

Vietnam's EVN Stands Out With a Strong 2020 Financial Performance

Hydropower Delivered Cost Savings but Weak Grid Investments Is a Negative for Renewables

Executive Summary

Vietnam's state utility Electricity of Vietnam (EVN) has come through 2020 in surprisingly good financial health compared to many Southeast Asian peers. In a year when most regional power companies can be excused for reporting losses, EVN posted an overall improvement in its operating margins and gross profit despite the challenges posed by the COVID-19 pandemic. With constrained revenue growth caused by slowing demand, lost revenue from tariff rebate programs and a government-mandated tariff freeze, the improved profitability reflects EVN's ability to optimize the system and keep operating costs in check.

In 2020, EVN benefited from a cost-friendly generation mix thanks to the better availability of inexpensive hydropower, a scenario that is welcomed but not guaranteed on a recurring basis. This positive swing is a reminder of the sensitivity of EVN's financial profile to volatile hydropower sources. Nevertheless, EVN's ability to benefit from a more cost-effective generation mix in 2020 with more renewable energy, including hydro and solar power, and less fossil fuel-based electricity has strategic implications for the planning of Vietnam's power system. As more variable renewables come online, the role and dominance of coal and gas-fired power in the country's energy mix faces inevitable adjustments. This shift will require a thorough review of the economic assumptions that have driven commitments to large-scale pipeline projects that cannot be dispatched flexibly.

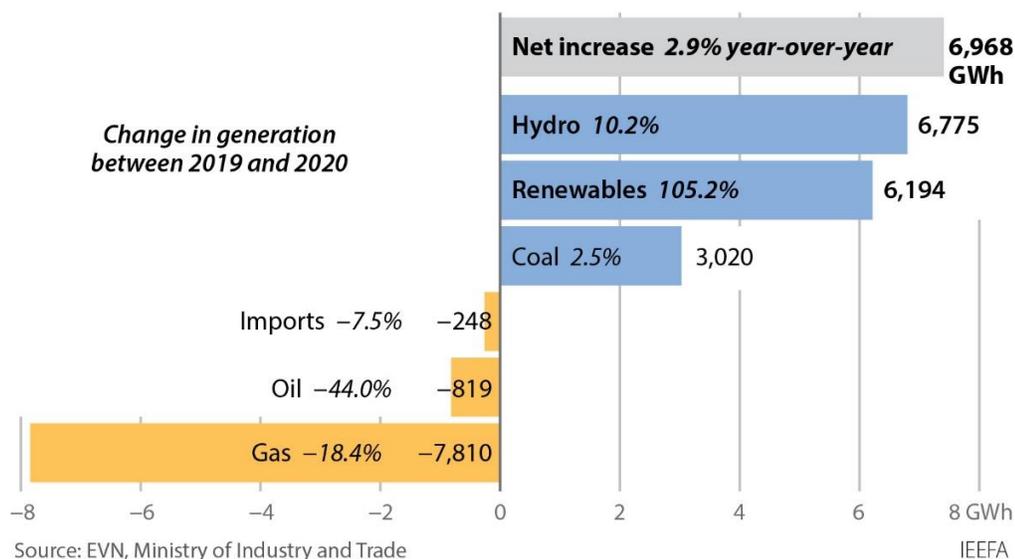
This positive swing is a reminder of the sensitivity of EVN's financial profile to volatile hydropower sources.

The one red flag in the 2020 results is that EVN held back on capital spending—a strategy that means much-needed investment in grid infrastructure may continue to be a problem area, particularly for the renewable energy assets now facing curtailment risks. Total borrowings continued to decline while financing needs for EVN's own pipeline of large-scale generation projects, many of which are expected

to break ground in 2021-2022, could further constrain funding for transmission projects in the near term.

Vietnam’s 2020 Power Generation Mix

Fossil fuel reliance declines as renewables penetration grows.



How EVN Survived Pandemic-Hit 2020

Vietnam’s state utility Electricity of Vietnam (EVN) has come through 2020 with strong financial fundamentals compared to many Southeast Asian peers. Defying expectations, EVN posted an overall improvement in gross profit (+6.9%) in the fiscal year 2020, driven by improved operating margins. The COVID-19 pandemic depressed demand across all power markets, but for Vietnam, this deceleration helped spare the economy from the looming threat of power outages and gave EVN some breathing room to better manage the operating risks that come with years of high growth.

For EVN, the real test came in the form of a government-mandated tariff freeze and sizeable rebate programs that extended coverage to all ratepayers, constraining EVN’s revenue growth. This was unwelcome news for the state utility given the company’s high dependence on tariff increases to improve the gross margin in recent years. EVN’s ability to post healthy profits under such circumstances, therefore, reflects an effective cost control strategy enabled by a more diverse and flexible energy mix in 2020.

Table 1: EVN Consolidated Income 2016-2020

VND million	2016	2017	2018	2019	2020
Net sales	272,702,522	294,846,997	338,500,266	394,889,987	403,282,648
Cost of sales	(233,671,119)	(250,742,125)	(285,341,478)	(343,852,003)	(348,724,291)
Gross profit	39,031,403	44,104,872	53,158,788	51,037,984	54,558,357
Financial expenses (net)	(18,083,814)	(18,435,078)	(25,391,488)	(18,522,849)	(17,719,052)
Profit sharing from JVs, associates	427,465	699,186	569,873	498,392	430,088
Selling expenses	(5,989,331)	(6,525,795)	(6,711,690)	(7,134,349)	(8,603,466)
General and administration expenses	(10,535,903)	(12,068,204)	(13,301,134)	(13,635,568)	(13,589,081)
Net operating profit	4,849,821	7,774,981	8,324,349	12,243,610	15,076,846
Net accounting profit before tax	5,164,742	8,144,629	9,076,043	12,499,984	15,315,944
Net profit after tax	4,431,569	6,593,474	6,817,761	9,720,033	14,480,303
Margins					
Gross margin	14.3%	15.0%	15.7%	12.9%	13.5%
Net operating margin	1.8%	2.6%	2.5%	3.1%	3.7%
Net profit margin	1.6%	2.2%	2.0%	2.5%	3.6%
Cost of sales					
Materials			71,049,828	90,660,808	89,928,151
Amortization and depreciation			74,436,638	68,776,069	69,427,077
Outside purchasing services (IPPs)			112,947,627	157,584,265	160,112,674
% of total sales					
Cost of sales	85.7%	85.0%	84.3%	87.1%	86.5%
Materials			21.0%	23.0%	22.3%
Amortization and depreciation			21.0%	23.0%	17.2%
Outside purchasing services (IPPs)			33.4%	39.9%	39.7%
Financing costs	8.2%	7.5%	8.6%	5.7%	5.7%

Source: EVN, IEEFA. Note: Cost of sales details available only from 2018.

Slower Demand Growth Made It Easier to Optimize the Generation Mix

For most of 2020, EVN continued to struggle with a tight reserve margin as the system's total installed capacity remained almost unchanged. No new, significant hydropower, coal, or gas power plants reached commercial operation. New renewable capacity was the big story of 2020, but the majority of the additional 12 gigawatts (GW) of solar power, predominantly rooftop solar systems, only came online in the last two months of the year, making little contribution to overall system output. Therefore, last year's slowest pace of power demand growth in at least a decade could be seen as fortunate for EVN's system operators.

Table 2: Vietnam's Power Demand Hit by Pandemic but System Expanded

	2016	2017	2018	2019	2020
Year-end installed capacity (MW)	41,422	45,410	49,410	55,939	69,094
<i>YoY Growth (%)</i>	7.2%	9.6%	8.8%	13.2%	23.5%
Pmax (MW)	28,109	30,931	35,126	38,249	38,706
Reserve margin (excl. solar and wind power)	47.4%	46.8%	40.7%	33.0%	33.7%
Total system output + import (kWh million)	182,000	198,000	220,000	240,112	247,080
<i>YoY Growth (%)</i>	11.0%	8.8%	11.1%	9.1%	2.9%
Total sales (kWh million)	159,793	174,653	192,360	209,768	216,950
<i>YoY Growth (%)</i>	11.2%	9.3%	10.1%	9.0%	3.4%

Source: EVN, Ministry of Industry and Trade.

In 2020, EVN's unit sales reached 217 billion kilowatt-hours (kWh), an increase of 3.4% year on year. Albeit still in positive territory, this was a significant slowdown from the pre-pandemic level, as consumption growth from industrial users, the largest consumer group, and the hospitality sector were severely hit during the pandemic. Sales revenue was VND403.3 trillion (USD17.4 billion)¹, only a 2.2% nudge compared to the average increase of 13.2% observed over the 2015-2019 period. As a result, the average effective retail tariff fell to VND1,851 (USD0.08) per kWh, the first negative growth (-1.3%) registered since 2017.

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EVN's 2020 revenue growth was capped by the inability to raise retail electricity tariffs and two consecutive rebate programs that cost the company a total of VND12.3 trillion in lost revenue.² Plans to hike retail tariffs, which are state administered, were quickly shelved after the onset of the pandemic in early 2020 as the country's leadership sought proactive measures to support businesses affected by the pandemic. The government has retained this cautious posture into 2021 leaving EVN no choice but to carefully manage power generation and purchasing costs.

As a testament to this success, EVN's gross margin recovered (up 600 basis points) in 2020 after registering a sharp erosion a year earlier, as operating costs were kept under control. Cost of sales went up by just 1.4% compared to the usual two-digit growth rates, helped by hydro availability and flatlining IPP costs (only +1.6%).

¹ Exchange rate USD1 = VND23,147.

² EVN. [Government resolution on third round of electricity tariff and bill discount](#). 02 June 2021.

System Flexibility Crucial With a Dynamic Energy Mix

A structural change in the generation mix helped drive down costs for EVN. In 2020, favorable hydrological conditions in the monsoon season enabled EVN to work with a higher mix of low-cost hydropower (+10.2% in output), accounting for 30% of the generation mix. Increased dispatch of solar power also led to lower utilization of gas power plants (-18.4%) and costly oil-fired power stations (-44.0%). Coal power output rose slightly (+2.5%) and remained the dominating source, responsible for half of the generation mix.

Table 3: Vietnam's Generation Mix in Transition

GWh	2019	2020	Change	
			GWh	%
Total generation and import	240,112	247,080	6,968	2.9%
Coal	120,157	123,177	3,020	2.5%
Hydro	66,117	72,892	6,775	10.2%
Gas	42,470	34,660	(7,810)	-18.4%
Non-hydro RE	5,890	12,084	6,194	105.2%
Oil	1,862	1,043	(819)	-44.0%
Imports	3,315	3,067	(248)	-7.5%

Source: EVN, Ministry of Industry and Trade.

The 2020 scenario is a vivid reminder of EVN's financial sensitivity to changes in the annual generation mix. Vietnam's power system is a diversified portfolio consisting of significant, seasonally sensitive hydropower sources—at 20.7GW of capacity, or nearly a third of the system. Although increasingly volatile and influenced by factors beyond the control of the Vietnamese regulators, when available, hydropower has dispatch priority due to its low cost. Operational flexibility from the remaining power fleet is thus crucial for accommodating this least-cost option, when possible, to achieve optimal generation and procurement costs.

Coal, gas, and oil-fired power stations are starting to face new revenue risks and operational challenges.

On another front, the 2020 generation mix also offers some early signals of the new competitive landscape facing fossil fuel players as non-hydro renewables begin to make inroads. Coal, gas, and oil-fired power stations are starting to face new revenue risks and operational challenges.

As the data shows, gas and oil-fired power stations have been ramped down, their output replaced by solar power. Some major IPP gas power plants saw their revenues hit in 2020 due to lower utilization, which the sponsors attributed to subdued demand and competition from renewables. For example, PetroVietnam's

1500MW Ca Mau 1&2 gas IPP, the country's largest, had its output slashed by 14% compared to the previous year, resulting in a revenue drop of VND1,965 billion (USD84.9 million); while their 450MW Nhon Trach 1 saw output fall 65% year on year, with revenues down VND3,383 billion (USD146.2 million).³

In 2021, despite a recovery in power demand, EVN has projected that coal-fired power units could register the first significant annual contraction in history, with output falling by 4% versus the previous year.⁴ In the first half of 2021, gas power output fell by 18.6% versus last year's already low base while expensive oil-run plants have gone nearly unused.⁵

Technical risks have also emerged during this transition, as some gas power units have proven ill-equipped to adjust to new system requirements. Incidents have been reported at Ba Ria and Phu My 2.2 in Ba Ria – Vung Tau, along with grievances from the power plants not familiar with operating on a “stand-by” mode now facing higher operating costs and malfunctioning risks. According to EVN's National Load Dispatch Center, the system operator, thermal power stations have been asked to cycle up and down much more frequently, with events rising from 74 times in 2019 to 190 in 2020 and to over 330 times by April 2021 alone. Each case could cost the plant up to VND10 billion (USD430,000).⁶

Grid Under-Investment Remains a Key Concern

EVN's grid upgrading efforts continue to be scrutinized by renewable energy investors facing curtailment risks and will remain crucial to the sector's future growth. While official announcements by EVN indicate a sense of urgency and a strong focus on upgrading substations and transmission and distribution lines in critical regions, it is difficult to gauge the full scale of the work in progress. Based on FY2020 financial disclosures, however, it appears that EVN continued to hold back on capital spending and used cash to pay down debt—a strategy that hurts short-term but should improve their debt capacity as they prepare to address pressing capital expenditure (capex) needs.

³ PetroVietnam Power Corporation. [Explanatory note on the 2020 financial statements](#). 04 June 2021.

⁴ Thanh Nien News. [Coal and hydropower to be reduced to make room for solar power](#). 05 May 2021.

⁵ EVN. [Operational report on the first half of 2021 and targets, missions for the second half](#). 09 June 2021.

⁶ Cong Thuong News. [EVN proposes system management solutions to accommodate high renewable energy penetration](#). 06 May 2021.

Table 4: EVN's Balance and Cash Flow Items

VND million	2016	2017	2018	2019	2020
Balance sheet items					
Total debt outstanding	396,591,441	404,444,512	405,077,268	398,750,367	386,452,720
Financial expenses/debt outstanding	5.6%	5.5%	7.2%	5.6%	5.9%
Debt/equity (x)	2.4	2.3	2.2	2.2	2.0
Cash flow items					
Capex	127,312,625	74,016,256	63,550,735	49,425,195	49,136,422
Net debt flows (proceeds-repayments)	22,318,727	6,074,313	(8,304,421)	(8,237,439)	(18,629,439)
Funds from operations (FFO)	88,220,064	98,416,620	107,650,350	99,331,610	100,545,535
Cash debt service	55,929,941	63,636,495	82,943,711	74,180,774	68,090,357
FFO/cash debt service	1.6	1.5	1.3	1.3	1.5
FFO adjusted net leverage x	4.5	4.1	3.8	4.0	3.8
Cash and cash equivalents	41,513,150	45,704,037	50,205,261	53,601,031	55,236,910

Source: EVN, IEEFA.

EVN's capex spending remained unchanged in 2020, at VND49.1 trillion (USD2.1 billion). This is below earlier projections by credit rating agency Fitch (at VND59.0 trillion).⁷ While the headline capex figure held flat year over year, there was notable spending by EVN's transmission subsidiary, National Power Transmission Corporation (NPT), which oversees 220-500kV infrastructure, where capex expanded by 23.8% to VND13.2 trillion (USD570.7 million). Nevertheless, this momentum is unlikely to be sustained as NPT's planned capex spending for 2021 is just VND12.8 trillion,⁸ well below the average transmission investment of VND47.8 trillion per year envisioned in Vietnam's Draft Power Development Plan (PDP8) between 2021-2025.

The group continued to focus on debt repayment and limiting new long-term borrowings, resulting in the total debt stock further declining in 2020. FFO-to-cash debt service ratio improved to 1.5x, supported by lower debt service obligations.

It is worth noting that grid investments could be further constrained in the next couple of years as several EVN-owned large-scale generation projects progress to the investment phase. After a period of quietly retreating from new generation asset investments, a portfolio of 10 projects is now scheduled to break ground between 2021-2023. The projects are a mix of hydropower and coal and gas power plants, with a combined price tag of USD9.0 billion, around 25-30% of which will have to come from EVN's equity.

While the outlook for gas power projects is more uncertain, EVN has been aggressively accelerating the development of the Quang Trach 1&2 coal power project, successfully pursuing domestic financing from local state-owned banks. Meanwhile, the hydropower projects have received non-sovereign concessional loans from the French development agency AFD, which could help keep the projects on schedule.

⁷ Fitch Ratings. [Fitch affirms Vietnam Electricity at 'BB'; Outlook Stable](#). 15 September 2020.

⁸ EVN National Power Transmission Corporation. [EVN NPT's business and development investment plan for 2021](#). February 2021.

Table 5: EVN's Own Pipeline Power Generation Projects

	Plant Name	Type	Size (MW)	Investment (VND bn)	Timeline	
					Ground-break	Completion
1	Quang Trach 1	Coal	1,200	41,131	2021	2025
2	Hoa Binh (Extension)	Hydro	480	9,221	2021	2024
3	Ialy (Extension)	Hydro	360	6,399	2021	2024
4	Bac Ai	Pumped Hydro	1,200	21,102	2022	2028
5	O Mon 4	Gas	1,050	29,944	2022	2025
6	Dung Quat 1	Gas	750	17,539	2022	2025
7	Dung Quat 3	Gas	750	18,664	2022	2025
8	Tri An (Extension)	Hydro	200	3,725	2022	2025
9	O Mon 3	Gas	1,050	13,396	2023	2026
10	Quang Trach 2	Coal	1,200	48,156	2023	2028
Total				209,277		

Source: EVN. Note: Only includes large-scale projects.

Apart from financial constraints, pre-investment bureaucracy and complexity around land clearance and compensation have been critical barriers to EVN's efficient build-out of grid infrastructure projects. As in other countries, the scale of these issues can often be more complex than in power generation projects, given the geographical and administrative exposure of the grid lines. Regardless of the underlying cause, delayed grid upgrades are posing near- and long-term risks to cost-effective integration of the growing renewables fleet.

Geographical challenges will also dictate decisions about grid investment priorities. The existing solar and upcoming wind power fleet (expected to total 5-6GW by November) is predominantly concentrated in the southern half of the country while power demand has been growing the fastest in the northern provinces where very little new capacity is expected in the next two to three years. Non-renewable project proposals, including liquified natural gas (LNG), have also been skewed towards the central and southern areas, further underscoring that grid upgrades, particularly enhancing the north-south transmission network, are crucial to future-proofing the system.

Vietnam's lawmakers laid the foundation for privately invested grid infrastructure in the Law on Public-Private Partnership, effective from January 2021. However, implementing regulations and a complete legal framework to enable actual implementation is still absent. Further clarity should be expected only after PDP8 is issued.

Conclusion

Putting EVN's 2020 Financial Fortunes Into Context

EVN deserves credit for its successful management of the dynamic power fleet and the resulting healthy returns in 2020. However, rather than a sustained strategic fix, the good news in 2020 resulted from a cost-friendly generation mix enabled by the cheap yet seasonally sensitive hydropower. This is a positive scenario but there are

no guarantees that EVN will continue to be so fortunate. As a result, EVN's improved 2020 profit margins should be read with care and not equated with enhanced credit fundamentals. As Fitch noted in its September 2020 rating of EVN, "In the absence of required increase in power tariffs, EVN's financial profile can deteriorate more rapidly than its peers given its reliance on volatile hydropower and high exposure to foreign-currency denominated debt."⁹

Tariff increases will remain key to the sustained strengthening of EVN's financial position. While 2021 appears to be another year with favorable rainfall, EVN could face new cost pressures depending on demand trends and the generation mix. One crucial variable will continue to be how the existing solar fleet and evolving wind power capacity fits into dispatch decisions.

One thing seems certain, however. Optimistic assumptions about near-term tariff adjustments are a bad fit for Vietnam's pandemic and post-pandemic recovery context. Compared to other state financial support schemes, the electricity tariff freeze and rebate programs are seen as an efficient way to provide broad relief to the public due to the lack of red tape involved. Until today, the Ministry of Industry and Trade (MOIT) officials have been swift to dismiss any rumors of tariff hikes, even during periods of economic recovery between the different waves of COVID-19.

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Pipeline Gas Projects Should Be Mindful of Baseload Assumptions

As the past two years have shown, EVN is a power utility in transition, whether it wants to be or not. Just as the rapid growth in solar and wind power installations changed the terms of debate around the PDP8 planning process, it is also beginning to reshuffle the generation mix. This may raise market risk for a range of investors pursuing the pipeline of baseload coal and gas power projects that often rely on outdated assumptions about the impact of energy transition on least-cost technology options for energy growth markets like Vietnam.

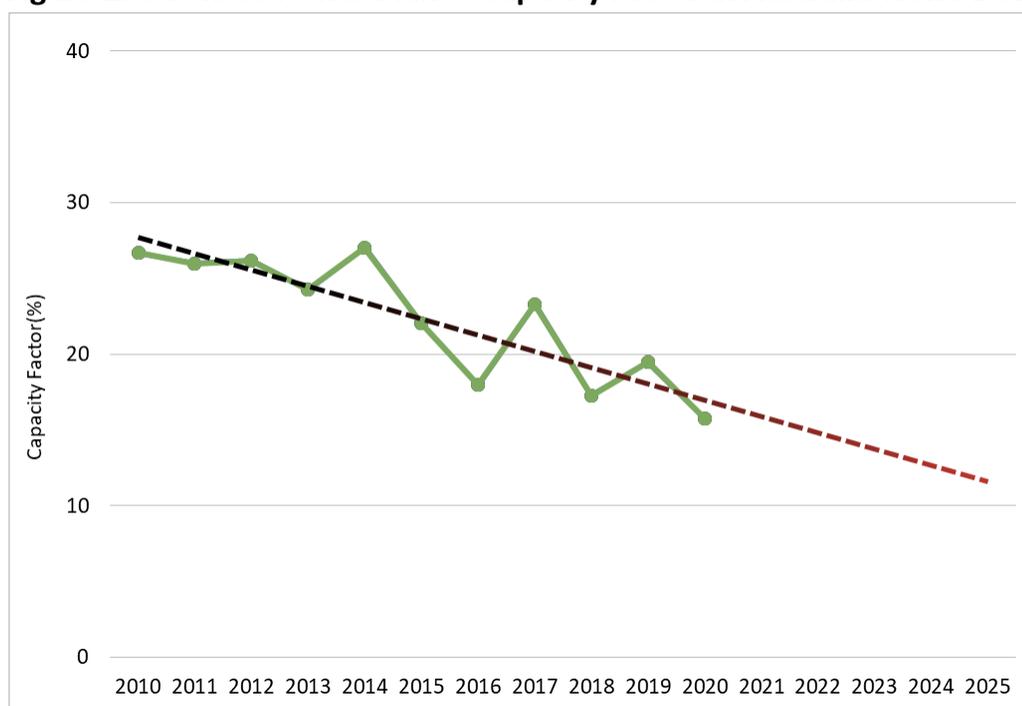
A critical insight from EVN's 2020 results is that assumptions about capacity factors need to be reviewed. The legal framework currently enables EVN and sponsors of new gas power plants to work with a business-as-usual capacity factor ($T_{\max} = 6,000$ hours per year) when making the project's financial projection and negotiating power purchase agreements. But this is a risky undertaking for both sides. With proposed

⁹ Fitch Ratings. [Fitch affirms Vietnam Electricity at 'BB'; Outlook Stable](#). 15 September 2020.

power tariffs in the range of USD0.089-0.097/kWh^{10 11} and subject to fuel cost risk, it is increasingly unlikely that they will be competitive by the time these plants are commissioned, under the best-case scenario, five to seven years from now. Until then, incremental renewable capacity and storage solutions have a solid chance to scale up further and offer more competitive pricing, rewriting the merit order of gas power plants in Vietnam’s power system in the process.

Investors and EVN as the sole offtaker with capacity payment obligations stand vulnerable to disappointment and financial losses if they fail to account for such a scenario. Case studies from other transitioning economies, such as Australia¹² and India¹³, have shown how the capacity factors of fossil fuel-based power plants are frequently over-estimated from the onset as market penetration for new and lower-cost options grow.

Figure 1: Gas-fired Power Plants’ Capacity Factor in Australia Trend Down



Source: IEEFA calculations. Data: AEMO, OPENNEM, Global Energy Observatory.

¹⁰ The Leader. [Son My II gas power project under official appraisal](#). 11 June 2021.

¹¹ Dau Tu Online. [Son My I BOT gas power project demands concessions](#). 20 June 2021.

¹² IEEFA. [Australia’s gas-fired recovery under scrutiny](#). June 2021.

¹³ IEEFA. [Overestimated financial viability of India’s coal-fired power plants](#). July 2021.

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