

ENERJİSA ÜRETİM:

An electrifying transformation following a demerger

On the fourth-year anniversary of Enerjisa Üretim's (a power generation and trade business) independence from the highly profitable market leader Enerjisa Enerji (an energy distribution and retail business) and becoming a stand-alone company jointly owned by Germany's E.ON and Turkish conglomerate Sabancı Group, the CEO of Enerjisa Üretim (hereafter Üretim)– Ihsan Erbil Bayçöl, could not be any prouder.

Only four years ago, Üretim was in dire financial shape, almost teetering on the brink of failure. During the first six months of 2017 preceding the demerger, Üretim had posted a net loss of €114 million (€56 million excluding the one-off items). This was the third loss making year in a row, and unlikely to be the last. Even the most optimistic projections were unable to chart positive cash flow in the ensuing two years. The company was also highly leveraged (above 8x Net debt/EBITDA). Its loans and bonds were all denominated in Euros, additionally exposing it to substantial currency risk. Then there were the chronic operational problems in its plants, which were partly due to design deficiencies and construction problems, a shortage of technical skills, as well as years of operational mismanagement and top management's prioritization of the lucrative Enerji over Üretim. Nowhere was this more evident than in Üretim's recently opened mega lignite power plant with a total installed capacity of 450 MW, which had cost nearly €1 billion to construct and yet had never reached full capacity since going operational two years previously.

Üretim had been a captive supplier to Enerji and had never had to acquire customers nor face market competition. As a result its organizational DNA did not include a sharp performance focus nor aggressive market competencies. Following the demerger, the company would have to operate independently in a highly competitive market which included a formidable, state-owned power generation company with capacity nearly five times that of Üretim's. And the market outlook was grim to say the least. The growth of Turkey's power generating capacity was running ahead of demand growth, creating a significant supply glut. Not only this, the massive state competitor was utilizing its

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formidable capacity to ensure that the spot price of electricity would remain below inflation. Simultaneously, the electricity generation industry in Europe was going through fundamental, disruptive change induced by powerful forces such as the decentralization of energy production, evolving battery technologies, and digitalization, which were threatening to upend the energy value chain as well as the traditional business model of power producers. These forces were becoming increasingly potent in Turkey as well.

Thus, for Üretim's new management team, the road ahead was filled with seemingly insurmountable financial, operational, and strategic obstacles and dramatic market challenges, culminating in the very real risk of failure. In fact, even in the ranks of management there was little confidence in the future of a stand-alone Üretim. Many senior executives actively campaigned during the demerger to join Enerji instead – the star division of the former integrated company.

Yet what transpired in the next four years is nothing short of an epic story of transformation containing many critical lessons. A young, visionary leadership team was adamant not to go down without a real fight, snatching the company from the brink of extinction and in the process transforming it into a sector leader with immense growth prospects. Today Üretim boasts the strongest balance sheet in its sector, pays dividend to its shareholders, owns the top performing power plants by key operational metrics, commands the most innovative portfolio of energy services, is heralded as the digital leader in its sector, and is a serial winner of the employee choice awards. Once a captive supplier to a single buyer, Üretim now provides over 6,5 billion kWh of electricity annually to fifty-five independent energy distributors. This power is generated from a strong, diversified portfolio of assets ranging from hydro and solar to wind and lignite. Üretim's wholesale trading arm accounts for one third of all the transactions in the futures and options exchange in Turkey, while aggressively expanding across Southeast Europe to become a regional trading powerhouse.

BRIEF HISTORY OF ENERJISA: A VERTICALLY INTEGRATED ENERGY COMPANY

Enerjisa was founded in 1996 as the fully-owned energy arm of Sabancı Group (SAHOL) –a leading Turkish conglomerate, diversified across several sectors. In its early years, the company was solely focused on supplying power to SAHOL's manufacturing plants. In 2007, the Austrian utility company, Verbund, took a 50% stake in the company as part of its geographic diversification strategy. In 2008, Enerjisa moved into electricity distribution and retailing by paying \$1.23 billion to take over the operational rights of the Başkent grid, which operates in seven provinces including capital city Ankara for 30 years.

In December 2012, Verbund transferred its Enerjisa stake to E.ON, Germany's biggest utility by sales, in a transaction valued at approximately €1.5bn. Feeling the pressure from Germany's transition to wind and solar, which was undermining energy prices and eroding the profitability of its domestic gas-powered stations, E.ON saw the deal as a platform for new growth in an exciting, emerging economy. Only seven months prior to the agreement, the company had signed another JV deal with a Brazilian company to build gas and lignite-fired power plants in Brazil. These bold forays into two emerging markets were intended to reduce E.ON's overdependence on its declining core market, Germany.

As for SAHOL, the transaction provided a significant opportunity for transformation as well. Though active in over fifteen industries, the group was nonetheless overly reliant on its banking arm which accounted for over 50% of its assets¹. Most of its traditional businesses such as retailing, cement and bus manufacturing were under heavy pressure and its consolidated profits were on the decline. To SAHOL leadership, the energy sector signified an immense growth and diversification opportunity. Having a strong partner committed to investing a minimum of €2 billion until 2015 would pave the way for Enerjisa to seek more aggressive growth and eventually position itself as a cornerstone in their portfolio of businesses. Indeed, only four months after the arrival of E.ON, Enerjisa successfully acquired two regional power distribution companies in a government auction at a total cost of \$2.9 billion. After these acquisitions, the company held a nearly 30% share in the Turkish power distribution sector, together with its existing assets.

With E.ON on board, Enerjisa's management started to float the idea of an initial public offering (IPO) in 2014. A year later, management announced that the IPO would have to be postponed to 2015. In March 2015, the CEO of the SAHOL Group confirmed the owners' commitment to an IPO but avoided pointing to a specific timeline. Soon after, in April, rumors began to surface that E.ON and SAHOL were exploring the sale of Enerjisa's power assets for \$1 billion. Then in January 2016, Bloomberg reported that the owners of Enerjisa were in talks with Chinese investors to sell a minority stake to improve the company's debt and equity balance before a potential IPO. Later, that August, Bloomberg reported that the plan to sell a stake to Shanghai Electric Power Co. Ltd. for about \$1 billion had stalled and the company was now focusing on completing its IPO and were already in talks with London bankers to hammer out the details of the IPO.

After heavy losses in 2013 and 2014, Enerjisa closed 2015 with a net profit of roughly €90 million on a revenue of €3.7 billion – a modest nevertheless encouraging improvement. The company's headcount exceeded 10,000 for the first time ever. Enerjisa now accounted for nearly \$11 billion of the total \$66

¹ The group reported revenues of \$12.5bn in 2012 and employed over 60,000 people.

billion of investment undertaken in the Turkish electricity sector over the previous decade. Company performance improved further in 2016 with both revenues and net profits surpassing those of the year before. Enerjisa was now delivering electricity to 20 million people in 14 provinces of the country.

In March 2017 the Enerjisa board decided to divide the company into two independent entities. By August, the company was officially two separate entities. Ihsan Erbil Bayçöl (current CEO) director of strategy and business development was immediately appointed head of Enerji's IPO team. In November 2017, Enerji applied to list 20% of its equity on the Istanbul Stock Exchange. On February 5th 2018, it successfully went public in the biggest IPO ever in the Turkish private sector. The IPO was oversubscribed to the extent that demand was five times that of supply. Based on the IPO price, the company's market cap was around €1.6 billion. At the gong ceremony, the E.ON CEO Johannes Thyssen emphasized that E.ON was truly convinced about the potential success story of Enerjisa and would keep supporting the company by providing industry expertise and strategic support.

ÜRETİM PRIOR TO DEMERGER

Founded in 1996 as Enerjisa, Üretim (Turkish for “production”), generated its first electricity in 1997. In 2004, it added wholesale trading subsidiaries focused on electricity and natural gas respectively, and two years later, it became a strategic business unit under SAHOL. Diversification into retail and distribution in 2008 led to the restructuring of Enerjisa, making it a vertically integrated power player. Üretim was now no longer the core but a standalone division. With the commencement of operations of the Çanakkale wind power plant in 2011, Üretim expanded its power plant portfolio to include renewable energy. By the end of 2013, company's annual installed capacity reached 2.4 GW.

With E.ON on board as co-owner from December, 2012, Üretim went on a spending spree in hydro and renewables. By 2017, the company had built up a portfolio of 3.6 GW of annual capacity and accounted for 4.6% of total market capacity, generating electricity from a diversified base of sources including hydroelectric, wind, lignite, and natural gas (see Table 1 in Appendix). As impressive as the rapid build-up was, it was still a long way from what the E.ON CEO had proclaimed back in 2012 when taking over Verbund's stake – that Üretim would be able to push its installed capacity up to 7.5 GW by 2020. This was partly because the retail part (Enerji) had acquired three distribution regions from government auctions in contrast to the two originally planned, which had consequently reduced available capital for power plant investments. At the same time, severe delays and substantial cost overruns in Üretim's own projects had also prevented the company from advancing further towards this goal.

In August 2017, the company became an independent entity owned equally by E.ON and Group. The trading arm's managing director Armanç Ekinci took the helm of the new company as CEO. After

Enerji's successful IPO, the head of the IPO team, Ihsan Erbil Bayçöl joined Üretim as Deputy General Manager. Besides the two mentioned, another five senior executives responsible for various functions made up the initial leadership team. The CFO and CHR were brought in from other industries following the demerger and the Renewables Deputy General Manager was recruited from the Norwegian renewable firm Statskraft's Turkish subsidiary. Other members were insiders². Shareholders formed a six person board - split equally, and appointed an E.ON board member, Dr. Eric René C. Depluet, as the chair and SAHOL energy group president Kıvanç Zaimler as the vice chairman.

Prior to the demerger, Enerjisa consisted of five independent divisions (see Figure 1 in Appendix 1): Generation (Üretim), Optimization of Wholesale Trading, Distribution, Retail and Gas. Historically, Optimization division bought electricity from Üretim as well as from third parties through power purchase agreements, it then sold the electricity on the spot market or to Retail or third parties including the public sector (though only electricity generated from renewable sources for the latter) through bilateral supply contracts. It had a great deal of freedom in its pricing and acquisition decisions. In this structure, Üretim did not engage in external sales directly or independently. Optimization acquired all of Üretim's output at market prices, which in the year of demerger accounted for roughly 70% of total volume. Hence, Üretim's focus was purely operational (i.e. making sure the power plants were run efficiently) and its competencies lay solely in operational efficiency, plant construction, and project management. After the demerger, Optimization was integrated into Üretim. An engineering organization would now have to absorb and integrate with a trading organization.

ÜRETİM ON ITS OWN: PUTTING OUT FIRES

Üretim's fresh and dynamic leadership team led by the CEO Ekinci faced towering challenges. To many insiders these problems were insurmountable, and the newly formed company was considered a "sinking ship" with delayed projects, capex overruns, operational problems in power plants, high employee turnover³, and very high indebtedness. It appeared to have very little chance as a standalone business. And the unfolding forces of disruption in the power industry would only accelerate its imminent demise. Indeed, during the demerger, most managers including those in senior ranks, wanted to jump over to the Enerji team instead of joining Üretim.

For Üretim's leaders, the realization of the Herculean task ahead was strong and obvious. This was more than a classical turnaround. As Mr. Bayçöl put it:

² The CFO left in 2019 and in the next two years, some of the functions merged.

³ The latest employee engagement score in 2016 showed a bottom 42 out of 100

“We were basically starting from scratch. We did feel like entrepreneurs, however, usually entrepreneurs can start with a clean slate. In our case we were lacking financial resources, desperately needing technical talent, we had inherited a company organization in tatters, and knew that our survival was at stake. We would have to invent, reinvent, reprogram and transform everything...”

And they were cognizant of the internal constraints. Being a JV with international owners also brought its own challenges, especially in terms of agility in decision-making, as well as differential attention and pressure from shareholders. E.ON’s management had already defined energy networks and customer solutions as core areas, which rendered power generation as a non-core business. On the other hand, at SAHOL, Üretim was one of over sixty companies, which also included a host of other JVs with international partners such as Bridgestone, Carrefour, and Phillip Morris. Group companies had to deal with ample pressures to standardize many key operational processes by SAHOL management. Despite its many advantages, this one-size fits all approach also created substantial challenges and it was difficult to break free. Above all, there was no time to lose. On the day Enerji went public, the shareholders stated that the IPO proceeds would be deployed to strengthen Üretim’s balance sheet and that the goal was also to bring Üretim to public markets in the next few years. At the end of December 2018, SAHOL’s Energy Group CEO reiterated the plan for IPO and pointed at 2021 as the target IPO year.

The management wasted no time. Within the leadership team, both Ekinçi and Bayçöl had formerly overseen strategy and business development at the integrated Enerjisa, so they were already well acquainted with the fundamental challenges in each division. To them, Üretim’s fragile fate depended first and foremost upon solving two interrelated problems: securing the financial viability of the company, and in relation, improving the operational efficiency of the plants, including the massive €1 billion 450 MW Tufanbeyli plant which had been beset by shutdowns ever since its launch.

On the financial front, Üretim’s situation was dismal. The proceeds from the IPO of Enerji had been injected into Üretim but they had only bought the company a short-term lease on its life. The message from the shareholders was loud and clear: They would no longer commit any capital to the company and that going forward, Üretim had to secure its own financing through asset sales, improved operational efficiency, and finding new sources of revenues. It was a classic case of catch-22. Üretim was desperate for capital to make the necessary investments and to solve its operational problems but its shareholders were unwilling to provide it. Given the state of its debt (more than eightfold its EBITDA) and projected negative cash flow, external sourcing of capital was not an option either. And as for asset sales, there were no obvious candidates, nor was it expected to make any dent to piling debt.

As the very first step, the management set out to obtain an in-depth EBITDA profile of the company. Given the high stakes, there was significant urgency to that. Yet to the dismay of management, even this proved a complex challenge:

“The company’s financial reporting was shockingly poor and unsystematic. Budgets and forecasts were unprofessional and fuzzy. Underlying data were a mess. Negative trends and red alerts were not timely and directly observable. Errors and inconsistencies featured everywhere. We were neither able to accurately gauge the performance and financial condition of the company, nor see how adverse changes in operating conditions would impact them. It was like flying blind through storm clouds” (Bayçöl, Interview).

It quickly became clear that the problem went beyond data and reporting systems. Üretim simply lacked requisite capabilities such as forecasting, FX management, risk management, and cash management. Thus, one of the first acts of the management was to overhaul key roles, bringing greater technical expertise and injecting a higher degree of professionalism. Further, now that Optimization was part of Üretim, the newly assembled finance team was brought into close contact and collaboration with them. Being a wholesale trading unit, Optimization had developed highly sophisticated forecasting and data management capabilities and as such could help build these in the finance team. In addition, they understood the market dynamics very well. For Üretim’s management, it was imperative that the finance team cultivated a thorough understanding of the business model of Üretim, the market, and the competition.

These efforts were considered highly strategic for another broader purpose. There was a great deal of mistrust on the part of shareholders. In the past, especially Ekinci and Bayçöl observed repeatedly how Üretim presented growth or cash flow forecasts only to revise them later, projections for capital and operational expenditures only to hike them afterwards and construction timelines only to delay over and over again. Back-to-back financial losses added fuel to mistrust. They reckoned that regaining the shareholder trust was essential to be able to act quickly and smoothly on their radical transformation agenda and could pave the way for securing additional capital as well. These hinged on having first a comprehensive and rigorous understanding of the company’s finances, and then presenting the board with an accurate, analytical, and timely picture of the company’s financial affairs, investments and plans.

When the shake-up of the structures responsible for monitoring the operational metrics and financial reporting were complete, for the first time Üretim’s management had a financial dashboard and an array of business intelligence tools which helped monitor the company’s performance in real time. In addition, they could leverage powerful analytics tools to explore alternative scenarios and events. Armed with these new capabilities and deeper financial insights, the leadership team immediately turned their attention to plant operations, which were at the core of their problems.

Üretim's operations were structurally highly complex. The company boasted a diversified base of production assets, ranging from hydro-electric and lignite to wind and solar power. These technologies required not only very specific plant operation skills, but also very different dispatch skills – that is, the plant operator must continuously determine the economically most lucrative operation schedule by considering such questions as how long the plant would be utilized and from when and at which capacity against the variable cost of the individual plant along with anticipated electricity prices. In solar and wind plants, weather forecasts and a host of other factors needed to be considered as well, for natural gas plants on the other hand, factors associated with natural gas supplies and pricing had to be accounted for⁴. Operational complexity was further exacerbated by the vast geographic dispersion of these assets, some of which were in relatively remote areas of the country (see Figure 2 in Appendix).

TRANSFORMING THE TUFANBEYLI POWER PLANT: A LABORATORY TEST CASE FOR COMPANY WIDE CHANGE

Several plants had serious technical and operational issues but none were as detrimental to the company's financials and reputation as the Tufanbeyli Power Plant, the largest privately-owned lignite power plant in the country. Located in the south east of the country – some 1000 km away from Üretim's HQ - this 450 MW, €1 billion plant had been a nightmare since its conception. Even though it was originally conceived in 2002 and received its license and permits in 2004, the construction only commenced in 2011 with a goal of starting operations at the end of 2014⁵. Yet after several planning, design and engineering delays and substantial cost overruns, the plant became operational in spring 2016 in an inauguration event attended by the country's president, cabinet ministers, SAHOL Chairwoman, and E.ON CEO.

Despite the political fanfare and great economic expectations, shortly after, due to various technical issues, Tufanbeyli plant was shut down for repair and maintenance and remained closed until the end of 2016. In 2017, production restarted but for nearly a third of that year the plant experienced production down time.

Thus, the transformation of the Tufanbeyli plant was a strategic imperative and financial priority. Being one of the largest power plants in the portfolio, management was also keen on turning Tufanbeyli into

⁴ Once the schedule is determined, the plant operator must register it with the respective transmission grid operator typically one day in advance. This is necessary as the electricity cannot be stored in power lines, the grid operator must plan its transmission continuously to avoid overloads and breakdowns. This process keeps the grid system stable and reliable. If an overload occurs, the grid operators instruct the power plant operators to change their schedules.

⁵ Part of the delay had to do with the credit side. The general push for more renewable energy in Europe made it more difficult to secure credits for a fossil-fueled power plant from European banks. Eventually, SAHOL and Verbund secured €750 million financing from a consortium of German, French, Austrian and Japanese banks.

a template for all the others in terms of operational excellence. It was to be a real-life testing-ground in which new and experimental organizational practices, ideas and rules could be quickly launched and outcomes rapidly observed. What worked effectively in the plant would then be scaled out across all the other power plants through formal and informal diffusion mechanisms.

The fact-finding mission

To diagnose the nature and scale of the problems, Bayçöl was dispatched to the plant. The first thing he discovered was the lack of effective communication between the plant and company HQ. Senior management was in touch only with plant management and in a sporadic fashion and with no connectivity to the employees at large. In the absence of effective communication, the rest of the plant community felt like persona non grata in the company. Furthermore, this engendered a culture of suppression, suspicion, and a lack of accountability, as well as leading inadvertently to several critical decisions being taken locally which caused further damage to the plant operations and capabilities. The toxic culture culminated in a turnover rate of 24%, which further aggravated the problems.

More fundamentally, Bayçöl quickly realized that the plant had been managed by people with entirely mismatched skills and incentive structures, enabling some to create fiefdoms. At the same time, especially on the technical side, several critical skills were missing, and local managers had no game plan for acquiring or fostering them. Finally, the plant suffered from very poor operational infrastructure, an outcome of years of mismanagement in construction. For instance, there was no closed off lignite stocking area. Thus, during a single year, the plant could easily be shut for 12- 15 days due to heavy snow or rain. That alone would cost the plant over €7-10 million.

Upon his return, the CEO Ekinçi and Bayçöl agreed that in addition to being the Deputy General Manager, Bayçöl was to take over personal responsibility for plant management. This effectively meant that the company's second highest ranking officer would be on the ground and directly involved in the plant's day-to-day operations.

This dramatic move sent a stark and powerful message which reverberated across the stakeholder groups. To shareholders, the management had now made clear where its strategic priorities lay, and that it would tackle issues head on instead of playing them down, as was the typical behavior in the past. To the employees of the Tufanbeyli plant, who had long felt abandoned in a remote location, they were now sitting at the front and center of leadership attention and could see that radical changes were looming. For the managers of all the other power plants, the days of complacency, non-transparency, and insulation were numbered. All eyes were now on Tufanbeyli.

Bayçöl knew well that the turnaround of Tufanbeyli would not succeed by remote management combined with occasional visits. Nor would this be an easy endeavor. Problems ran deep and there was still much to unearth. The company had no spare cash to deploy for quick solutions when necessary. Given the ballooning costs and resulting damage to overall company performance there was a real sense of urgency. Fortunately, Bayçöl had the full support of CEO Ekinci, who had understood right from the start how critical this mission was to the company's broader transformation journey and was willing to take personal risks to get it resolved. With Ekinci's backing, Bayçöl set out on his mission:

“I decided to physically relocate to the plant and chose to live in the worker compounds. I wanted to understand every operational detail, get to know every plant employee, meet with all the subcontractors, and experience first-hand the living and working conditions. I wanted to be visible and fully accessible. In this plant, even weekly status-quo reports would be too late. People needed daily overviews, fast decision making and rapid problem solving. My communication channels were open 24/7, not just for employees but supply chain partners too. I made it clear that I did not want power point presentations and formal meeting schedules, people should approach me right away, to discuss and decide on the spot. Now that I was living in the plant, we were even able to make decisions over the weekend.” (Bayçöl, Interview)

Bayçöl spent his first month at the plant talking to everyone, including the suppliers and even nearby town officials, observing first-hand every key process and workflow, analyzing every financial contract, and even studying the CVs, prior backgrounds, and family situations of all the plant employees. He was periodically joined by Üretim's CHRO – another key, and relentless, supporter of the transformation efforts at the plant, who shared his own observations, insights, and expertise with Bayçöl, and helped distill the issues and crystalize the solutions.

Ultimately, Bayçöl concluded that the problems at the plant consisted broadly of issues that could be organized into three categories: Operational, organizational, and cultural. Operational challenges largely stemmed from poor design and construction deficiencies including the use of the wrong materials⁶. Located at 1,450 m altitude, the plant was exposed to harsh weather conditions and even occasional earthquakes. Heavy rains and snow regularly forced the nearby lignite mining operations to stop, making the mining area unstable, blocking access to the site, and causing structural damage to buildings, including the prefabricated worker housing. Extreme cold temperatures in the winter, which could drop to as low as -35 degree Celsius, frequently caused equipment failure, tearing apart the conveyor belts that carried lignite to the power plant and damaging the sensors and distribution power lines. Frequent

⁶ The plant had been commissioned to a South Korean company through a turnkey agreement.

power outages were the norm. In fact during its first full year of operations, a state of emergency was declared by local authorities for eight days.

The design flaws and poor planning did not just pertain to lignite mining and power generation. They were everywhere. For instance, the plant management and subcontractors had employed over 1,000 people, which could easily swell to 1,500 during certain periods, yet the canteen had a capacity of 150. There was only one WC built for female employees even though several women were employed. Similarly, there was housing for only 70 employees and of those, some of it was almost uninhabitable. Given the plant's remote location - the two nearest cities were about 2.5 and 3 hours' drive away – most employees had to commute long distances to get to the plant every day, which became even more daunting in harsh winters. The so-called medical emergency facility was in fact a storage room for equipment and material and did not include waiting space. Strikingly, even the management offices had been left incomplete, with only columns erected. There was an acute shortage of office space and the two meeting rooms were all the fifty-person management team had. A newly opened €1 billion plant looked more like a derelict, war-torn town with garbage everywhere.

Operational problems were amplified by organizational problems. In particular, the plant management had been handed over to the wrong people. There was a dearth of technical experience in the management team. What's more, some senior managers had never even worked in a lignite power plant before. Furthermore, this was not just a matter of skills. There was very little identification with the plant let alone 'ownership' amongst the management cadres:

“A large number of them saw their appointment to a very remote plant as a temporary assignment and a cruel leadership error and worked every angle to get out of there as soon as possible. Absenteeism was widespread. Many managers would only come to the plant when there was an emergency or a critical meeting. It was easier for plant employees to reach someone at the HQ in Istanbul than their own management team...then there were those in the plant whose only goal was to bide their time until moving on to a more favorable position.” (Bayçöl, Interview)

The bulk of the management was uninterested in genuinely committing to understanding, not to mention solving, the problems. This mindset sent the wrong signal to the subcontractors who started lowering the quality of their own services, renegeing on their contractual promises, and cutting corners wherever possible. Far more fundamentally, it also eroded trust between the employees and the local management and the former's confidence in the latter's collective incentive and ability to turn the plant around. It did not help that the plant was initially also very understaffed - another example of poor planning. Many employees were overloaded, and some had to take on tasks in which they had very little experience or knowledge. Lines and responsibilities were unclear. One manager complained that even though it was

not part of his job description, he had ended up conducting detailed performance reviews with 80 employees, which cost him more than a month in additional time.

All of this was able to happen in the Tufanbeyli plant because there was very little oversight from headquarters. Top management teams rarely visited the plant to listen to employee concerns and priorities or meet with subcontractors and service providers. The HR department only visited the plant when there were layoffs. The community felt entirely orphaned, and misunderstood. They did not understand why several decisions about their work environment were taken by corporate executives who had never set foot in their world. Take the work jumpsuits and footwear for instance. The headquarters imposed a one-size-fits-all regulation on work clothing across all 21 power plants. Since most plants were in coastal areas or regions with very warm weather, the jumpsuits and boots were chosen with warm environments in mind. Employees at the Tufanbeyli plant were unable to use them in harsh winters. Food was also an issue. Most employees worked both day and evening shifts, yet the canteen served the same food for both lunch and dinner arguing that logistics to the plant was too challenging to offer different meals. Despite many complaints, the issue was never resolved.

A prolonged period of significant operational problems, together with the aforementioned organizational problems resulted in a culture that was characterized by pessimism and a loss of faith in the company, especially among the lower levels. In a presentation of his observations to his management colleagues, Mr. Bayçöl described the atmosphere as follows:

“There is a general sense of defeat and abandonment. Spirits are crushed. There is no community feeling. Those who wanted to shake things up were either forced out or just gave up... The general perception is that it is only a matter of time before this plant is entirely shut down so anyone coming from the HQ is viewed with suspicion...Any employee with something to offer is looking to jump ship at the first opportunity”

From diagnosis to solutions

Bayçöl attacked the problems simultaneously on all three fronts. With the backing of CEO Ekinci, he immediately deployed his limited budget to improving the living and working conditions in the plant. Structural damages in the buildings were fixed, the entire plant was cleaned up and the main gate to the plant was refurbished to look more like a corporate campus. A new canteen with a capacity of 1,500 seats was rapidly constructed, and the catering contract was renegotiated to offer a greater variety of meals, including special cuisine days (e.g., Mexican). The old canteen was renovated into brand new office spaces and meeting rooms. All the worker housing units were restored, and additional ones were commissioned. Hobby rooms for activities such as building model airplanes or making music were built. A community garden with thousands of fruits trees was established and a

children's playground was opened. A new basketball court dubbed the TFB Garden was built⁷. On workdays, employees were now offered shuttle services and trips to nearby cities were organized for plant residents at the weekend.

To improve the conditions more systematically, several new roles were created and filled with experts. A person who had run work camps in the past for over 12,000 people was hired and tasked with the role of managing social affairs at the plant. A new worker's committee was created to voice the concerns of the employees. One of its first tasks was to choose appropriate worker clothing and footwear. A full-time teacher was hired to support the education of children living in the camp. Additional health care personnel were brought in. And the newly employed fitness trainers were now offering a wide range of courses from fitness to Pilates in newly refurbished sports areas. The plant began to host sports tournaments for all the Üretim plants, which helped them better integrate into the broader Üretim community. Soon after these changes, several families began to voluntarily move to the plant, bringing further life and strengthening the social ties amongst employees, creating for the first time a "we feeling".

In parallel, Bayçöl changed the management structure to breakdown the silos which had arisen among the units and to match the skills to the tasks more effectively. A new plant motto "We are generating ("Üretiyoruz" in Turkish)" was created along with a set of new guidelines that encouraged collaboration, open feedback, and joint achievements. All symbols differentiating white collar from blue collar employees were removed overnight. Now all managers, including Bayçöl, wore the same outfits as the power plant workers. New digital and offline "townhall" meetings and other communication formats were introduced to keep the plant employees continuously informed about the status of activities, new plans, financial affairs, and operations. A mentoring program was launched to coach new employees, and training programs were designed to enhance the technical and managerial skills of all employees.

Relations between HQ functions and plant management were frosty if not downright adversarial with tensions flaring up regularly. There was little synergistic value creation, joint initiative taking, or cooperative problem solving. Information had not flown naturally, sufficiently, or in a timely way. If anything, plant management generally viewed the various functions at HQ as non-responsive, uninformed, and basically ignorant of their local needs and interests.

⁷ Inspired by the transformation of the Boston Celtics (from a mediocre basketball team to an NBA champion in the 1980s) who played at the TD Garden arena, the court featured the colors of the Celtics and posters of their legendary player, Larry Bird.

Seeing this problem firsthand, Bayçöl also took several steps to facilitate closer cooperation and stronger personal ties between the HQ functions and the plant teams. The service teams from HQ were assigned to projects at Tufanbeyli, which often meant that they had to stay in the plant and work with local teams until the projects were completed. During major plant maintenance periods, HQ-based service teams were again sent out to join the local engineering teams to perform the maintenance work together. Similar demands were placed on other functions as well. For instance, the procurement managers at HQ were asked to be present in Tufanbeyli during all major maintenance work – which on the one hand helped them understand the complicated maintenance processes better and appreciate the uncertain nature of it, and on the other allowed local maintenance teams to learn from their procurement expertise, forge stronger personal relations to them and make on the spot procurement decisions when a necessity suddenly arose. As with procurement, the optimization teams – those who decide which power plant should be in operation, for how long and at what capacity on a daily basis– were also dispatched to the plant to experience how the plant worked, and what it took to keep it up and running. During their visits, these teams in turn ran sessions for plant managers explaining a variety of critical processes at their end such as how their decisions were made and how electricity markets functioned.

Early initiatives, mentioned above, soon began bearing fruit. There was a noticeable improvement in the productivity of the plant. The plant management began to visibly promote the achievements everywhere increasing motivation in the employee base. Coupled with new financial incentives for gains made, there was a clear shift in the general motivation level. Employee satisfaction also began to rise while employee turnover dropped drastically (from 24% to 5% in 2018). The attitude of suppliers and key service partners had also improved rapidly, leading to better quality services in the value chain. Those that dragged their feet were terminated immediately. In the past, the plant’s poor liquidity had forced the procurement managers to prioritize cost. Now they were instructed to make decisions using the following formula: 40% on the quality, 40% on the timeliness & 20% on the cost.

Under heavy financial constraints, Bayçöl had no choice but to convince Üretim’s board to provide additional capital to fix key design and construction problems in the plant. As these positive outcomes began to surface, Ekinci and Bayçöl gained more confidence in pushing for capital investments at the board level. Still, one more step was necessary, namely, to showcase the plant turnaround to the board in person. To that end, Bayçöl invited the chair of the board – Dr. Eric René C. Depluet, the Vice Chair Mr. Kıvanç Zaimler (President of the Energy Group at SAHOL) and the CEO Ekinci to the plant, a first in the plant’s history. During their visit, recalls Bayçöl,

“We arranged the program so that the board members could see the areas in the plant where the work was the hardest and observe the employees performing the most physically tough tasks...not

the most pleasant areas or easy office work... We wanted them to appreciate the people's personal commitment to the company...and the sacrifices it takes to run such a massive, poorly-launched power plant.”

Bayçöl, together with local plant managers, presented the progress, explained the ongoing operational challenges and issues in detail and with full transparency, provided potential solutions, cost-benefit analyses, and timelines for the implementation of solutions.

The trip was a strategic success. The board decided to provide additional capital to the plant, which went into further infrastructure and technological upgrade. With major operational problems now also solved, the plant had become a successful turnaround story. Many of its processes were emulated by other plants within Üretim's portfolio. There were also frequent delegations and field study teams visiting from other energy producers in the country as well from abroad.

Before completing his mission in the plant, Bayçöl took on one final personal task – finishing the construction of the incomplete management HQ which sat at the center of the power plant. He scrapped the former architectural blueprint, envisioning a vibrant innovation center, instead. The completed innovation center boasted learning labs, an R&D facility, conference centers, virtual and augmented reality rooms, design and application rooms, and several meeting rooms.

REBUILDING THE ORGANIZATION

With the right financial capabilities in place, and radical changes set in motion to deal with the “problem child” Tufanbeyli Plant, Üretim's leadership team could now focus on the next item of their strategic agenda, namely, rebuilding the organization. As a captive subsidiary, most of Üretim's formal organizational processes and policies had been imposed upon it by its parent Enerjisa, usually in an ad hoc fashion, without much consideration for their relevance and effectiveness. Any soul searching as to their fit, was rare. Even worse was the fact that the subsidiary had never had to face market competition – all of its output in the past had been acquired by the Optimization division– which led to a devastatingly complacent culture in which there was no passion or quest for improvement, excellence, or innovation. For a company that was on the brink of financial failure and facing several headwinds in the industry, the management cadres showed surprisingly little urgency.

Beyond being saturated in complacency, the company's culture showed significant fragmentation. Each power plant – some of which were located at least a thousand kilometers from the HQ– harbored its own subculture, and a vast number of idiosyncratic organizational processes and practices. This was partly a consequence of differences in underlying technologies. A lignite power plant had a very different

operational environment and employee profiles, practices, and processes than a wind or hydro power plant, for instance. But even more fundamentally, in the past, no serious attempt had been made to create a vibrant common foundation, both formal and informal, from which plants could derive their bonds, cultural elements and organizational practices and draw their purpose, aspirations and inspirations. Üretim appeared to be a federation of loosely related power plant kingdoms. Inter-plant collaboration and collective learning even between plants that were geographically near and utilizing similar technologies were non-existent. So were basic practices that enhanced social and emotional bonds, the exchange of ideas or the flow of knowledge such as rotational assignments or regular site visits. Some plants even treated each other as rivals, purposefully withholding critical information or solutions to similar technical problems. A high degree of fragmentation together with complacency engendered a frustrating work environment in which employee motivation and involvement were at rock bottom. In 2016, the overall employee engagement score in the company was 42 out of 100, and in 2017, the year of the demerger, it had barely gone above.

Neither CEO Ekinçi nor members of his leadership team envisioned strict centralization as a solution. On the contrary, they believed that the local teams would have to be empowered and endowed with the right managerial, financial, and technological resources and only then could the company achieve agility and operational excellence. But for that to succeed, there were two pre-requisites. First, the functional units at HQ had to work very closely with local plants. They had to take decisions as well as solve problems jointly. Second, there had to be a common set of non-negotiable principles to which everybody, regardless of their role or rank, would have to adhere. These were essential for creating a common purpose, a common identity and effective strategic alignment. They would have to guide all the operational processes as well as hiring and promotion decisions and even annual performance reviews. Those who did not live by the new company creed would run the risk of being let go.

The new principles would need to have two defining characteristics. They must capture the essence of the new Üretim that the leadership team was envisioning (an organization that continuously strives, collectively, to achieve the highest operational standards and ambitious performance targets) and they would have to resonate strongly with every operating unit and at all levels of the organization. After some weeks of intense deliberation, the leadership team, joined by a core group of influential representatives from all levels of the company, ultimately agreed on four core principles:

We pursue excellence.

We own our jobs.

We are true to our word.

We are a team.

Which were then communicated formally to the entire organization. In communications, the management made clear that these principles were aspirational – that is, they were not already pre-existing in the company’s DNA but had to be developed and nurtured and that they would eventually lead the organization to a better, more successful future.

Next, to make sure that the organization could digest and adopt these principles, a series of workshops were organized. The principles were printed on gifts and calendars and displayed in billboards and internal presentations. Surveys were initiated to gauge the employee feedback and strategic review sessions regularly checked the progress made. Subsequent to the launch of these principles, the management also introduced a short mission statement, which celebrated sustainability.

These four principles set the ideological foundation for the journey of radical transformation. Once they were introduced, the leadership team could further weave the organizational culture around them by re-engineering core organizational practices.

For Üretim’s leadership, the question of where to pull focus next was not a difficult one. In the old days of vertical integration, the division had been able to disguise its poor performance. Since the retail distribution arm was doing very well, Üretim could piggyback on their success and secure capital from internal and external sources relatively easily. As a captive supplier, it also had not had to face a competitive market environment. Together with the aforementioned problems, incompetent financial management, complacency and fragmentation the result was an organization whose DNA did not carry a sharp performance focus, both at the individual as well as the unit level. A good portion of managers, and especially those leading plants, had poor knowledge of basic financial notions, relations, and trade-offs. Most either lacked relevant and meaningful financial and operational metrics or were not making effective use of them. Generally speaking, employees were in the dark over how their roles and performances made any difference or contributed to the overall health of the company, and they suffered from motivational issues.

With the demerger, the playing field had changed. Üretim was under substantial financial strain and there was no end in sight. If there was ever a time to build high performance orientation, it was now.

To that end, the management quickly devised three sets of actions. First was the introduction of a performance-based remuneration system in the company. In the past, year-end financial rewards (e.g., bonuses) in the managerial ranks were distributed without factoring individual performance, which created performance disincentives and was a key reason for losing valuable employees. Similarly, even though the criteria for promotions included some reference to individual performance, most promotion decisions had ignored this in the past. Now, performance was to play a central role. In the past, the

company offered additional financial assistance to those working in power plants located in remote, rural areas. This was neither systematic nor did it take inflation into consideration. In the new system, financial assistance was tied to the local economic and social conditions such as the level of rent, commuting distance, childcare and health care, and was adjusted annually based on inflation.

A new grading structure was also introduced. Seeing that there was a huge mismatch between salary levels and responsibilities – for instance the manager of a €1 billion- power plant had a compensation package equivalent to that of a middle manager in the headquarters – employee salaries and benefits were also revamped. Most of the technologies used in power plants were of foreign origin, which made the availability of technical expertise scarce, coupled with an unattractive and rigid remuneration scheme, the company had been finding it difficult to hire engineering talent. The new flexible salary system also aimed at resolving this issue by offering a financial premium over technical expertise. In the past, the compensation benefits increased with a rise in the formal managerial hierarchy (e.g., from director to deputy manager to manager). Now, the same benefits could be obtained by a wind turbine expert or data management specialist, for example. In addition to formal incentives, top management began to celebrate efforts and achievements publicly. Success stories were showcased at townhall meetings that were held every quarter. Articles about operational excellence were circulated internally. Case studies were developed and distributed.⁸

Second, a series of mandatory financial workshops were organized for the plant leadership teams. In these workshops, management explained the costs of operations in great detail, both for the company as a whole as well as for each plant, along with the company's overall financial well-being, introducing financially grounded decision-making yardsticks that would guide plant leaders in making resource allocations and sourcing decisions. Participants were repeatedly told that every lira/euro/dollar spent had to be justified economically in a cost-benefit framework and that the priorities should be given to expenses that improved productivity and plant availability. They were asked to scrutinize their supplier bases intensely and quickly part ways with those who were not delivering on time and in full. There was also a great deal of emphasis placed on raising awareness for accountability and bringing clarity in their contributions to the company's bottom line.

Third, management began to push for a more inclusive approach to financial planning and reporting. Finance, trading, and management teams from HQ were mandated to visit the power plants frequently and to involve plant teams in their financial planning, forecasting and budget proposals.

⁸ To emphasize the importance of "people" to the company, the HR department changed its name to "People & Culture" in 2019

These initial transformation efforts began to produce some early results, albeit modestly, by the end of 2018. On the financial side, the company was able to halve its leverage from 8.3x Net Debt/EBITDA to 4.4x, and for the first time after a long period, showed positive net income. All plants showed efficiency improvements. These positive early results, together with much more rigorous financial management and communication, began to repair the long-broken trust between shareholders and Üretim. The former was now signaling a willingness to open their purses to the company's planned strategic investments. Similarly, the cultural transformation efforts had also begun to yield tangible results. The employee engagement scores increased from 46 in 2017 to 55 in 2018. More fundamentally, there was now a general sense among employees that management would listen not only to their grievances but also to innovative ideas. Indeed, several engineering and production teams in local plants began to put forward novel ideas to improve plant operations while cutting costs.

A TECH COMPANY IN AN ENERGY BUSINESS

In their first year, Üretim's leadership had been absorbed in putting out massive fires and re-building a completely new organization – and they had to do so by being frugal and maintaining stringent cost-discipline. In Spring 2019, encouraged by the signs of financial stability which were now appearing, the leadership team picked up another thorny legacy issue, namely, the IT infrastructure.

As a power producer with a trading arm, IT played a fundamental role in operations but there were many issues surrounding it, and it all came down to the fact that Üretim had never owned a customized IT architecture and infrastructure which catered to its needs, effectively. In the old integrated company, it had to necessarily piggyback on the IT systems, software, and capabilities explicitly designed for the retail distribution division. After the demerger, the company continued to utilize the same inept IT environment out of financial necessity. Allocated budget was only enough to avoid the complete collapse of the existing system. Cloud platforms were not utilized at all, creating issues in both performance and expenditure, and making it hard to keep up with new technologies. Information security rules were not fine-tuned for Üretim but for the retail arm, which added unnecessary rigidity and created tremendous frustration for employees.

Given its limited capabilities and budget, perception of the role of IT in the company was 'keeping outlook files, SAP and some trade tools up and running'. Out of necessity, power plants were utilizing their Instrument and Control (I&C) teams and business units were utilizing their IT talented personnel to address their IT needs, which created shadow IT organizations, uncontrolled IT governance, and a complex and frustrating enterprise architecture. The system was rife with duplicates and redundancies. Different units or groups sourced different tools providing duplicate services, and there were many different IT tools serving only a few users.

The next step in the transformation of Üretim would involve an overhaul of its entire IT structure. That said, this was to go far beyond just hardware and software. As Mr. Bayçöl explained:

“The energy sector is facing an unprecedented level of digital disruption across its value chain. Concurrently, new digital technologies, such as AI applications, augmented reality, sensors and blockchain are offering new opportunities. Nevertheless, neither the disruptive threats nor the resulting opportunities were properly understood in the past. Take big data and predictive analytics, for example. Our power plants were churning out volumes of data from across different territories, yet nobody was utilizing the data in a smart way – i.e., to master end-to-end operational complexity, to enable predictive maintenance or to create new revenue channels. It was clear to me that digital had to be the core of our company.”

Given the ambition to digitally transform the entire company, in early 2019, Mr. Bayçöl also took on the responsibility of leading IT at Üretim. He and the entire IT team quickly set out to identify the technological needs and capability gaps and determine the level of investment necessary in elaborate workshops. Together, they laid out the new vision that would shape the company’s evolution beyond the IT division: *“We will be a tech company that happens to be in power production and trading“*. This was followed by a five-year business plan for digitalization, which was developed in close cooperation with both IT and the business side.

Once the digitalization vision and the plan had been put in place and investment needs had been determined, the IT division began to replenish and bolster its capabilities in emerging technologies, programming, and cybersecurity through new hires and some layoffs. Additionally, the IT division was repositioned as a business partner to operations instead of just having a support function. IT staff were tasked with holding regular meetings with local plant teams to understand their specific technology needs, manage the delivery of digital solutions, facilitate digital innovation, and offer insights into emerging digital tools and applications.

Company-wide digital transformation kicked off on parallel tracks. On the one hand, the company moved to the cloud by re-writing major applications in a cloud-native language, expanding and upgrading its arsenal of digital applications and tools and incorporating more digitalization into its operational processes. A variety of inhouse software projects were also successfully completed and deployed across the organization. A new inhouse team specializing in data analytics was assembled to provide advanced condition monitoring and trend analyses. In the power plants, operational technologies were increasingly merged with intelligent IT systems to improve production, maintenance, and safety. A wide range of digital communication channels were built to facilitate greater interaction between the remote power plants to create a highly interconnected plant ecosystem. On the other hand, several parallel initiatives were launched to enhance the digital skills and mindsets within the company. Agile

methods and approaches were introduced. Cultural change training workshops, digitalization expert bootcamps and mindset discussion sessions were organized to facilitate the shift to an agile culture in which experimentation was encouraged and failure was embraced.

NEW CEO, NEW CHAPTER: TIME TO GROW

Almost fifteen months after the demerger in December 2019, the CEO Ekinci abruptly announced his departure from the company and joined an oil and power company as a group vice president. The board immediately appointed his deputy, Bayçöl, as his successor.

Üretim entered 2020 with a new leader in charge and a new vision at play. Over the past year and a half, Üretim's leadership under the former CEO had managed to first stabilize a capsizing ship then give some wind to its sails. Concerns about failure were replaced with demands for growth and sustainable dividend.

Bayçöl and his strategy team determined that future growth should come from three areas: renewables, services, and international expansion

Growth in renewables

Renewables was first on the list – especially wind and solar projects. Back in 2017, the Turkish government announced an ambitious plan to diversify Turkey's energy production primarily through the expansion of renewable energies, launching new regulations that set pre-conditions for this growth. The country was naturally endowed with significant wind and solar resources, and the government set targets to raise the total installed solar and wind capacity from 10 GW by the end of 2017 to 25 GW by 2023, accounting for 30% of total energy production.

As a first step, in 2017 the government held an auction for 1 GW solar production followed by another 1 GW auction for wind power production. As a result of its balance sheet issues, Üretim did not make a competitive offer and was eliminated before the auction started. Two years later, the government launched another 1GW auction for wind power. Having cleaned up most of its balance sheet issues and in a far stronger state, organizationally, Üretim made a highly competitive offer this time and it was chosen to construct and run two mega size wind plants at a total capacity of 500MW. The company secured a 49-year license for these plants with a 15-year government purchase guarantee and was expected to invest around €400 million.

These auctions were only the beginning. The country had vast renewable resources with a potential almost 30% higher than in Europe and an ambitious growth program (in 2019, Turkey had the 15th

highest level of renewable capacity additions in the world). In May 2021, the government held another 1GW solar tender, and even larger tenders are expected in the years to come.

Besides expanding capacity through new tenders, Bayçöl envisioned that some of the existing plants should also be transformed into renewable power sources. The foremost candidate was the lignite-powered Tufanbeyli power plant. Lignite was cheap, and sourced locally, and the plant was now fully operating as an efficient, reliable source of power - yet the plant emitted more greenhouse gasses than any other plant in Üretim's mix of energy sources. Going forward, it would certainly face greater pressures from environmental groups, in addition to economic pressures. The government was also expected to introduce legislation to gradually wean the country off lignite power plants. Several European countries had already announced a complete phase out by 2030, and the government in Germany, E.On's home country, was facing a growing chorus of demands to replace fossil fuels by renewables within the next decade. A preliminary study from Bayçöl and his team concluded that the Tufanbeyli plant could be home to a 450 MW solar plant, enriched with hydrogen and storage technologies.

Growth through investments in renewables would require tremendous capital, and in turn, robust business models and a solid balance sheet. Fortunately, compared to three years ago, the company was now experiencing some tailwinds. Following the radical transformation, it was now showing signs of good health. Further, both Turkish banks as well as international banks were highly receptive towards financing renewable energy projects at favorable terms.

Growth through services: SENKRON

The second source of growth would come from being a service provider to independent power producers. On the production side, the Turkish market was highly fragmented, and there were several small producers – especially in renewables. The government was also keen on increasing the number of players, incentivizing small local producers, and even planning a dedicated auction for them. What's more, many small power plants had guaranteed purchase agreements (at fixed US\$ prices) with the Turkish government for 10 to 15 years, as part of the investment incentives. These guarantees led to complacency in terms of productivity and operations but once they expired these plants would have to be fiercely competitive.

Given its size, strength of digital capabilities, wealth of expertise in plant management and various sophisticated technical domains such as data analytics, market analysis and weather forecasts, Üretim could now offer differentiated services that could help the owners of these independent power producing plants generate better returns from their investments.

To that end, Üretim developed SENKRON (“Synchronous” in English), a control room capable of controlling power plants with different electricity generation technologies at the same time – a first in Turkey. SENKRON was able to control all 12 hydroelectric power plants in Üretim’s portfolio. It also featured a control infrastructure that enabled access to the control and monitoring systems of thermal, wind and solar power plants in the portfolio. This network allowed SENKRON to conduct performance and status monitoring of power plants with an analysis infrastructure where thousands of pieces of data were monitored online. It was designed flexibly so that independent, external power plants could easily be plugged in. SENKRON enjoyed clear network benefits. As more and more plants were connected, the value of services, especially in terms of predictive analytics, would be able to grow.

The launch of SENKRON was met with great external interest. Üretim was able to sign a customer very quickly and started negotiating with several others in parallel.

Growth through services: Green market solutions

Üretim is one of the largest renewable power generators in Turkey. Being a leader in sustainability, the company is also uniquely positioned to offer a range of green market solutions to companies in Turkey as well as across Europe. One key solution centers on emissions and CO₂ trading (‘carbon trading’). At present, over 12,000 companies in Europe alone are subject to mandatory carbon trading by law. Even though Turkey is currently not mandating a carbon pricing policy, the regulation is heading fast in that direction, and a voluntary carbon market (VCB) has already been established. Foreign and domestic companies that export to Western Europe and the US are under a lot of pressure to voluntarily reduce and balance the greenhouse gases they create.

Üretim has already developed carbon certificates of its own assets and is actively engaging in trading them. The real upside however comes not just from being a prominent trader in the VCB market but through creating its own trading platform which bypasses the VCB and could eventually be scaled across Europe. To that end, Üretim has recently started talks with the largest 200 industrial businesses in the country and is signing up new customers aggressively.

Another key green solution - targeting carbon reduction - involves building and running solar farms for large industrial businesses next to Üretim’s own power plants. In this solution, which is currently being operated as a pilot with a handful of global and domestic manufacturers, the industrial company finances the cost of the solar plant, while Üretim provides the land and takes care of all the construction, management, and services. In the end, the company and Üretim engage in barter trading (Üretim sells the energy and the company trades the carbon).

Growth through internationalization

Üretim was the country's leading private power producer but its operations were entirely domestic. Boosted by the recent transformational success, CEO Bayçöl and his strategy team set their eyes on taking their commercial activities into Southeast Europe. In the past, the company had attempted to trade energy in that region via a third party (so called market access provider) but the experience turned out to be costly and operationally challenging. Now, their vision was to obtain electricity trading licenses in these countries under a newly created entity, which would trade directly without an intermediary.

Economic and strategic justifications for the expansion were in abundance. To begin with, the market price spreads in Turkish and the South East European (SEE) countries were perpetually changing and volatile – two preconditions for lucrative trading opportunities: Each SEE country has a different supply/demand balance and generation mix which creates the price spreads. Most of the SEE countries also have no cap and floor prices and as a result, the price gap between these countries and Turkey is generally wider. There are also differences in terms of demand trends that create additional arbitrage opportunities: SEE countries generally have winter-peak demand while Turkey's demand for electricity peaks in summer. Furthermore, both over-the-counter as well as spot electricity markets in SEE countries are growing significantly, and existing players are very small compared to Üretim and lack the latter's expertise and resources. Last but not least, these countries would eventually serve as a stepping stone to Western Europe including the most prized market, Germany.

In 2019, Enerjisa Europe was incorporated in Hungary, which is also home to E.ON Hungary. In 2020, Üretim applied for electricity trading licenses in Serbia and Romania, which were subsequently granted. In the beginning of 2021, the company also applied to Greek authorities for a trading license with an annual total capacity of 50 MW valid for 20 years. The company's goal in the next two years would be to manage 10-20% of the cross-border capacities in the region.

EMERGING STRONGER FROM THE COVID-19 PANDEMIC

2020 was off to a great start: under the new CEO, Üretim's prospects were bright. There was considerable support for its growth plans by the shareholders and the expectation was that this was the year in which the company could be able to distribute dividends. Then in March 2020, Covid-19 was declared as pandemic by WHO and, within a month, all 81 provinces in Turkey showed signs of Covid cases. By May, Turkey had one of the fastest growing outbreaks in the world. The country responded quickly with testing, tracing, isolation and movement restrictions. From then on, until April 2021, weekend curfews would be imposed periodically, some cities were entirely sealed off, and certain age groups were in complete lockdown for weeks at a time. Even during religious and national holidays, strict measures were enforced, limiting mobility and congregation.

The pandemic and the resulting disruptions also affected Üretim in critical ways, and they quickly became a strategic priority for the leadership team. Electricity had no feasible substitute and was indispensable to the functioning of the society. Thus, as an electricity producer, Üretim had to provide an uninterrupted supply. As Bayçöl recalls, this was not easy:

“Mobility restrictions were making plant management very challenging. Then the government began to put some of the towns which housed our critical plants under complete quarantine. We also had several subcontractors who employed hundreds of people in our plants, and in many plants, we were highly dependent on these people. We had to make sure our subcontractors took the Covid risk seriously.”

The leadership team reacted to the pandemic quickly within a crisis management framework. A central crisis management team was established consisting of CEO, two deputy GMs (Operations and People & Culture), a Sustainability Leader and Risk Leader and began to hold meetings daily. After a rapid emergency analysis and identification of remote working needs, the company took several actions. At the HQ in Istanbul, critical missions and their respective employees and backups were identified and their capability to work remotely was ensured. All employees were told to work from home and those who did not have home office technology were supplied with it. The company also regularly received a considerable load of technological components from international vendors for new plants, or for maintenance, repair, and upgrade. A task force was created to oversee sourcing disruptions and monitor customs. The company began to track its financial liquidity and credit risk almost daily and assess its funding options regularly. E-learning platforms and online psychological support programs were implemented. Insurance coverage was expanded. The leadership team regularly took the pulse of employee attitude through virtual meetings, information sessions and surveys, and the crisis management team attended to their concerns immediately.

At plants, the situation was far more complex. There had to be staff on the ground to operate. Bayçöl’s experience at the Tufanbeyli plant showed him that the plant management teams were in a better position to develop an effective crisis management framework than those at the HQ. Thus, he asked all power plant teams to devise operational models, taking physical requirements, resources, facilities, and infrastructure into account, and focus on how to keep everyone healthy while producing power without interruption. HQ’s role would then be to provide resource support as well as to monitor and coordinate all actions across the plants. This approach worked effectively. In the Tufanbeyli plant, for instance, the local team suggested a radical solution: closing the plant to outsiders, limiting contact, and making sure that all employees lived inside the plant boundaries. Confident that the new housing and living environments in the plant could accommodate employees without any compromise on the quality of their lives, management gave the green light, and the employees were fully isolated, voluntarily, for three months, most not even able to see their own family members during that period.

Support came swiftly and in many forms. The company worked with the local state authorities to obtain mobility exemptions for key personnel and vehicles, under strict social distancing rules. Schedules for planned maintenance works had been readjusted to conform to Covid restrictions and their scope was redefined. Large quantities of surgical masks and disinfectants were procured and distributed across the plants. Similarly, the company acquired 1,400 digital social distance trackers, which traced any breach of social distancing, and dispatched them to key power plants. To reduce the risk of Covid exposure in conventional transportation, the company arranged for helicopter transfers and invested in helipad infrastructure wherever needed. New private accommodation facilities were rented in some towns to spread the personnel outside the plants and also to avoid hotels as well as frequent traveling:

“As responsible citizens, we immediately offered support to nearby residential areas and towns too. We shared our preparations, lessons learnt and best practices with local government officials and NGOs. We procured surgical masks for the community and organized mask sewing workshops in rural towns. We delayed financial receivables from local vendors and contractors to give them breathing space and made early payments to support them financially during these tough times.” (Bayçöl, Interview)

These efforts, together with a hands-on crisis management style by Üretim’s leadership, proved immensely effective and valuable. All 18 power plants received Certification for Covid19-Safe Generation after exhaustive inspections by the Turkish Standards Institute. Üretim was the first to receive certification, within the industry, for a lignite plant, a natural gas plant and a wind power plant and the second to receive certification for a hydro power plant. It was also the only company in the country to receive certification for multiple generation facilities. Throughout 2020, Üretim’s plants continued to operate well above the previous years’ availability and productivity levels, surpassing all operational targets. The company was also designated a role model by the Turkish Energy Ministry, which consulted with Üretim on pandemic management and shared the company’s best practices and learnings, not just with its competitors, but also with other sectors such as natural gas.

The pandemic also demonstrated the value of the comprehensive digital transformation set into motion by Bayçöl in 2019. The company was digitally almost fully ready for remote work. As for plant operations, SENKRON enabled the operation of 12 hydro power plants remotely and securely and under 24/7 coverage with instant performance monitoring. Üretim was even able to perform some maintenance work digitally by using specialized knowhow and advance technologies that only Üretim had in-house in the industry. For instance, the maintenance of one of the major valves at a 930 MW Bandırma Plant was carried out using Microsoft mixed reality devices and the equipment supplier located in Sweden provided live online support. In the past, a team from Sweden would have been sent to the plant. In the end, the planned maintenance was not only completed safely, successfully and at a lower economic cost, but also effectively, one day earlier than scheduled.

ÜRETİM GOING FORWARD

Financially stable, growth story

The successful transformational journey of Üretim involves several critical managerial lessons. Once regarded as a prime candidate for failure even by its own insiders, Üretim was transformed into a financially healthy energy powerhouse, thanks to the energetic, visionary leadership driven by a stakeholder approach and a trusting board allowing them to operate with considerable autonomy. It is now financially profitable, has a strong balance sheet, its leverage (Net Debt / EBITDA) is below a quarter of what it was prior to its demerger and last year it paid significant dividends to its shareholders. Üretim is now ready to expand beyond its geographic boundaries as well as core power generation market. Even at the peak of the Covid crisis, the company was able to secure a sustainability-linked loan deal amounting to €650 million from a consortium of several banks, which speaks volumes about how far the company has progressed. The new loan will stimulate new investments in renewables and help power the company's growth further.

An effective organization, a healthy corporate culture

It is not just the financial health - the organizational health also improved dramatically. Only four years ago, Üretim had one of the most dismal turnover rates across the SAHOL portfolio of over 100 companies, and several of its plants ranked in the bottom across the power generation industry in Turkey. Four years later, the employee turnover rate dropped significantly for the company and for its most problematic plants (for instance in the Tufanbeyli plant it went down from 24% in 2017 to 4% in 2020). In 2016, the employee engagement score for the company was 42%. In 2020, despite the pandemic, the same score jumped to 81% for the entire company (in the Tufanbeyli plant, it registered a whopping increase from 36% to 84%) and the company received the employee choice award.

Equally telling are the application numbers. Before the demerger, Üretim had hardly attracted any technical talent and several of its technical positions remained unfilled. Now the company has become a magnet, especially for engineering and digital talent. It actively cooperates with several engineering and IT universities for research and internships, offers financial support for its employees to pursue post graduate degrees and hosts several events on its power plants for future talent. It actively promotes social and civic projects, especially in the communities surrounding the plants and allows its employees to take time off or to use company resources to pursue social responsibility initiatives. In fact, the company has officially designated gender issues, environment, animal rights and children's rights as its four focus areas and offers generous resources to its employees to make a difference in those areas.

Even on gender diversity, a notorious theme for power producers everywhere globally, it has made substantial strides. Take the Tufanbeyli plant, which had one of the worst gender track records in 2017,

and due to weather conditions and the nature of work is generally a harsh environment already. Four years later, the number of full-time female employees in the plant grew tenfold to over 70.

More broadly, the company is now regarded by the industry as the best breeding ground for managerial talent. Several of its competitors are regularly recruiting talent from Üretim into their senior leadership roles.

These accomplishments are products of many novel initiatives and practices, some of which grew out of the laboratory settings of Tufanbeyli and spread out across the organization. The root of all these successes was the early realization that employees are the real drivers of radical transformation. *“Our thesis has always been”* says CEO Bayçöl *“that we must engage people who embrace and champion change at all levels and locations, and we must nurture them through resources, opportunities, and empowerment. We need to step back when there is success and let them take credit. And we need to step forward when there is failure and protect them...Only then can we achieve a sustainable company culture in which people 'own their jobs', 'work as a team' and persistently 'pursue excellence'”*.

Üretim continues to promote this thesis through innovative practices. In 2020, the company moved to its new HQ, which, unlike the former (embedded in a high-rise and spread over several floors including a dedicated executive floor), is a horizontal building. The horizontal structure is an explicit statement of ‘equality’ and ‘inclusivity’. There are large swaths of open and modular workspaces and recreational areas. The lay-out is predicated on three principles: Collaboration, collective learning, and agility. There is neither a hierarchical office allocation nor are seating arrangements made by reporting lines. Divisions are co-situated in these open spaces so that people from different departments and especially teams whose tasks form a workflow with direct lines have access to each other and can choose to sit together if they want to. Everyone is assigned a desk, but they can also work in the green terraces, cafeterias, private booths, or conference centers as they wish.

An innovative tech company in the energy production business

On the digital front too, the company truly emerged radically different. Back in 2017, even the simple IT infrastructure at Üretim did not work properly. In 2020, not only did the company receive several IT transformation awards and citations (e.g., IDC CIO Summit award), a BCG study conducted for the company found Üretim on the verge of becoming a digital leader in its industry (benchmarked against over 165 power and utility companies) and not far from accomplishing what Bayçöl had envisioned “a technology company in the energy production business” only two years ago. A similar study conducted by the IT consulting firm Gartner also put Üretim above the market benchmark in many critical dimensions.

Furthermore, thanks to the success of its digital transformation, and an explicit leadership emphasis on innovation, the company is now firmly situated at the epicenter of a vibrant digital start-up ecosystem. Üretim's corporate development, IT and engineering teams regularly meet with entrepreneurs and attend start-up events and are encouraged to develop close ties with the country's technology incubators, technology transfer offices at universities, and venture investors. The company offers incubation opportunities to seed start-ups and supports promising ventures by providing seed financing, strategic and technological advice, infrastructure access (e.g., testing in power plants) as well as access to its suppliers and contractors. One of those start-ups, which focused on AI and image processing technologies (utilized in five of Üretim plants) was able to raise \$4 million in a seed financing round in early 2021.

These markers of success aside, it is the Covid-19 pandemic that has provided the ultimate stress test of the digital transformation at Üretim. Most energy companies were caught off-guard and had to accelerate the digitization of their internal operations, supply chain interactions, operating models and customer relations in the span of a few months, instead of over several years. Due to the extreme time pressure and the complexity of the task at hand, many companies had to make vital technological choices hastily, resulting in several key digital initiatives being poorly crafted and executed. Some companies had to opt for temporary solutions, which hindered their flexibility and further locked them into legacy operating models and mindsets. Ramping up digital investment programs also cut into their capex budgets significantly, forcing managers at some companies to appropriate critical funds that were earmarked for operations, new growth initiatives and innovation projects. More generally, even if some of those companies were quick to acquire and integrate new digital assets and tools, the accompanying organizational and cultural imperatives were either ill-considered, poorly addressed or simply rushed.

While the others were struggling to jump on board the digital train, Üretim was already reaping the benefits of its far-sighted digitalization efforts which had been enacted a year before. Unlike its rivals, digital transformation had been a top strategic priority. A clear digitalization roadmap had been developed and implemented, with the necessary organizational and cultural foundations long in place. Before the first signs of the pandemic surfaced, the company had invested heavily in its digital architecture and data security. It broke down the silos in IT, bringing IT and business processes together, it consistently filled the gaps with fresh technology talent, put remote working systems in place, and created new digital systems such as SENKRON that enabled seamless operations even under the disruption and chaos created by the pandemic. Since March 2020, Üretim has not only been able to continue to improve its financial and operational health; it has also enjoyed the ability to experiment with new cutting-edge digital technologies, position itself more strongly in the digital innovation space, and respond quickly to emerging new business opportunities.

Road ahead

Üretim's leaders view all these achievements as only the beginning – a first chapter in which a former ailing division with seemingly unsolvable problems is now an independent industry leader with many promising growth opportunities, all making up a robust equity story. Going forward, the company's next chapter, in the words of CEO Bayçöl, will be all about transforming Üretim from “a Turkish powerhouse to a first-tier European energy producer and leading global provider of digital energy services with a strong emphasis on sustainability.” Recent strategic actions, such as investments in new renewable power plants, expansion into Southeastern Europe, the introduction of the new digital business model around SENKRON and the new green solutions, have sown the seeds for achieving that ambition.

APPENDIX 1: FIGURES & TABLES

Figure 1: Enerjisa prior to its Demerger

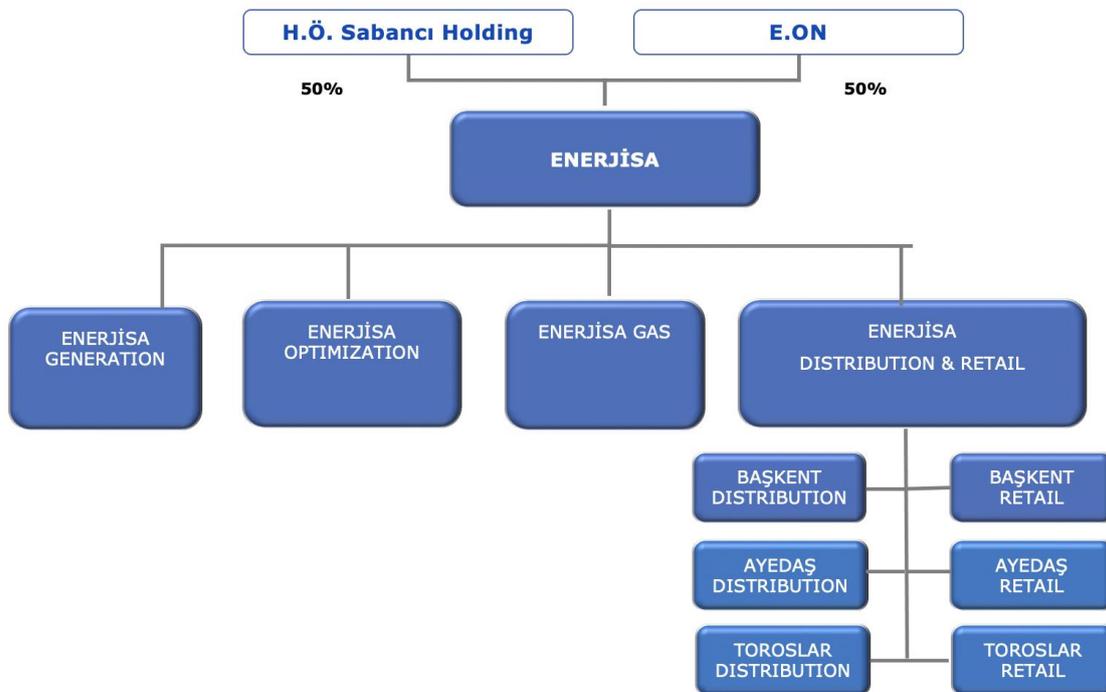


Figure 2: Geographic Distribution of Üretim's Power Plants in Turkey

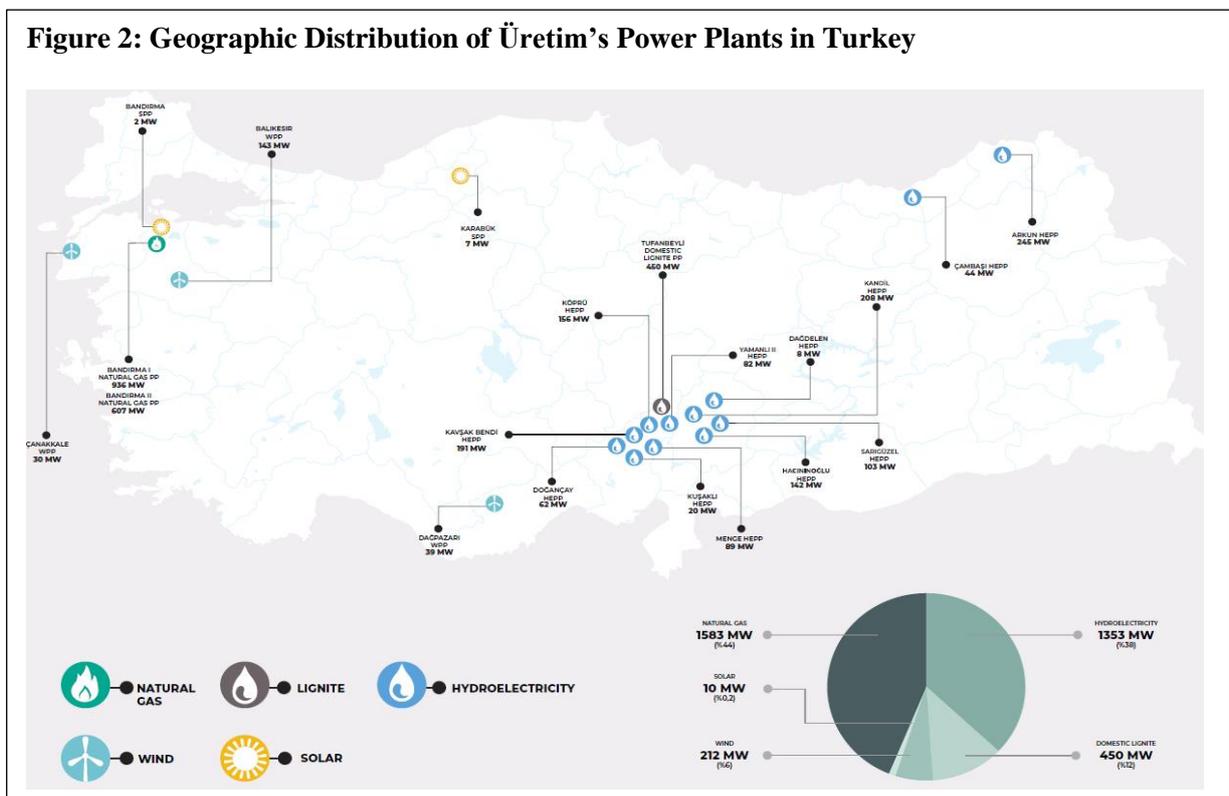


Table 1: Üretim's Power Plant Portfolio

	Installed Capacity (MW)	History	COD
Hydroelectric Power Plants (HPPs)			
Hacininoglu HPP	142	Licensed in 2006 for 49 years	2011
Menge HPP	89	Licensed in 2006 for 49 years	2011
Köprü HPP	156	Licensed in 2006 for 49 years	2013
Dağdelen HPP	8	Licensed in 2006 for 49 years	2013
Kandil HPP	208	Licensed in 2006 for 49 years	2013
Sarıgüzel HPP	103	Licensed in 2006 for 49 years	2013
Kuşaklı HPP	20	Licensed in 2006 for 49 years	2013
Çambaşı HPP	44	Licensed in 2008 for 49 years	2013
Arkun HPP	245	Licensed in 2007 for 49 years	2014
Kavşak Bendi HPP	191	Licensed in 2007 for 49 years	2013
Yamanlı II HPP	82	Licensed in 2006 for 49 years	2015
Doğançay HPP	62	Licensed in 2008 for 49 years	2017
Natural Gas Power Plant (NGPP)			
Kentsa NGPP	40	Licensed in 2005 for 20 years	1997
Lignite Power Plant			
Tufanbeyli Lignite Power Plant	450	Licensed in 2004 for 30 years	2015
Wind Power Plants (WPP)			
Çanakkale WPP	30	Licensed in 2008 for 49 years	2011
Dağpazarı WPP	39	Licensed in 2008 for 49 years	2012
Bares WPP	143	Licensed in 2007 for 49 years	2012
Combined Cycle Power Plants (CCPP)			
Bandırma CCPP	936	Licensed in 2008 for 49 years	2010
Bandırma II CCPP	607	Licensed in 2014 for 49 years	2016
Solar Power Plants (SPP)			
Karabük GES	7		2017
Bandırma GES	2		2017

Table 2: Üretim's Transformation in Key Metrics

	2017	2020
Engagement Score	62%	81%
Employee Turnover	13%	4,6%
Ebitda (mEUR)	147	295
Ebitda / Revenue	14,5%	25,3%
Net Income (mEUR)	-188	120

Net Debt (mEUR)	1.678	526
Leverage (Net Debt / EBITDA)	11,44	1,78
Generation (GwH)	13.395	15.629
% of Generated Volume in the Country	4,6%	5,4%
Total Recordable Injury Frequency	5,2	2,9
Lost Time Injury Frequency Rate	72,0	9,7

Table 3: Transformation at Tufanbeyli Power Plant: Key Metrics		
	2017	2020
Employee Turnover	24%	2%
Generation (GwH)	2.244	2.841
Availability	68,5%	87,7%
Ebitda (mEUR)	46,446	82,743
Total Recordable Injury Frequency (out of 1mn person-hour)	5,2	2,9
Lost Time Injury Frequency Rate (out of 1mn person-hour)	72,0	9,7
<p>*Tufanbeyli ranked 1st with 88% availability performance among lignite PP's in Turkey in 2020 (average of lignite PPs in Turkey is 63% (Source: Turkish Energy Exchange (EPIAŞ) platform)</p>		