TE PUNA HIHIKO

OUR SUSTAINABILITY JOURNEY 2024–25

THE ENERGY SOURCE – TE PUNA HIHIKO

Find your way around
He anga whakataki

BUSINESS HIGHLIGHTS

$70,000

Energy Wellness Fund awarded

Read the full story on page 14

WINNER

of Annual Connection's Top Line Mechanic Trophy

Read about our award-winning trainee on page 16

ZERO

Emissions from electricity produced at Ngāwhā

Read the full story on page 9

COMPANY-WIDE

Te Ao Māori capability programme launched

Read the full story on page 19

100%

of lending into certified Green Loans

Read the full story on page 22

OUR
CEO'S
VIEWPOINT

Meet the locals
Tūtaki mai ki te hau kāinga

Top Energy is the Consumer Trust-owned electricity lines company and power generator in the Far North. We are part of the community with a big role to play in the sustainability journey of Te Hiku o Te Ika (the Far North) and Aotearoa.

Consumer Trust-owned means that we are owned by the 34,500 Far North electricity account holders connected to the Top Energy network.

Our subsidiary, Ngāwhā Generation, produces 57MW of geothermal power which meets 125% of the Far North's electricity needs. Our commitment is to supply renewable, low emission energy to our community now and for future generations.

We are extremely proud of our success at Ngāwhā Generation, where we have achieved 100% reinjection of emissions from our geothermal power plants, resolving 98% of our company's emissions. This milestone is like removing 30,000 cars from the road.

We sponsor some very worthy causes, such as the rescue helicopter, Healthy Homes Tai Tokerau, Watersafe and the Far North Science and Technology Fair to name a few.

We are one of the largest employers in the Far North with kaimahi (staff) across our office in Kerikeri, depots in Kaitāia and Puketona, and power plants in Ngāwhā.

OUR
CEO'S
VIEWPOINT

We're doing the mahi
E mahi ana mātou i te mahi

It's not often that achieving zero is something you would want to shout about, but it is a target that we are celebrating. Ngāwhā Generation has achieved 100% reinjection of emissions from its geothermal power plants over an entire year, resolving 98% of our company's emissions.

This is like removing 30,000 cars off the road – a car for every household in the Far North. We are proud that this achievement has reset the industry standard for how future geothermal power stations will be designed across New Zealand. It has also meant that we have converted our debt to Green Loans which vastly reduced our interest costs.

But there is still mahi to be done. We have standardised replacing vehicles with hybrids where they are appropriate. And we are focusing on waste minimisation projects which will combine education, measurement and a bit of peer pressure to do the right thing. It requires a cultural change which can be more difficult than a technology change. The upside of this is once the change has taken hold, it's there for life.

We continue to hire our trainees locally so that our new employees reflect our people of the Far North.

We have shifted some of our sponsorships from business development to tackling energy poverty.

We are together embracing our Te Ao Māori Capability programme here at Top Energy. It's important to me that staff grow our understanding of the community we work for, and we have staff who come from other parts of the country or who don't have access to Māori culture. Providing pathways to connect with Te Ao Māori will only better serve our broader community. Especially in Te Hiku o Te Ika (the Far North) where Kupe first landed, the Declaration of Independence was signed, and the home of Te Tiriti.

We are managing our internal resources alongside contractors to meet the demands of maintaining and expanding our network as the Far North continues to grow.

You may notice Horizon trucks alongside Omexom, Scanpower and Northpower who are helping us to deliver large maintenance projects on our network. And to better serve our consumers, we've approved new contractors, Northpower Contracting and Northland Power, to give consumers the freedom to shop around for connecting and maintaining their own electricity services.

OUR
CEO'S
VIEWPOINT

Looking ahead
Te anga whakamua

There is significant interest in building more renewable generation, but we have reached our lines capacity due to the number of solar farms already under construction. Once these farms are operational, we won't be able to connect additional ones. Given that Kaitāia is becoming the solar capital of New Zealand, we don't want to miss out on further opportunities.

We are developing an Energy Bridge to boost renewable energy in Northland. Historically, we have generated 60MW across Te Tai Tokerau, and we have the potential to increase this to 660MW.

Following the Transpower tower failure this year, the government is considering increasing the allowable power generation for lines companies like ours. If this happens, we aim to add more geothermal power generation and expand solar generation for Top Energy.

Geothermal power generation produces up to 20% less power in summer due to its air-cooled nature, which aligns well with the peak time for solar generation. This complementary relationship will enhance our overall energy output.

One of the challenges we face in the coming years is reducing supplier emissions. Transporting equipment and assets to the Far North relies on diesel-powered road transport. To address this, we need to optimise our supply chain, as we can't stop ordering supplies necessary to maintain power.

Our ultimate goal is to achieve cultural change. We want to transition from sustainability initiatives to making sustainability an integral part of how we operate. Our ambitious aim is to embed sustainability as a core value for our business and all our people.

Russell Shaw
Top Energy CEO

OUR
SUSTAINABILITY
FOCUS

Aligning to global standards
E ū ana ki ngā paerewa ā-ao

We have aligned our organisation's sustainability focus to the United Nations Sustainable Development Goals (SDGs).

	PLANET	PEOPLE	PROSPERITY
TOP ENERGY'S SUSTAINABILITY FOCUS: CUSTOMER & STAKEHOLDER OUTCOMES	Reduce GHG emissions Reduce waste Enable renewables	Reduce energy hardship Minimise cost	Grow and develop talent and skills locally
TOP ENERGY'S STATEMENT OF CORPORATE INTENT: OUR GUIDING DOCUMENT	Operate in an environmentally sustainable manner	A safety-first organisational culture Responsive to the social needs of our community Deliver affordable electricity to our consumers	Long term value Acceptable network quality standards
UNITED NATIONS SUSTAINABILITY DEVELOPMENT GOALS	7 Affordable and Clean Energy 13 Climate Action 15 Life on Land	1 No Poverty 3 Good Health and Well-being 10 Reduced Inequalities	8 Decent Work and Economic Growth 9 Industry, Innovation and Infrastructure 11 Sustainable Cities and Communities

Our acacia forest at Ngāwhā (pictured) received 1331 NZU's in 2024, which represents 1331 tonnes of carbon removed from the atmosphere.

HENA! TIAKINA, MANAAKIHIA TE TAIAO
PROTECT AND CARE FOR THE PLANET

PLANET

PROTECTING
OUR
PLANET

Emissions reporting
He pūrongo tukuwaro

Top Energy is Toitū Carbon Reduce certified which means we are measuring our greenhouse gas emissions to comply with carbon reporting standards. Our measures are externally audited by Toitū, an independent group of scientists and business experts meeting ISO 14064 part 1, the standard for measuring and reporting Green House Gas (GHG) emissions.

We have set a 90% reduction target against our scope 1 and scope 2 carbon emissions to 2030 and have successfully reduced these emissions by 98%. Our next step is to look at our supplier emissions over the next few years.

CARBON EMISSIONS	SOURCE	FY22	FY23	FY24	FY25	FY26 FORECAST
DIRECT EMISSIONS (SCOPE 1)	Geothermal Generation Diesel Generation Transport Fuel Sulphur Hexafluoride Leaked Refrigerants	118,155	50,558	24,760	1,454	1,011
INDIRECT EMISSIONS FROM IMPORTED ENERGY (SCOPE 2)	Electricity Purchased Distribution Losses	247	118	187	55	187
INDIRECT EMISSIONS FROM TRANSPORT (SCOPE 3)	Air Travel Other Travel (Rental Cars, Taxis etc) Freight	47	41	125	97	124
INDIRECT EMISSIONS FROM PRODUCTS USED (SCOPE 3)	Transmission Losses Waste to Landfill	465	412	62	52	64
	TOTAL	118,914	51,129	25,134	1,658	1,386

TOITŪ CARBON REDUCE

PROTECTING
OUR
PLANET

Zero emissions from Ngāwhā

He putanga waro kore nō Ngāwhā

We have been reinjecting our carbon emissions from our geothermal power plants.

2024 is the first year that 100% of all geothermal emissions have been avoided. This represents 100,000 tons of emissions, which is the equivalent of taking 30,000 cars off the road.

In order to make sure we are reporting correctly, we have had Deloitte audit our emissions reporting for Ngāwhā and have been approved for a Unique Emission Factor from the Environmental Protection Agency.

This win means that Te Hiku o Te Ika (The Far North) is powered by emission free generation.

Green and Golden Bell frogs are a common feature at Ngāwhā Generation.

PROTECTING
OUR
PLANET

Reducing our waste to landfill
Ko ā mātou para kia nonohi, kia iti

This year, we've been focused on getting the basics right. We've introduced recycling bins at our depots, which are now collected by Northland Waste, and we're advocating for recycling bins at our office through our Body Corporate.

Our previous audit revealed that a significant amount of office paper, particularly from our Kerikeri office, was being sent to landfill. We've made paper waste a priority. We ran a 4-week pilot without waste bins, this helped us double the amount of paper we recycled, which is now diverted from landfill.

To maintain this progress, we've placed paper trays on desks and throughout the office to encourage recycling and prevent paper from ending up in the general waste bins.

While we've seen positive results in our 2024 waste audit, our next step will be addressing the paper hand towels in the bathrooms which is our largest waste to landfill stream.

A sustainability pulse across Aotearoa
Ko te kakapa toitūtanga puta noa i Aotearoa

Top Energy led a nation-wide lines company survey on sustainability this year. As an industry, we want to understand where our gaps are and how we can work together to solve them. We had responses from 23 of the 27 Lines companies.

Here are some of the results:

EMISSIONS

96% of lines companies measure Scope 1 and 2 emissions

75% measure Scope 3 emissions

65% have emission reduction targets

Top Energy has committed to maintaining Toitū Carbon Reduce certification and reducing our Scope 1 and 2 carbon emissions by 90% by 2030

We will measure, report on and commit to reduce supplier emissions from 2027

STAFF

95% of lines companies measure staff engagement

59% of lines companies pay a living wage

100% of lines companies have a Health and Wellbeing programme

Top Energy has a staff engagement score of 72%* which is above the NZ average of 67%

We are Living Wage certified, meaning that all our staff and staff of major partners are paid a Living Wage

COMMUNITY

95% of lines companies have a sponsorship programme

91% of lines companies engage their community

55% of lines companies have an Energy Hardship programme

Top Energy spends $480k a year on community sponsorships

We engage our community at A&P shows, through business associations and through our door-to-door campaign

We support the EnergyMate programme and offer an annual Energy Wellness Fund

* Source: 2023 Top Energy Staff Engagement Survey run by external provider Culture Amp

PROTECTING
OUR
PLANET

Working together
E mahi tahi ana

Lines Companies in New Zealand work really well together. Each company has its own district or region, so they don't compete. When one company tries new technology or an innovative project, they share what they learn with the others for free. This makes it easier and cheaper for Lines Companies to use the same solutions because they already know what problems to watch out for.

This teamwork also helps with Sustainability Initiatives.

The electricity sector has established working groups (which Top Energy is part of) to address:

- Modern Slavery
- Supplier Emissions
- Energy Hardship.

By sharing knowledge, even smaller companies like ours can create strong plans and track their progress on these important issues.

"By sharing knowledge, even smaller companies like ours can create strong plans and track their progress on these important issues."

MANAAKITIA Ō TĀTOU KĀINGA, HE KŌPŪ PUTA TAHI TĀTOU

NURTURING OUR COMMUNITIES, AFFIRMING OUR COLLECTIVE IDENTITY

PEOPLE

CARING
FOR OUR
PEOPLE

Tackling energy hardship
Ko te taimaha hihiko kia ngāwari

In our community, we are focusing on energy hardship as there are sections of the population living in high levels of deprivation, in poorly insulated homes.

We have established a $70k Wellness Fund which this year was awarded to the Community Business Environment Centre (CBEC) to roll out a thermal curtain programme.

Our decision to collaborate with non-profit community groups was informed by recommendations from the Ministry of Business, Innovation and Employment (MBIE) Energy Hardship Expert Panel, and research from Genesis, Mercury and Dr Sea Rottman about hard-to-reach consumers living in energy hardship.

The advice was to leave the work to those already doing the mahi in the community and provide some pūtea (funds) to enable programmes that are tailored to the specific needs of the community.

We will provide progress updates on this amazing initiative. Look out for the next round of funding in spring 2025.

We have also funded the continuation and expansion of EnergyMate which is managed by the Electricity Retailers Association or New Zealand (ERANZ) and implemented by Kaitāia Family Budgeting Services and Te Putahi Nui o Rehua in Kaikohe.

These partners deliver in-home energy coaching to whānau on how to reduce power use in the home. They can also negotiate debt with electricity retailers on the householder's behalf.

$70,000
Wellness Fund awarded to CBEC

2025
next round of funding will be in the spring this year

Energy Wellness Fund recipient CBEC installing thermal curtains. (Left to right) Jordan Moses, Healthy Homes Te Tai Tokerau Zone Leader and Healthy Home Assessor; CBEC's Cliff Colquhoun and Jo Shanks and Healthy Homes Te Tai Tokerau worker Blake Wassing.

Train & hire locally
He tangata ā-rohe kia whakangunguhia, kia whakamahia

Michael Mitchell is a Trainee Line Mechanic in his final year of training. He is a second-generation line mechanic. His father, Steve Mitchell is a foreman and cable jointer and has been with Top Energy for 24 years. Michael's brother Brendon is also a trainee line mechanic at Top Energy. Here's Michael's take on the job.

I grew up with the power board and line mechanics. Linemen were a big part of my life when I was young. It's always been what I wanted to do. Dad's work was molded around me. When you're growing up around pole trucks, hearing stories or watching a power board ute head out the driveway when a storm is happening, you get a feeling I can't describe. I love building powerlines.

Something I didn't expect about the job was the relationships I've built. And not just people within the company, but also across other power companies too. I have met so many great people in this industry, through work, the competition and line school. And I still catch up with them, it's crazy.

The best thing about this job is the sense of achievement. There is no leaving a job half done. Once you start, you're there until it's finished. At the end of the day, you feel like you've achieved something. You dedicate a big part of your life to the lines. Sometimes you're on call and you miss a moment as you go to fix a fault, and you may not realise how important that missed moment was until later.

There is just something about being around power poles, pole trucks, hanging off a belt, working in a crew, that for me, I couldn't imagine a life without it. These guys who have taught me to work on the lines, I value and respect more than anything else as they take the time and effort to teach us trainees.

CARING FOR OUR PEOPLE

Michael was part of our winning team at the 2024 Connexis Annual Connection Line Mechanics competition. He was also the winner of the Ross Archer Memorial Award for attitude, skill and safety.

It was the first time I had even seen the lines competition. Just being there was so motivating. A big lift to be around others who have the same interest. Day to day can be a bit heavy when you don't spend time with others who share that passion. We got to sit around with other teams having a yarn about how we can do things better. People would come up to you and there was only support, no one was being competitive. And you could approach anyone.

We had no sense that we would win. There were amazing teams competing who would get their structures up twice as fast as anyone else. There were lots of things we hadn't seen before, and Top Energy hadn't entered a team in 14 years. So when we did win, we were taken aback and very proud.

At the competition, Michael was singled out as the winner of the Ross Archer Memorial Award, awarded to the trainee with the best individual marks over the competition.

It was humbling and I was so proud. To put in the work and see it acknowledged. I didn't feel like I had done anything different from anyone else, but I got so much enjoyment out of the competition – maybe that was felt by the judges.

I feel honoured to hear all the stories about Ross Archer from those who knew him across the industry and from others in Top Energy.

Ross Archer started at WEL (Waikato Electricity) as a tradesman and became an engineer through his time there. He was well liked and respected, and his passions were safety, in a time before safety was taken seriously in this country, and staff development.

Ross was integral in the continuation of the annual lines competition, reviving it for future line mechanics when support for such things had wavered. When he passed away, it was only fitting that there was an award celebrating the values he held dear, which resounded in trainee line mechanics of the future.

Graduating Top Energy Beginners Te Reo Māori class 2024 with kaiako Hohepa Maclean from Moko Kauri.

CARING
FOR OUR
PEOPLE

Building our Te Ao Māori Capability
Ko te whakaū i tō mātou āheinga Māori

Over half of our Far North community identifies as Māori, and we are committed to increasing access to our business while ensuring we effectively meet the needs of all of our consumers.

For over a year, we've been publishing our monthly newspaper updates in both English and Te Reo Māori, and we're also working on a capability strategy for our kaimahi (staff).

In partnership with Moko Kauri, a multi-disciplinary kaupapa Māori organisation, we've started delivering company-wide capability sessions. These sessions have included identifying the different iwi in the Far North, karakia and its significance, tikanga (customs), mātauranga and mātāpono (principals and values) and we have explored the names of towns in our district.

For those seeking a more personal journey, all staff are offered a Te Ao Māori for Professionals online course from Education Perfect which our kaimahi (staff) can share with their families at home. This content covers history and Te Tiriti, tikanga, equity and Te Reo Māori.

Our first Beginners Te Reo Māori class graduated just before Christmas, and we've offered all staff and their partners access to the Waitangi Treaty Grounds.

These programmes have seen a significant uptake and genuine participation, and we are committed to continuing to grow our Te Ao Māori capability. We are already hearing a lot more Te Reo Māori in the office.

We're only in the first year of this journey, so we'll keep you updated on our progress.

CARING FOR OUR PEOPLE

Comparing bills door-to-door

Ko te whakatairite pīre whare ki te whare

Consumer NZ found that Far North electricity consumers could save over $500 a year by switching electricity providers. However, this potential saving often goes unrealised, as the Far North's switching rate lags behind the national average of 6.23%.

One of the main tools to compare electricity retailers, Powerswitch, can be daunting for those who aren't tech-savvy. Additionally, the recommendations provided by the tool require some interpretation to ensure consumers get the best value.

We want our consumers to maximise their savings, so we've been going door-to-door, helping people compare their current rates with those offered by other retailers. Our goal is to help 500 consumers secure a better deal.

Our first door-to-door campaign launched in February, targeting main centres across the Far North. We also offer phone and email assessments for consumers living in more remote areas, ensuring everyone has the chance to make an informed switch.

So far, our door-to-door campaign team have knocked on over 4000 doors across the Far North.

HE KAI KEI TE KAPU O AKU RINGA

PROSPERITY IS IN THE PALM OF OUR HANDS

PROSPERITY

ENSURING
LONG-TERM
PROFIT

100% of lending certified Green Loans
100% o ngā nama kua whakapūmaungia he nama Kākāriki

Following the success of reinjecting carbon emissions from the Ngāwhā geothermal power stations, Top Energy has sufficient eligible assets to convert all lending facilities into Green Loans.

Westpac New Zealand Limited (Westpac) was appointed as sole Sustainability Coordinator for the development of the Green Finance Framework which aligns with the APLMA/LMA/LSTA Green Loan Principles and ICMA Green Bond Principles.

A Green Loan is a type of loan specifically designed to fund projects or investments that have clear environmental benefits.

The eligibility criteria for the Green Loans include Renewable Energy — Electrical Grids & Storage and Renewable Energy — Generation.

Top Energy will show that it continues to meet the criteria through annual certification.

Establishment of the Framework is part of the wider commitment to sustainability as reported in Annual Sustainability Reports over the last three years.

Being able to achieve 100% Green Loans is a testament to the relationships with the wider lender panel, consisting of ANZ, BNZ, Bank of China, CCB, ICBC and Westpac.

"A Green Loan is a type of loan specifically designed to fund projects or investments that have clear environmental benefits."

ENSURING
LONG-TERM
PROFIT

Sustainability measures
Ko ngā mahi whakauka

MEASURE	FY23	FY24	FY25	TARGET
WASTE TO LANDFILL	157t	91t	77t	Zero waste to landfill by 2030
RESIDENTIAL & COMMERCIAL SOLAR INCREASE (MW CUMULATIVE)	9.5MW	11.4MW	14.2MW	Increase annually
LARGE-SCALE SOLAR INCREASE (MW CUMULATIVE)	0MW	23MW	23MW	Increase annually up to line capacity Additional solar farm was delayed, we expect to see an increase in FY26
INCREASE DISCOUNT/DIVIDEND EVERY THREE YEARS	$250	$300	$300	Discount/Dividend to reach $400 by 2030
ESTABLISH ENERGY HARDSHIP PROGRAMME	Not achieved	Not achieved	Achieved	Establish an Energy Hardship Programme
HIRE THREE LOCAL TRAINEES EVERY YEAR	2	8	2	Hire a minimum of three new locally based trainees each year Due to maximum available supervision reached in FY24, we have not achieved three new trainees for FY25

HE MOANA KA PUKEPUKE, HE MOANA KA EKENGIA E TE TAUIHU O TE WAKA

CHALLENGES CAN BE OVERCOME WITH GREAT LEADERSHIP

GOVERNANCE

CLIMATE
RELATED
DISCLOSURES

Facing our risk headwinds

Top Energy's Board of Directors are responsible for the governance of risks, including those related to climate change. This is entrenched in our current process, where the Audit and Risk Committee supports the Board by promoting integrity and transparency in risk management.

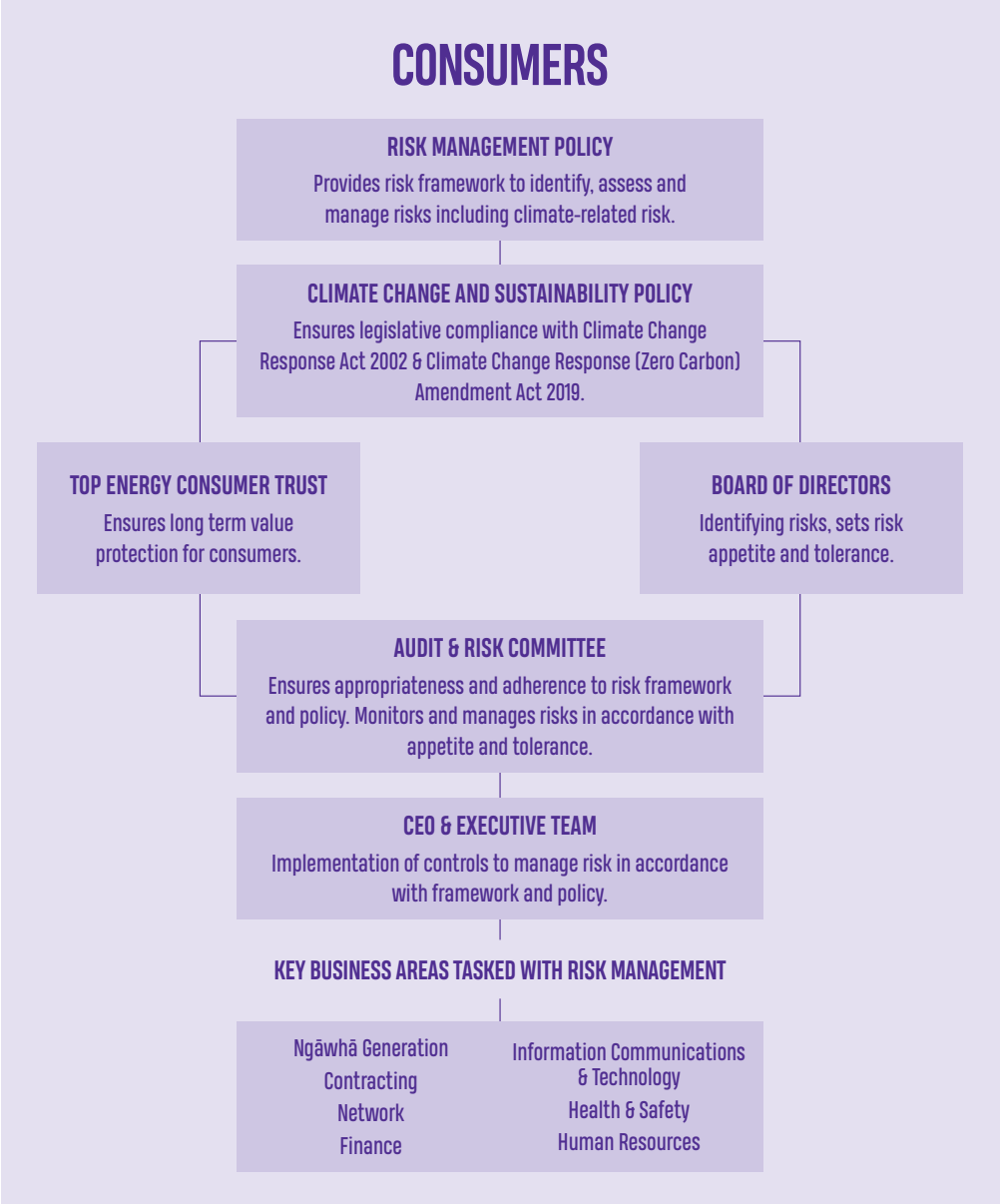
The Audit and Risk Committee meets at least six times a year and reports proceedings back to the Board.

Our Climate Change and Sustainability Policy aims to limit our impacts on climate change with a view to carrying out all business activities in a sustainable manner.

The Risk Management Policy recognises that risk management is a part of core business operations. We commit to risk management aligned with AS/NZS ISO 31000: 2009 Risk Management – Principles and Guidelines, to proactively identify, measure and manage risks. Risk appetites are documented to ensure that risks are managed within Board-approved risk parameters. Performance is reported in Top Energy's Statement of Corporate Intent and in our Annual Report.

Our Risk Matrix has been used for the scale of our risks on pages 27 and 28.

Governance Structure



Climate change affecting Northland
Ko ngā āhuarangi e pā mai nei ki Te Tai Tokerau

Temperatures

Annual average temperatures will increase by between 0.7°C and 1.1°C by 2040, and up to 3.1°C by 2090. The number of hot days above 25°C will increase from 25 to 55 days by 2040 and up to 99 days in 2090. Frosts will decrease from 1 day every 2 years, to 1 day every 10 years.

The likely impacts are increased vegetation growth, number of invasive pests, biosecurity risks and diseases such as salmonella. Some key crops will become financially unviable as frost instances decrease.

Rainfall

Expect reductions in rainfall of up to 20% by 2090.

Large, extreme rainfall events are likely to increase in intensity. Drought risks will increase for coastal and southern inland areas. By 2090, the time spent in drought may double.

This will likely lead to water shortages and increased risk of wildfires.

Tides

New Zealand tide records show an average rise in relative mean sea level of 1.7mm per year in the 20th century. This means the sea level would have increased by 1.7m over 100 years.

For Northland, this could mean an increased risk to infrastructure from coastal erosion and sea-level rise.

Summary

The Far North has a subtropical climate, and Top Energy is already experiencing increased storm and higher temperature warnings. We are no stranger to extreme weather as well as drought conditions and flooding. Our unique climate also means we have ideal conditions for fast and wide vegetation growth.

As these factors become more extreme, we will need to ensure the resilience of the power supply to the Far North region. Because our physical network is geographically located across a thin strip of land on an island, we will also be at risk of sea-level rise, as most of our region is coastal. These risks are outlined in the table on page 27.

Source: Pearce, P.R. (2017) Northland Climate Change Projections and Impacts. NIWA Client Report for Northland Regional Council, 2017027AK

Physical risks
Ko ngā tūraru kikokiko

Top Energy's key physical risks are assessed against the tropical climate change predictions for the Far North in conjunction with the fast-growing topography and coastal nature of our district.

RISK DRIVERS	STORMS & CYCLONES	VEGETATION	RAIN & FLOODING	SEA LEVEL RISE	FIRE & DROUGHT	AMBIENT TEMPERATURE	LAND MOVEMENT (SLIPS)
SCALE	Inherent: High (24) Residual: High (18)	Inherent: Medium (15) Residual: Medium (12)	Inherent: High (18) Residual: Medium (12)	Inherent: Medium (12) Residual: Low (4)	Inherent: Medium (8) Residual: Low (4)	Inherent: High (18) Residual: High (18)	Inherent: High (18) Residual: High (18)
LIKELIHOOD	Almost certain	Likely	Almost certain	Possible	Possible	Almost certain	Almost certain
TIMEFRAME	Medium to long term	Medium to long term	Medium to long term	Medium to long term	Short to medium	Medium to long term	Medium to long term
SEVERITY	Major localised damage and extended outages	Serious financial impact	Serious financial impact	Serious financial impact	Moderate financial impact	Serious financial impact	Serious financial impact
IMPACT	Overhead lines and poles are vulnerable to damage from storms and high winds, particularly in rural and coastal areas as a result of treefall. This risk leads to unplanned power outages which can result in large outages.	Rising temperatures are expected to accelerate vegetation growth, increasing the risk of unplanned outages as branches encroach on powerlines.	Heavy rain and flooding can disrupt cable installations, increase cable faults and damage critical infrastructure. Flooding can also cause soil erosion, landslides and access challenges, leading to longer outage durations and higher maintenance costs.	Rising sea levels in the Far North, especially in coastal areas, may raise water tables, leading to more cable faults and making installations harder. Saltwater intrusion and coastal erosion could also threaten infrastructure and limit access for repairs.	Drier conditions increase the risk of fires, particularly where vegetation is close to overhead lines, potentially leading to network damage and power outages.	Electricity consumption may decrease in winter, but demand is expected to rise in summer due to increased cooling and irrigation needs, shifting load patterns and potentially straining the network. Higher ambient temperatures can also reduce the efficiency of our transmission and distribution systems.	Land movement, such as slips, can cause significant damage to assets and lead to unplanned power outages due to treefall and infrastructure instability.
MITIGATION	The Board recently approved the network reliability programme. This additional budget will allow for installation of additional sectionalisers, reclosers and continuation of the pole replacement programme to bring them up to the new design specs and N-1 security related projects.	We have adapted our maintenance program including vegetation resources annually in our Asset Management Plan. We have increased the Vegetation budget to allow for a two man crew for maintenance. We will make ongoing submissions to have the Hazards from Trees Regulations changed.	An extended outage would only occur if a substation were flooded, but past heavy rain events have not caused such disruptions. Furthermore, the Top Energy network's predominantly overhead design mitigates the risk, reducing the severity of heavy rain and flooding impacts.	Completed flood risk remediation at substations. Ongoing assessment of assets against NRC sea-level projections for both short- and long-term impacts. New coastal assets are evaluated to minimise risks from sea level rise and erosion.	Work with commercial entities to manage vegetation near lines and enforce clear zones. Follow FENZ fire monitoring protocols, with TECC adjusting protection settings, inhibiting auto-reclose, conducting risk assessments, and patrolling lines. In extreme cases, TECC will decide on de-energising or re-livening lines.	Incorporate temperature impacts into transmission, and distribution design. Upgrade cooling systems, expand network capacity to handle increased demand and enhance maintenance strategies. Support the workforce to adapt to higher temperatures.	Geotechnical assessments are conducted in high-risk areas, and an inspection regime is in place to monitor erosion and other signs of land movement.

Transitional risks
Ko ngā tūraru hurihanga

Top Energy's key transitional risk is increased cost from a rise in the cost of living and the additional cost incurred from transport relying on fossil fuels. Thanks to the reinjection of emissions at Ngāwhā Generation, we have removed the risk of regulation and/or consumer preference reducing the ability to generate due to high generation emissions.

RISK DRIVERS	INCREASED COST	NEW TECHNOLOGY	REDUCED PEOPLE AND SUPPLY CHAIN RESOURCE AVAILABILITY
SCALE	Inherent: High (24) Residual: High (18)	Inherent: Medium (10) Residual: Medium (5)	Inherent: High (24) Residual: High (18)
LIKELIHOOD	Almost certain	Likely	Almost certain
TIMEFRAME	Medium to long term	Medium to long term	Short to medium term
SEVERITY	Major financial impact	Moderate financial impact	Major financial impact
IMPACT	The costs of equipment, materials (such as concrete poles, steel and timber), and transportation are likely to rise due to increasing global carbon prices, supplier costs and inflation. These factors could strain budgets, delay projects and potentially reduce the scope or quality of work.	The adoption of new technologies like solar power, electric vehicles (EVs), and other distributed energy resources (DERs) may challenge the traditional network's efficiency and capacity. These changes could require significant adjustments to infrastructure, management practices and regulatory compliance.	A shortage of skilled workers and supply chain disruptions could hinder network maintenance and project execution, leading to delays, increased costs and potential quality issues.
MITIGATION	Investigate and adopt new technologies to reduce reliance on expensive or carbon-intensive materials. Influence the supply chain to adopt low-carbon and cost-effective solutions, including for transportation. Regularly update budgets to reflect rising costs and ensure project plans are adaptable to maintain scope and quality.	Continue upgrading the network to accommodate new technologies, including increased capacity and flexibility. Assess the impacts of solar power and EVs on the network and implement smart grid solutions to manage distributed energy resources. Ensure compliance with evolving regulatory standards and maintain proactive engagement with stakeholders to adapt to technological changes.	Recruit from overseas and expand trainee programs to ensure a skilled workforce. Improve early communication with suppliers to secure materials and manage supply chain risks. Diversify suppliers to reduce dependency on any single source.

Opportunities
Ko ngā āheinga

We have removed 98% of our carbon emissions through the reinjection of our Ngāwhā Generation geothermal emissions, realising the opportunity of decarbonisation. Although we are still on a decarbonisation journey with the balance of our emissions, we have now transitioned from Enabling Decarbonisation to Resilience, as our opportunities continue to be in diverse generation markets.

Resilience

Grid demand will increase through the electrification of heating, cooling and new technologies such as EVs, resulting in increased electricity consumption.

We will have a more resilient electricity network to meet demand, maintaining security of supply for our consumers in the face of increasing weather events caused by climate change.

We will continue to investigate carbon reduction options for the network in accordance with government guidelines.

We will use new technology to monitor our network, model load and demand profiles to ensure we maintain a robust network to cater for an increase in demand.

We will use our new pricing structures to manage demand as well as encourage distributed generation connections.

We will use modern mapping to monitor and make decisions as the impact of climate change occurs.

We will upgrade some 33kV infrastructure to 110kV, adding route and supply diversity.

Diverse Generation Markets

Increased revenue due to higher demand, e.g, regional decarbonisation (industrials, hospitals and schools turn off coal boilers), offers potential for future generation.

Reliable baseload becomes more desirable to the market as renewables are intermittent.

There is an opportunity to investigate markets that will emerge as alternative sources of revenue.

We will investigate:

- Renewable generation opportunities
- Export constraints
- Bespoke energy solutions with industries in our region
- Renewable Energy Certificates from our generation at Ngāwhā.

OUR SUSTAINABILITY JOURNEY 2024–25

TOP ENERGY®
TePuna Hihiko