

Power

Terragen is a power producer that supplies electricity to the Central Electricity Board (CEB), as well as electricity and steam to Terra's sugar mill, through two 35 MW thermal power plants. Operating in a joint venture partnership with French company Albioma, we generate electricity and steam by burning *bagasse* and cane straw during the crop season (from July to December), and imported coal, mainly from South Africa, during the intercrop season.

Our purpose is to supply reliable and low-cost electricity to the country, be available on the CEB grid, and consolidate our position as a major player in the production of renewable energy.

POWER BUSINESS MODEL

VALUE DRIVERS

CONTEXT AND OUTLOOK

REVENUE DRIVER (VOLUME)

REGULAR AND RELIABLE SUPPLY OF ELECTRICITY

- Energy available on demand, responding quickly and efficiently to calls for production and maintaining a reliable supply by avoiding breakdown incidents.

- Supply to one major client, CEB, and also to Terra's sugar mill.
- Terragen runs an efficient and reliable plant and produces power for the country at a very competitive rate.

COST DRIVER (PRICE)

RAW MATERIAL COST

- Increasing the renewable energy portion of electricity production to meet Government's decarbonisation plan, while maintaining cost competitiveness.

- The current energy mix in Mauritius is 78% fossil fuel and 22% renewable energy; we produce around 13% of the country's renewable energy supply. We are continually looking for opportunities to increase energy efficiency and substitute coal with *bagasse*, cane straw and other renewable energy sources, such as wood biomass and solar.
- We remain fully aligned with Government's roadmap to a greener Mauritius and its commitment to phase out coal and achieve 60% renewable energy production by 2030, while maintaining our competitive rate. A biomass framework announced in June 2021 to define remuneration for other types of local biomass, other than *bagasse*, will determine which of our projects get delivered.
- We foresee more opportunities for the energy transition of the Terragen power plant, especially with biomass.

MATERIAL COST EFFICIENCIES

- Efficiency gains and safe and clean production processes.

- We remain the most efficient, reliable and cost-effective operator in Mauritius, with a strong focus on safety and health; we continually identify opportunities to improve our environmental management, particularly water and chemical consumption, and ash management.




Power (cont'd)

POWER BUSINESS MODEL (CONT'D)

The main residual risks for the Power cluster as at 31 December 2021 are summarised below.

| RISK | CONTRIBUTING FACTORS | RISK MITIGATING ACTIVITIES | YEAR ON YEAR TREND |
|--|---|---|--------------------|
| R1 Unexpected consequences of specific terms of the Power Purchase Agreement (PPA) resulting in difficult operating and financial conditions. | <ul style="list-style-type: none"> Lack of visibility on the terms that will apply to the next PPA. Reduction or stoppage of coal importation, resulting in the power plant not operating at full capacity. Significant increase in coal prices on the international markets. | <ul style="list-style-type: none"> Engaging closely with the authorities and the CEB. A new energy business model has been presented to the Government and the CEB that incorporates a plan to carry out the energy transition of the plant to a 100% renewable coal-free model. Continue to be a reliable and competitive supplier of electricity to CEB. | Increased |
| R2 Unplanned and prolonged disruption to production of electricity. | <ul style="list-style-type: none"> Unexpected breakdown of a critical item of equipment. A fire outbreak due to the presence of important amounts of combustible material. | <ul style="list-style-type: none"> Performing regular preventive maintenance and inspection of plant and equipment by specialist consultants. Experience and expertise of Albioma (shareholder and operator of Terragen) in managing numerous power plants around the world. Investing in plant upgrades including fire protection and the procurement of critical equipment items. | Unchanged |
| R3 Severe climatic conditions adversely impact power production. | <ul style="list-style-type: none"> Located in a tropical cyclone prone region. A thunderstorm strike leading to the destruction of electrical and automation systems. Severe and prolonged drought resulting in interruptions in water supply. | <ul style="list-style-type: none"> The power plant is designed to withstand cyclonic gusts of 260 km/h. Protocols are in place to cater for emergency situations like cyclones. Terragen can store 900 m³ of spare water, and measures are taken to optimise water consumption. The Central Water Authority prioritises water supply to the power plant as electricity production is essential to the country. | Unchanged |
| R4 Disruption in the supply of raw materials and/or spare parts. | <ul style="list-style-type: none"> Geopolitical and social issues in fuel producing countries. Disruption to the sugar mill activities leading to non-availability of bagasse or cane straw for power generation. Pandemic disrupts supply and availability of spare parts and foreign consultants for timely completion of plant maintenance. | <ul style="list-style-type: none"> The Coal Terminal (Management) Co Ltd sources fuel from several suppliers who can in turn source their needs in other countries. Using local biomass (cane straw and wood) as alternative sources of fuel to bagasse. Ongoing discussions with authorities to secure a sustainable biomass price for producers. | Unchanged |

POWER BUSINESS MODEL (CONT'D)




| CAPITAL | MATERIAL INPUTS (2021) ¹ | ACTIVITIES TO SUSTAIN VALUE | MATERIAL OUTCOMES (2021) |
|---|---|--|---|
|  <p>PEOPLE</p> | <p>EMPLOYEES WITH THE APPROPRIATE TECHNICAL SKILLS AND MOTIVATION</p> <p>50</p> | <ul style="list-style-type: none"> Reinforced safety measures including safety risk assessments and site visits with the management team on a weekly basis. Refresher training conducted throughout the year to reinforce health and safety practices. Near-miss reporting rolled out and reporting culture improved. | <p>TOTAL RECORDABLE INJURY RATE (TRIR)²</p> <p>0.0 (-100%)</p> <p>LOST TIME INCIDENT RATE (LTIR)²</p> <p>0.0 (-100%)</p> <p>SEVERITY RATE²</p> <p>0.0 (-100%)</p> <p>TRAINING HOURS</p> <p>31 / person / year (58 in 2020)</p> |
|  <p>MANUFACTURED</p> | <p>One generation plant of 450 GWh capacity. Two units of 35 MW operating on three types of fuel: Coal, bagasse, cane straw.</p> | <ul style="list-style-type: none"> Safety measures and procedures in place in response to Covid-19 constraints to prevent any disruptions. Annual shut-down for maintenance despite Covid-19 constraints. | <p>PRODUCED</p> <p>443 GWh</p> <p>SHARE OF NATIONAL ENERGY MIX</p> <p>13%</p> |
|  <p>NATURAL</p> | <p>COAL</p> <p>216,355 T (+20%)</p> <p>BAGASSE</p> <p>241,997 T (-7%)</p> <p>SUGAR CANE STRAW</p> <p>5,735 T (-38%)</p> <p>WATER</p> <p>1,604,584 m³ (-7%)</p> | <ul style="list-style-type: none"> Improvements on the continuous monitoring system for water and air emissions. Use of recycled water in the firefighting and wash cleaning systems. Investigated leakages to minimise water loss. | <p>CO₂ (COAL)</p> <p>500,097 T (+19%)</p> <p>BIOGENIC CO₂ (BAGASSE)</p> <p>202,018 T (-8%)</p> <p>BIOGENIC CO₂ (CANE STRAW)</p> <p>8,622 T (-37%)</p> <p>ENVIRONMENTAL EMERGENCY SITUATIONS</p> <p>0</p> |

¹Data as at 31 December 2021

²Calculation methodology was updated in 2021

Power (cont'd)

POWER BUSINESS MODEL (CONT'D)

| CAPITAL | MATERIAL INPUTS (2021) ¹ | ACTIVITIES TO SUSTAIN VALUE | MATERIAL OUTCOMES (2021) |
|---|--|---|---|
|  <p>SOCIAL AND RELATIONSHIP</p> | <p>Our business model depends on maintaining quality relationships with key stakeholders including: CEB, Terra Milling, regulatory authorities, small-scale planters, suppliers and employees.</p> | <ul style="list-style-type: none"> Continued partnership with Terragri for the plantation of eucalyptus on marginal land. Responded to a Request for Information (RFI) from CEB on how to phase out our coal by 2030. | <p>EMPLOYEE TURNOVER RATE 0% (2020: 0%)</p> <p>PAYMENT IN TAXES MUR 33.4 million</p> <p>CSR CONTRIBUTION MUR 2.2 million</p> |
|  <p>INTELLECTUAL</p> | <p>First Mauritian firm to be granted in 2014 an AFNOR certified integrated management system certificate based on ISO 9001, ISO 14001 and ISO 45001.</p> | <ul style="list-style-type: none"> External Quality, Health and Safety, and Environment (QSE) audit successfully performed without any non-conformities. | <p>AVAILABILITY ON CEB NETWORK 95.6%</p> <p>RELIABILITY 6 plant trips</p> <p>SPECIFIC COAL CONSUMPTION 595 g/kWh</p> |
|  <p>FINANCIAL</p> | <p>TERRAGEN TOTAL EQUITY (JAN 2021) MUR 1,335.6 million</p> <p>TOTAL BORROWINGS MUR 0.2 million</p> <p>CAPITAL EXPENDITURE MUR 31.1 million</p> | <ul style="list-style-type: none"> Actively managed the financial performance through weekly executive meetings, monthly management meetings and regular Board meetings. | <p>TURNOVER MUR 1,811.9 million (+60%)</p> <p>LOSS MUR 384.4 million (-1,174%)</p> <p>TERRAGEN TOTAL EQUITY (DEC 2021) MUR 901.0 million</p> |

¹Data as at 31 December 2021

THE OPERATING CONTEXT

| MATERIAL ISSUE IMPACTING VALUE CREATION | OUR RESPONSE |
|---|---|
| <p>Dependency on a primary client – Being heavily dependent on a single client, it is critical to maintain a strong relationship based on mutually beneficial outcomes.</p> | <p>We continue to invest in maintaining our ability to provide a regular and reliable supply of energy. This has been another pleasing year, with exemplary availability levels and competitive pricing contributing to a sustained positive client relationship.</p> <p>The Government has set an ambitious goal of producing 60% of its energy from renewable sources by 2030 and the CEB made an application for a Request for Information (RFI) to see how we can achieve this goal. We have replied to the RFI and are now waiting for the authority to engage in the process.</p> <p>We are identifying opportunities to minimise our emissions, increase our energy efficiency and reduce the use of coal by increasing the use of cane straw, bagasse and other biomass sources in the energy mix. Our energy transition strategy sets out our plan to increase the share of renewable energy in our production while maintaining a competitive price per kWh, including solar energy and wood biomass as possible investments.</p> |
| <p>Potential regulatory changes – Changes in environmental regulation could require significant investment in new equipment and possible changes to current processes.</p> | <p>We engage regularly with authorities to keep abreast of potential regulatory changes and ensure that appropriate measures are taken.</p> |
| <p>Unplanned disruption to generation or transmission activities – Unplanned outages, associated for example with a fire, mechanical breakdown, cyclone occurrence or disruption in the coal and biomass supply chain, could impact the ability to deliver energy.</p> | <p>We have a preventative maintenance programme and clear risk management processes and response measures in place. The power plant is designed to withstand cyclonic gusts of up to 260 km/h and we have a cyclone emergency plan in place.</p> |

Power (cont'd)

OUR 2021 PERFORMANCE

This year we generated 443 GWh of electricity, an 18% increase year-on-year, and the best record in Terragen's history of electricity production. Two key drivers included the high electricity demand from CEB in 2021, and a very short maintenance period of the power units due to Covid-19. Our availability index also increased to 95.6% in 2021. We had six trips during the year, slightly higher than the previous year, but each trip remained short in downtime. Despite good operational results, we had to recognise an impairment of the plant and related equipment, for an amount of MUR 535.9 million, as a result of the unprecedented increases in coal prices and the uncertainties of the current economic environment leading to a reassessment of the carrying value of the plant at reporting date. The Power cluster therefore posted losses of MUR 384.4 million, compared to profits of MUR 35.8 million in 2020.

Our annual shutdown was scheduled for April, which coincided with the third wave of Covid-19 in Mauritius. With the borders closed, we were unable to get our technical consultant in to do specialised work, hence the shorter shutdown period this year. The risk of contamination on site became higher with the new wave, and we preferred a shorter maintenance period to mitigate this. Maintenance periods are important for overall maintenance of certain equipment to reduce the risk of breakdowns, but fortunately we still had no serious breakdowns this year.

INCREASING OUR PRODUCTION OF RENEWABLE ENERGY

We have maintained a strong focus on delivering on our commitment to decarbonise our energy mix by shifting from coal to biomass, with continued emphasis on further increasing the use of *bagasse*, cane straw and other renewable energy technologies. With the reduced crop season in the North due to continued drought conditions in 2021, the combustion of *bagasse* declined further to 241,997 tonnes (259,850 in 2020), producing 76.9 GWh for export on the grid. Electricity produced from cane straw was higher this year, but lower than what we expected with the production rate affected by rain, baler breakdowns, and low performance of the cane straw shredder at the plant. Despite this, we generated 5.6 GWh using 5,735 tonnes of cane straw, up from 4,171 tonnes in 2020.

The efficiency of our coal use, which is measured in terms of our coal ratio (Kg/kWh), was very good this year because of the good performance at the power units and the high demand for electricity from CEB. When demand is high, it improves the ratio. In 2021 the proportion of renewable energy was significantly lower than normal, as we produced a lot more from coal this year.

We progressed with our exploration on growing and burning eucalyptus as an additional source of biomass, in partnership with Terragri, and planted 18 additional hectares (7.5 hectares in 2020) on marginal land. We also started a trial at the end of October to mix wood chips with coal and *bagasse* to reduce our coal consumption. This was following approval from the CEB to trial 300 tonnes. Our drive to increase the use of *bagasse*, cane straw and other biomass provides a valuable opportunity to enhance the 'greening' of energy generation in Mauritius, and to reduce the island's coal imports. This became even more critical with the Government amendment of the budget in 2021 setting objectives to increase renewable energy by 60% and to phase out coal by 2030. Our trial with wood chips is a direct response to this Government announcement. The CEB has asked for an application for a Request for Information (RFI) to see how we can achieve this goal. We have replied to the RFI and are now waiting for the authority to engage in the process.

The Government also announced a National Biomass Renewable Energy Framework in June 2021 and launched committees to define remuneration for other local types of biomass, other than *bagasse*, which we are actively involved in. The idea is to use all currently available biomass in the country and only import for additional requirements.

We achieved similar performance in our carbon burn-out (CBO) project this year, a joint venture between Terragen and Omnicane aimed at collecting ash, a by-product of coal combustion, and passing this through a re-burning process that transforms it into raw material for the production of cement. This year, 49.7% of our coal fly ash (6,471 tonnes) was sent to the CBO plant, a decrease from the previous year (7,140 tonnes). Through this process, we can reduce the carbon content from around 20% to less than 5% and reuse the energy released to produce electricity.

DRIVING IMPROVED HEALTH AND SAFETY AND ENVIRONMENTAL PERFORMANCE

The steps taken to drive improved safety performance towards the end of 2020 were reinforced in 2021, including safety risk assessments and site visits with the management team on a weekly basis. This resulted in very good performance with zero lost time incidents amongst Terragen employees and contractors. We will continue with these safety routines and best practices developed in 2020, which have proved to be very effective.

We also implemented a near-miss reporting system and had 77 near-misses reported this year, reflecting the excellent safety and reporting culture at Terragen.

OUR 2021 PERFORMANCE (CONT'D)

On the environmental front, during 2021 Terragen maintained high performance in terms of water quality discharges into the environment and air emissions, with only two exceedances on limits. Both coal and *bagasse* dust were within target for both power units, as well as other stack emissions. We continued to work on our continuous monitoring system to improve reliability.

Our water consumption is mainly managed at operational level where we have set a target to use less than 3.65 litres per MWh. Unfortunately, we went above our target for the first six months in 2021, but still improved on the previous year. We started to use recycled water in the firefighting and wash cleaning systems on site this year. We also benefited from the improvement of water use in the cooling system. We investigated leakages to minimise water loss and a major part of our effluent water is still used for irrigating the cane fields at Terragri.

OUR STRATEGIC OUTLOOK

Our strategic focus is to maintain our high levels of availability, reliability and cost effectiveness. In line with this focus, we will continue discussions with the CEB and Government stakeholders to extend the share of renewable energy in Terragen's production mix, with a competitive price per kWh. We will continue to develop other sources of biomass with particular emphasis on wood chips, increase cane straw energy production as per expected capacity and improve the *bagasse* conveyor system to ensure reliability and availability.

We will maintain the good results in safety and health and in terms of environmental performance we will continue to reduce water consumption and chemicals. We will also continue to reinforce the control and monitoring of water and air emissions.

Despite the very good performance this year, our current contract with the CEB puts us in a very unfavourable position in terms of raw material price increases, particularly for coal. There have been unprecedented increases in prices of coal following the sharp increase in demand for electricity generation as the global economy recovers from the pandemic, especially in China and India, leading to a mismatch in the supply of coal. The uncertainties caused by the conflict between Russia and Ukraine has exacerbated the matter causing the price of coal to reach record highs. The coal market futures indicate that the present coal price levels are here to remain, at least for the whole of 2022. At these coal prices, our power plant, which partly uses coal to produce electricity, is anticipated to incur significant financial losses.

In the circumstances, Terragen had no other option but to declare Force Majeure under the PPA with CEB and suspended its operations on 29 April 2022. Operations resumed at the beginning of the crop season on 27 June 2022 using *bagasse* to generate electricity, and the parties are currently engaged in a mediation process to seek a workable solution.

With the stress on raw material availability during the restart of the global economy after the Covid-19 crisis, the increase in the price of coal amplified with the Russian – Ukraine conflict, and the move towards energy autonomy in Mauritius, we foresee more opportunities for the energy transition of the Terragen power plant, especially with biomass.

IMPACT OF COVID-19

- Covid-19 continued to present some challenges with us needing to adjust our organisational structure with the onset of the new wave. To prevent infection, we split the day team into two slots for four months of the year, which brought some organisational constraints.
- Despite already having defined procedures in place, we had to update these several times due to the evolving pandemic.
- Our annual maintenance shutdown was reduced from 1.5 months to 17 days, which contributed to a better availability rate of 95.6%.

Power (cont'd)

