battery	0.5–8 hours
Molten Salt Battery	6–7 hours
Pumped Hydro Storage	6–24 hours

Sources: Navigant Research

Discharge duration refers to the length of time an energy storage system can discharge at full output capacity. While all five major long duration energy storage technologies are capable of long duration discharge, they vary considerably in their range of duration.

Although Li-ion battery projects can be designed to have a duration of up to 8 hours, most operational Li-ion batteries have durations of 4 hours or less. This places them at the low end of the duration range and limits their ability to offer a full suite of grid services. At the other end of the spectrum, PHS projects have average durations that range from 6 to 24 hours, with some plants designed to discharge at full power for longer than 24 hours. This duration enables them to replicate the grid and reliability services provided by conventional power plants.

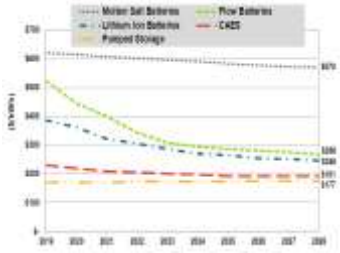
Project Scale and Development Timelines

Long duration energy storage technologies can vary greatly in their scale and development timelines, with corresponding impacts on upfront costs. While battery projects can be deployed more quickly at a lower initial cost, they are often smaller in scale, averaging 5–50MW in capacity. In contrast, PHS and CAES facilities are typically large-scale plants that provide 100MW of capacity or more, requiring significant upfront investment and longer lead times.

The scaling of duration and total project cost also varies considerably between technologies. For Li-ion battery projects, scaling to longer durations requires adding more battery packs, which represent the largest cost component of the project. Increasing duration results in an essentially linear increase in costs. By comparison, larger scale technologies such as PHS have different cost structures. Much of the cost to build a PHS project is fixed, coming from land development and construction. Scaling a PHS plant to longer durations requires only increasing the volume of the reservoirs being used, which has a relatively small impact on total system cost relatively to construction and development expenses.

Upfront Installed Costs versus Lifetime Costs

Chart 8. Average Utility-Scale Bulk Energy Storage System Installed Cost (CAPEX) by Battery Technology, World Markets: 2019-2028



Sources: Navigant Research

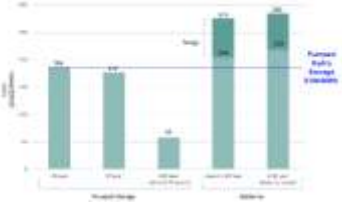
Long duration energy storage technologies have a wide range of installed costs, which are typically noted in dollars per kilowatt-hour of stored energy capacity. Navigant Research expects total upfront installed cost for each of the major technologies to range from $170.3/kWh for PHS to $619.7/kWh for molten salt batteries, as illustrated in Chart 4 (with the Pumped Storage to be at the low end at c$177/kWh).

The falling upfront costs of Li-ion batteries have made them attractive for some grid applications, but they have a short lifespan compared to conventional generation assets and PHS facilities, which are typically designed to last for several decades. The average lifespan of a Li-ion battery storage system ranges from 3–15 years depending on how it is used and how the specific Li-ion chemistry employed. While the inevitable degradation of Li-ion systems can be addressed by replacing depleted battery modules over time, this practice increases lifetime project costs considerably.

Accurately Comparing The Cost of Energy Storage Technologies

When evaluating energy storage technology options, it is critical that grid operators and regulators consider key pieces of the energy storage cost puzzle beyond upfront cost. A levelized cost of storage (LCOS) calculation can be used to more accurately evaluate the lifetime costs of different technologies and yield cost per megawatt-hour figures that support fair and valid comparisons. Lazard has conducted extensive evaluations of energy storage technologies and applications. The advisory firm has developed a method for calculating LCOS that is perhaps the most robust comparison of the true cost to own and operate different storage technologies. Lazard's LCOS calculation factors in the upfront investment required for a given storage technology. The calculation also incorporates operating patterns (cycles per day/year) for a given application, depth of discharge, round-trip efficiency, annual operations and maintenance costs, equipment replacement costs, system charging costs, and the overall useful life to yield an estimate for the cost per megawatt-hour, thereby enabling an apples to-apples comparison.

Chart 9. Levelized Cost of Storage Comparison, Pumped Hydro Storage versus Li-ion Batteries



Sources: Lazard and San Diego County Water Authority

Chart 5 illustrates the stark contrast in the LCOS for PHS and Li-ion batteries over similar time periods based on PHS project evaluation conducted by the San Diego County Water Authority. PHS projects are designed for up to 50 years of operation with limited equipment replacement, a lifespan that can be extended to 100 years with proper maintenance and component replacements. By comparison, Li-ion battery projects typically have much shorter lifespans, although it is possible to keep them operating for 20 or even 40 years with proper maintenance and battery replacement. As shown, these differences in operating life result in significantly higher levelized costs for Li-ion batteries. Using projected costs for facilities with a commercial operation date of 1Jan'26, over a 40-year operating life, PHS facilities have an LCOS of $186/MWh, compared to $285/MWh for Li-ion battery facilities for the same period.

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We value Terna Energy through a two-stage DCF model. We form an explicit set of forecasts for the period up to 2024e, after which we assign a terminal value. The resulting cash flows are discounted back to the present with a WACC rate of 7.5% and netted out with outstanding debt in order to produce a "fair" value for the stock.

Rating History

Date	Rating	Share Price	Target Price
19-09-2016	Overweight	2.65	3.60
10-07-2017	Overweight	3.92	5.50
30-11-2017	Overweight	4.37	5.80
13-07-2018	Overweight	5.15	7.20
28-06-2019	Overweight	7.05	9.20
28-04-2020	Overweight	8.42	12.00
28-09-2020	Overweight	11.00	15.80

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Authorization No: 45/23.06.95/item 3rd
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