Harnessing energy

Expanding into the global energy market

2022

Climate Neutral Company 2020 by South Pole

Supply chain specialists

We are a provider of global supply chain services, steeped in history and experience, brimming with ideas and passion, and backed by technology and investment.

Our purpose is to exert a positive economic and sustainable influence in our food, beverage and energy supply chains. To achieve this, we use our global networks and knowledge to manage the most sustainable, efficient, and cost-effective movement of products from origin to destination.

Aerial view of corn harvesting for use in the ethanol inductry. (JamesBrey/iStock)

Our global supply chain services

But we do more than simply buy and sell. We create value at every stage of the supply chain and geography we work in by strategically managing risk and tailoring financial solutions, optimising freight and/or distribution, cutting costs and promoting sustainable practices. We offer the following services across our energy products:

Financing solutions

We offer a comprehensive range of complex financial solutions tailored specifically to trade flows, supporting and meeting our clients' requirements and strengthening our long-term partnerships.

Corporate finance

With the largest global team of professionals dedicated to the sugar and energy markets, we offer a wide range of solutions through our financial and strategic advisory services to help our customers maximise value creation. The team has concluded transactions in excess of US$5.0 billion over the past years, including more than 1 GW of installed capacity for biomass cogeneration.

Market analysis & advisory

Through Czapp, our online market portal, our Analysis team shares their knowledge, news, views and forecasts on the world's sugar, electricity and ethanol markets. We now also offer analysis on dairy, freight, PET, wheat, corn and more. Czapp brings our expertise, top-class market content and analysis, along with live price information and data, to you via desktop and mobile.

Sustainability programme

Our sustainability programme VIVE, co-managed with Intellync, helps businesses to measure sustainability performance across their supply chains, and promotes continuous improvement. We measure, monitor and benchmark participant performance against global sustainability standards, fostering positive change through bespoke plans

Price risk management

One of our core strengths is to develop price risk management/ hedging solutions for producers and consumers across all products that we commercialise.

More information: www.czarnikow.com/services

Strategic expansion into energy

At Czarnikow (CZ), sugar has been part of our DNA for 160 years. Our recent strategic expansion into energy is underpinned by our deep understanding of the sugar market and its crossover with renewable energy.

Driven by our strong, client-led service ethos, we have built a portfolio of sugarcane-based energy products and can already offer verified sustainable energy. Most activity to date has been in Brazil, the world's leader in green energy generation, and we will be expanding our reach into Asia and Africa over the next few years. We take our position as a sustainability influencer seriously and have adopted solar alternative renewable and are exploring wind and hydro power.

Renewable energy is forecast to represent 90% of the global power sector's capacity growth[1] in 2022. This reflects strengthened efforts by organisations around the world to reach net zero by 2050 in line with the Paris Agreement and, shored up by the success of COP26 in 2021, this represents not just a global challenge but a remarkable business opportunity.

We are confident in our ability to grow in this sector. Given our strong track record of profitable growth, we are in an excellent position to leverage existing strong relationships and expand globally as planned. In 2021 we launched our first syndicated Borrowing Base Facility, which opened at US$80 million, demonstrating commitment and trust from our partner banks as we seek to build further funding capabilities.

We have been a carbon neutral company since 2019 and understand the market pressures faced by our clients to make carbon reductions across their supply chains to meet their various ambitious targets. Through our launch into energy, our ability to help our clients meet these has been accelerated. By harnessing synergies across our global supply chains and moving towards a circular economy model for sustainable energy, we have the opportunity to partner with new and existing clients to navigate this exciting, complex and fast-evolving sector.

Robin Cave, CEO

Using technology to produce biofuel as an alternative fuel. (onurdongel/iStock)

+ Our three energy product groups

1. Electricity

Various types of electricity generation, including verified sustainable electricity.

2. Ethanol

Ethanol in a range of forms for fuel and industrial usage, mostly made from sugar cane.

3. Biomass

Biomass products made from by-products of the food production process.

+ Our progress to date

>1GW
OF ENERGY DEVELOPED

>7 MILLION
MWH OF ELECTRICITY OPERATIONS IN 2021

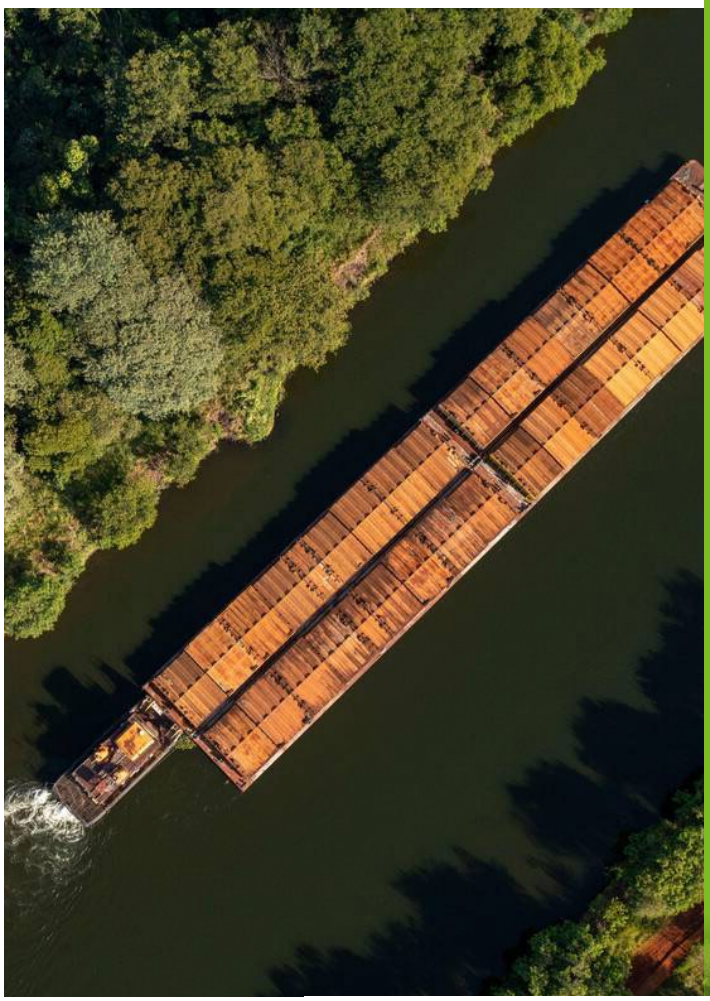
> 150 MILLION
LITRES OF ETHANOL TRADED IN 2021

Electricity: Navigating complex, changing electricity markets

PRODUCT	FORMAT
CONVENTIONAL ENERGY (NON-RENEWABLE)	Bulk
INCENTIVISED ENERGY (RENEWABLE)	Bulk
VIVE- OR I-REC-VERIFIED SUSTAINABLE ENERGY CERTIFICATES (RENEWABLE)	n/a

At CZ, alongside conventional energy, we work with electricity derived from renewable sources, including solar, and by-products of agricultural processes, including steam generation from the burning of bagasse – a by-product of sugar and ethanol production. Decarbonisation has become a major global focus in recent years, and our energy supply chain solutions support clients in avoiding high-carbon electricity, for example in geographies where energy is still reliant on more carbon intensive sources such as coal. We look forward to taking a leadership role in this transition.

The regulation of electricity markets varies by jurisdiction and is often complex, detailed and subject to change. In Brazil for instance, the market covers a range of energy types (conventional to renewables), and is divided into regional submarkets. In Asia, many countries are moving towards deregulation which presents its own challenges and opportunities.



At CZ, the core solutions we offer in electricity are:

1. **Off-taking:** We develop tailored off-taking agreements for generators and consumers of electricity, considering seasonality, energy demand fluctuations, volume optionality, submarket swaps, energy-type swaps, transmission subsidies and optionality.
2. **Structured finance:** We facilitate prepayments for generators and receivable finance for consumers.
3. **Risk management:** We offer a range of hedging solutions, including fixed price, options, currency, and inflation swaps.
4. **Sustainability:** Our sustainable programme, VIVE, can issue Sustainable Energy Certificates. Internationally recognised, these are fully aligned to the requirements of I-REC, the main certification of renewable energy. VIVE reviews 13 of the 17 UN Sustainable Development Goals, including eradication of poverty, clean water and sanitation and economic growth.

Renewable Energy Certificates (RECs): these can be traded on the REC market and are a useful tool to help companies manage their carbon footprints alongside efforts to reduce their own greenhouse gas emissions. Through our sustainability programme, VIVE, we provide third-party verification along energy supply chains and offer RECs where physical renewable energy cannot be immediately delivered. Offering RECs allows sugar producers to monetise production by-products as biomass, and we are working to expand our REC coverage to other green energy sources.

5. **Corporate finance:** We offer development and financial structuring for biomass and solar cogeneration projects and coordinate mandates for merger and acquisition (M&A) negotiations between generation companies and potential counterparties on both sides .
6. **PPAs and Self-Production advisory/structuring:** We act at various stages of power purchase agreements (PPAs) and energy self-production projects, from financial structuring and the sale/purchase of energy to assessments of project feasibility and generator/consumer compatibility. We aim to maximise value for clients at all stages of the transaction and bring our strong track record and expertise as a financial advisor, including our knowledge of joint venture energy generation projects.
7. **Generation:** We are working with a growing number of clients on solar generation projects, offering funding, structuring and off-taking, where we purchase energy generated by the project. We expect to invest further in solar generation projects.

Transporting sugarcane bagasse along the Tiete-Parana Waterway, Brazil. (Jose Renato Slompo/Alamy Stock Photo)

Brazil's unique energy sector

"In 2021, CZ commercialised more than 7 million MWh of energy in Brazil, delivering a broad range of solutions for both generators and consumers. Looking ahead, Brazil is expected to expand its energy generation capacity from 187 GW to 236 GW within the next 10 years and to diversify its renewable energy matrix away from hydro dependence – specially through the expansion of solar and wind capacities.

In order to deliver this, we expect investments in the order of US$38 billion. We consider the Brazilian market to be an encouraging environment for CZ's future developments and a springboard for us to grow and globalise our energy business in other regions such as Asia, Africa and elsewhere in the Americas."

Tiago Medeiros, Head of Brazil and Energy Board Chairman

Brazil has been the starting point for our energy journey, given our strong local presence, our long-standing relationships with Brazilian sugar mills and the country's status as one of the most diversely powered in the world.

In Brazil, electricity can be sold in two different ways, bringing unique opportunities:

1. **Regulated Market:** sale by public auction promoted by the government, where companies can sell energy to distribution companies. This market is normally available for newly installed capacity with specific c trading windows during the year and is therefore less liquid.
2. **Free Market (ACL):** a market environment where energy prices can be negotiated bilaterally between counterparties. This market is broader and includes many different types of participants: independent trading companies, generators and consumers. In recent years, the Brazilian government has been lowering the market's entry hurdle which is now set at 500 KW. This has increased the Free Market's share to 40% and its ability to gain further share looks favourable.

ACL's recent evolution allows both energy producers (generators) and consumers of energy to freely agree the terms of a particular trade, including volume, price, delivery period, type, payment, and others. The number of participants in ACL has grown three-fold in the last four years and it is set to increase further due to anticipated improvements in the regulatory environment, where reforms have focused on the expansion of ACL and broadening the renewable energy market.

As most of our clients, such as sugar mills and multinational manufacturers, already produce and/or consume electricity to/from ACL we have first-hand experience of working within this relatively sophisticated operational framework and the knowledge to provide energy solutions. We also use our experience in price risk management to advise clients on electricity futures markets and derivatives.

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More information: www.czarnikow.com/products/energy

Photovoltaic modules on a solar farm bordering agricultural land, Guaimbe, Brazil. (Bloomberg Creative/Getty images)

Ethanol: Leveraging expertise in complementary markets

PRODUCT	FORMAT
HYDROUS ETHANOL	Bulk
ANHYDROUS ETHANOL	Bulk
FUEL GRADE ETHANOL	Bulk
INDUSTRIAL ETHANOL	Bulk/ISOTank/Drums/IBC
NEUTRAL GRADE ETHANOL	Bulk/ISOTank/Drums/IBC

Sugar cane is used to produce both sugar and ethanol.

As one of the world's leading sugar producers, ethanol has been used in Brazil as an alternative to gasoline for over 50 years, and Brazil is the world's second largest ethanol producer after the United States.

CZ has been developing relationships with Brazilian mills for many years on the sugar side. Today, we can advise on their entire operations – helping mills decide the best moment to produce ethanol, sugar and electricity. On the electricity side we can help optimise electricity production for their own operations, or sell it to the national grid and private companies depending on market prices. The ethanol we trade comes from Brazil and is available for domestic and global sales.

We provide the following supply chain solutions for ethanol:

1. **Off-taking:** We develop tailored off-taking agreements for ethanol.
2. **Structured finance:** We facilitate inventory finance for ethanol producers and consumers
3. **Risk management:** We offer a range of hedging solutions for ethanol, including fixed price physical contracts, options and cash settled swaps.

More information: www.czarnikow.com/products/energy

Sugarcane. (oasistrek /iStock)

Biomass: Specialising in natural fuel sources

PRODUCT	FORMAT
BAGASSE	Bulk
BAGASSE PELLETS	Bulk
COCONUT HUSK	Bulk
COCONUT SHELL	Bulk
HYBRID TROPICAL GRASS PELLETS	Bulk
STRAW PELLETS	Bulk
PALM KERNELS	Bulk
RICE HUSK PELLETS	Bulk
WOOD PELLETS	Bulk
EMPTY FRUIT BUNCHES	Bulk
VIVE-VERIFIED SUSTAINABLE BIOMASS	Bulk

Biomass is any natural material that can be used as a fuel source.

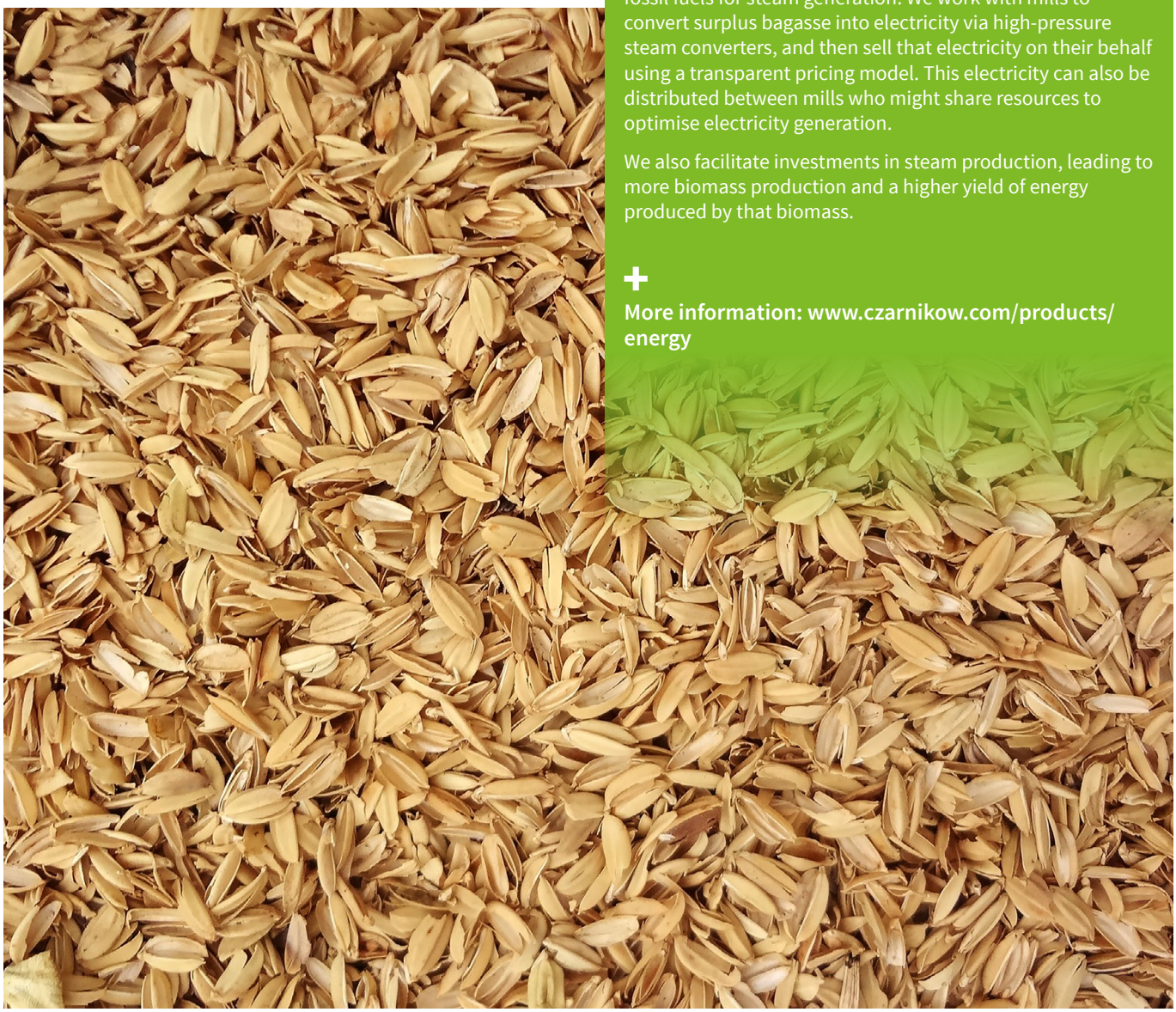
It contains stored chemical energy from the sun, taken in via photosynthesis – the process through which plants live. This energy can be extracted through burning or conversion into other types of liquid or gaseous fuels, including steam.

Our focus is on biomass products that are created as a by-product of food production, for example bagasse from sugar and ethanol production processes. As these by-product materials would most likely be considered as waste and as the associated crop can be replanted, biomass made in this way can be classified as renewable energy.

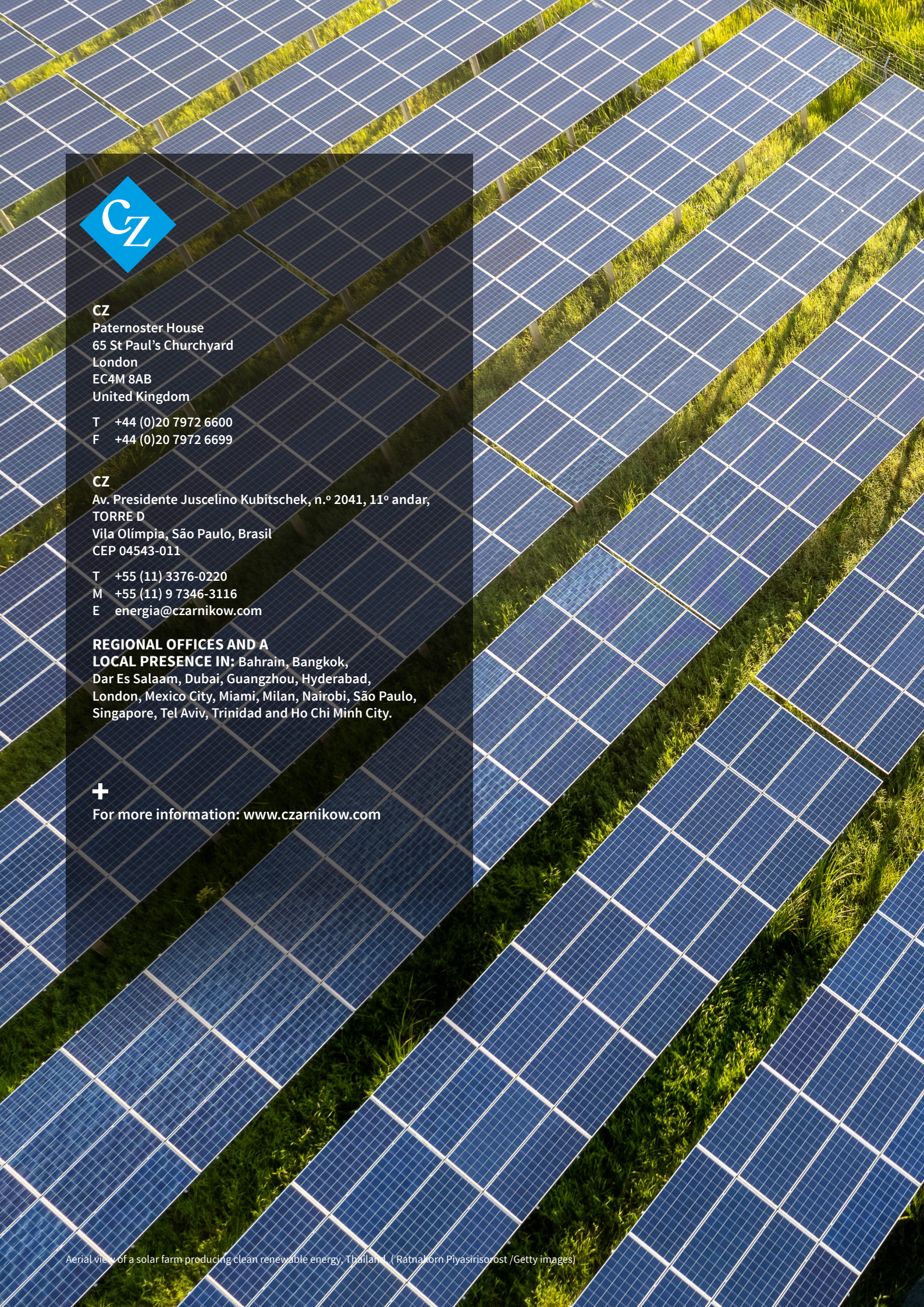
As we expand into energy, we are applying our entire service offering to biomass value chains, including off-taking, risk management, logistics, structured finance, sustainability services (through VIVE) and market analysis. Our intention is to optimise biomass value chains to replace the usage of fossil fuels for steam generation. We work with mills to convert surplus bagasse into electricity via high-pressure steam converters, and then sell that electricity on their behalf using a transparent pricing model. This electricity can also be distributed between mills who might share resources to optimise electricity generation.

We also facilitate investments in steam production, leading to more biomass production and a higher yield of energy produced by that biomass.

More information: www.czarnikow.com/products/energy



Rice husk left behind after filtration used in Biomass fuel. (ChuangTzuDreaming /iStock)



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For more information: www.czarnikow.com

Aerial view of a solar farm producing clean renewable energy, Thailand. (Rátnakorn Piyasirisorost /Getty images)