

# TEPUNA

OUR SUSTAINABILITY JOURNEY 2023-24

# HIHIKO

TOP ENERGY®  
TePuna Hihiko  
www.topenergy.co.nz

THE ENERGY SOURCE – TE PUNA HIHIKO



# Find your way around He anga whakataki

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**BUSINESS  
HIGHLIGHTS**

**100%**

of geothermal  
emissions reinjected

**WINNER**

of two Whakamānawa ā Taiao  
environmental awards

**CERTIFIED**

Toitū carbonreduce

**WINNER**

of NZ Energy Excellence  
Outcome award

**\$300**

annual payment increase

# 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 have an important role to play in the sustainability journey of the Far North and Aotearoa.

As a Consumer Trust, we are fully owned by the 34,000 Far North consumers connected to the electricity network.

Through our subsidiary Ngāwhā Generation Limited, we generate 57MW of geothermal power which meets 125% of the Far North's electricity needs.

We are one of the largest employers in the Far North with 180 kaimahi (staff) across our office, depots and power plants.

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, effectively resolving 98% of our company's emissions.

This milestone is like removing 30,000 cars from the road and saves us \$8 million annually in purchasing carbon credits.

Notably, it has allowed us to maintain our lines pricing this year and absorb a 205% increase in transmission pricing and significant inflation pressures.

34,000

electricity  
connections we have  
in the Far North

125%

Ngāwhā produces of  
the electricity needs  
of the Far North

180

kaimahi across  
four locations in the  
Far North

57<sup>MW</sup>

Ngāwhā generates  
of geothermal power

OUR  
CEO'S  
VIEWPOINT

# We're well on the way

## E tutuki haere ana

One of the things that stands out for me is the collective sense of pride from our staff.

No other initiative has been so well understood and embraced throughout the company, serving as a catalyst for future sustainability endeavours and signalling a profound cultural shift.

Sustainability is critical to Top Energy's long-term success. Our challenge is to achieve a delicate balance between affordability and sustainability while ensuring a reliable electricity network.

This means adapting our traditional approaches and staying alert to emerging technologies and innovations that will further our sustainability goals.

We are delighted to have received awards for our reinjection project and affordable energy initiatives in 2023, underscoring our commitment to providing accessible energy solutions.

While maintaining affordable energy is a priority, it is important to acknowledge that cost increases are inevitable as our expenses rise. Our objective is to implement incremental price adjustments,

and we want to ensure our customers are informed and equipped to choose the most suitable retail electricity plan for their needs.

We have increased the average discount and dividend payment by 20% to \$300 which consumers saw on electricity bills in May 2024.

This year, we achieved our Toitū carbonreduce certification for a second year, which audited our emission measures and commits us to setting carbon reduction targets for the future.

Additionally, we are proud to announce the connection of the country's largest solar farm to our network, a significant stride towards bolstering renewable energy nationwide.

As energy consumption is projected to nearly double over the next 20 years, driven by the increasing uptake of electric vehicles and the electrification of industrial processes, solar power will play a crucial role in decarbonisation and ensuring a sustainable electricity supply in Aotearoa.



OUR  
CEO'S  
VIEWPOINT

# Looking ahead Te anga whakamua

The electricity industry faces a daunting task, requiring over 1100 new employees annually to meet current demand levels, presenting a significant challenge.

Locally it's a challenge to attract people to the Far North to work on our network.

To meet the immediate need, we have brought in skilled people from Fiji and we are impressed with the quality of work and high level of capability they bring to Top Energy. However, this alone is not enough.

While our initial plan was to bring in three local trainees a year, we expanded our efforts and have hired eight new trainees to strengthen and grow our local capability.

Even if they decide to become qualified then explore the world, we find that Far North people like to come home when they are ready to settle down. We want to enable that future and we want them to come back to us.

When thinking of our community and our kaimahi (workers), we also want to evolve our business into one that connects with

Te Ao Māori. To this end, we are developing a three-year learning programme to raise awareness and capability. We have engaged local experts to help with this journey and help us embed these learnings into our everyday business.












**Russell Shaw**  
Top Energy CEO

A handwritten signature in black ink that reads "Russell Shaw". The signature is written in a cursive, flowing style.

# 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	<p>7 Affordable and Clean Energy</p>  <p>13 Climate Action</p>  <p>15 Life on Land</p> 	<p>1 No Poverty</p>  <p>3 Good Health and Well-being</p>  <p>10 Reduced Inequalities</p> 	<p>8 Decent Work and Economic Growth</p>  <p>9 Industry, Innovation and Infrastructure</p>  <p>11 Sustainable Cities and Communities</p> 



HENA! TIAKINA, MANAAKIHIA TE TAIAO

PROTECT AND CARE FOR THE PLANET

PLANET

PROTECTING  
OUR  
PLANET

# Electricity generation Putanga hiko

## Ngāwhā Generation is Net Carbon Zero

2023 was a year of wins for Ngāwhā Generation.

In September, Ngāwhā Generation achieved 100% reinjection of geothermal gas emissions. Instead of the gas being released into the atmosphere, it is recombined with the geothermal fluid and pumped back into the geothermal reservoir via re-injection wells.

The Acacia forest growing on the geothermal station grounds, produces carbon credits to offset the small volume of emissions from other sources, such as vehicles, making all the electricity produced at Ngāwhā net carbon zero.\*

Ngāwhā Generation is working with other large geothermal generators across Aotearoa to share insights from trials and help the sector collectively contribute to a Net Carbon Zero future.

\* While not certified net carbon zero, Ngāwhā's Acacia forest offsets any residual carbon produced on site.

## NRC Whakamānawa ā Taiao Environmental Awards

We were thrilled that Ngāwhā Generation was recognised in two major awards at the Northland Regional Council's 2023 Whakamānawa ā Taiao Environmental Awards.

We scooped the Environmental Action in Industry Award, and the award for Environmental Action to Address Climate Change.

Ray Robinson, General Manager at Ngāwhā Generation, says winning the awards recognises our commitment to contributing to a low-carbon future for Northland.

***“In September, Ngāwhā Generation achieved 100% reinjection of geothermal gas emissions.”***

PROTECTING  
OUR  
PLANET

# Reducing our waste to landfill

## Ko ā mātou para kia nonohi, kia iti

9

Every bit of waste we can remove from landfill means we are taking greater care of the environment. This year our waste to landfill reduced by 42% which means our diverted waste also reduced.

At the start of 2024, we received our waste audit results from Eco Solutions for our four sites in Kerikeri, Puketona, Ngāwhā and Kaitiāia. The conclusion was that, while Top Energy diverts most of our waste from landfill, there is still room for improvement.

We have initiated projects to reduce the amount of paper and cardboard that ends up in landfill, and to enable recycling of plastic, cans, fluorescent bulbs and batteries. We will do the mahi (work) to see a positive change in our next waste audit.

65.5t

waste diverted from landfill



# Emissions reporting

## He pūrongo tukuwaro

Top Energy is Toitū carbonreduce 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 our emissions by 79% already. We aspire to continue to reduce our carbon emissions and will work with suppliers to address scope 3 emissions in 2025.

CARBON EMISSIONS	SOURCE	FY22	FY23	FY24	FY25 FORECAST
<b>1. DIRECT EMISSIONS = SCOPE 1</b>	Geothermal Generation Diesel Generation Transport Fuel Sulphur Hexafluoride Leaked Refrigerants	118,155	50,558	24,760	6,896
<b>2. INDIRECT EMISSIONS FROM IMPORTED ENERGY = SCOPE 2</b>	Electricity Purchased Distribution Losses	247	118	187	168
<b>3. INDIRECT EMISSIONS FROM TRANSPORTATION</b>	Air Travel Other Travel (Rental Cars, Taxis etc) Freight	47	41	125	175
<b>4. INDIRECT EMISSIONS FROM PRODUCTS USED</b>	Transmission Losses Waste to Landfill	465	412	62	100
	<b>TOTAL</b>	<b>118,914</b>	<b>51,129</b>	<b>25,134</b>	<b>7,339</b>

PROTECTING  
OUR  
PLANET

# Big solar Kōmaru nui



In December, Lodestone Energy Solar Farm in Kaitāia went live making it the largest solar farm in Aotearoa to be connected to the electricity network.

With a capacity of 23MW, the solar farm eclipses any other completed around the country with 60,000 solar panels across 80 hectares. The solar panels are installed on racks more than two metres high and spaced so farming can continue underneath, which is another New Zealand first.

*“Apart from battling the rain and wind, building the high-powered lines for connection to the Top Energy network went smoothly.”* (Steven Cooper)

Large-scale solar farms like Lodestone play a pivotal role in our future, contributing to climate-positive renewable electricity generation.

While over 80% of the electricity in Aotearoa is renewable, the demand for electricity is expected to nearly double in the next 20 years, so we need sustainable power generation to meet that demand.

WILLIAM ERIWATA  
CONSTRUCTION SUPERVISOR  
KAITĀIA

STEVEN COOPER  
ESTIMATING MANAGER  
KERIKERI

# Enabling solar connections

## Ko ngā tūhononga kōmaru kia whakakahahia

The Far North community has embraced a transformative shift towards sustainable energy, particularly solar power. This shift is not only driven by environmental concerns, but also by the economic and social benefits solar energy brings.

Northland has one of the highest uptakes of solar power in the country, with over 5% of all power connections in the Far North being solar powered.

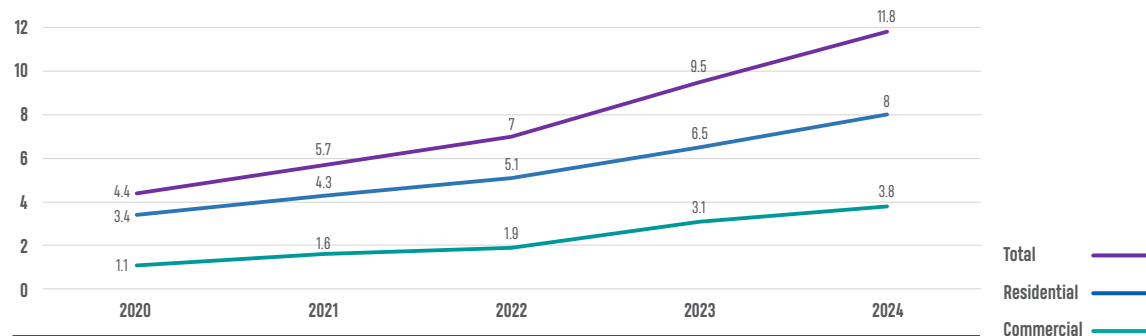
We have seen a significant increase in applications to connect home solar in the second half of 2023 as

customers sign up to long term contracts with solar providers to avoid up-front costs.

The total residential solar generation has increased significantly to 11.8MW which is an increase of 2.3MW against last year.

We expect more of the same in the coming years, perhaps even more significant growth, so we want to ensure we can provide a connection which will meet the needs of future generations.

### SOLAR IN MW



**2.3<sup>MW</sup>**  
increase in  
residential solar in the  
Far North since 2023

MANAAKITIA Ō TĀTOU KĀINGA, HE KŌPŪ PUTA TAHI TĀTOU

NURTURING OUR COMMUNITIES, AFFIRMING OUR COLLECTIVE IDENTITY

PEOPLE

A group of five people are riding horses along a wide, sandy beach. The ocean is on the left, with gentle waves washing onto the shore. The sky is filled with large, grey clouds, suggesting an overcast day. In the distance, there are low, rolling hills or mountains. The word "PEOPLE" is written in large, white, sans-serif capital letters across the bottom of the image, partially overlapping the sand and the horses' legs.

CARING  
FOR OUR  
PEOPLE

# Train and hire locally

He tangata ā-rohe kia  
whakangunguhia, kia  
whakamahia

There is a shortage of trained experts in our industry nationwide, and we want to build local capability which will help secure our network for the future. In fact, there is such a shortage, that we expanded our initial plan to bring in three local trainees, and have hired eight new trainees to strengthen and grow our local capability. Meet the future of electricity.

CLAYTON MATTHEWS  
LINE MECHANIC TRAINEE  
KAITĀIA



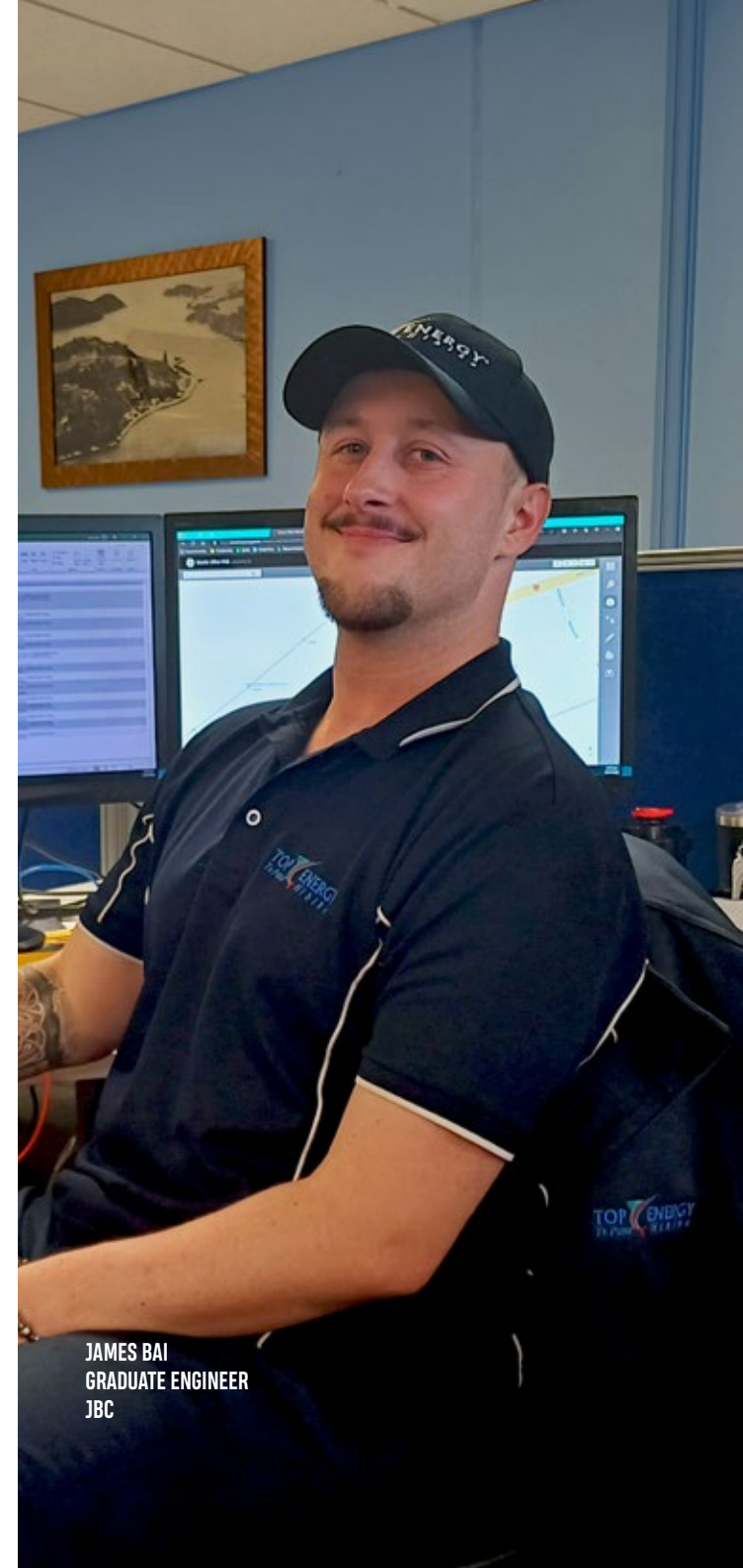




MANAIA NICHOLLS  
LINE MECHANIC TRAINEE  
KAITIĀIA



BRENDON MITCHELL  
LINE MECHANIC TRAINEE  
PUKETONA



JAMES BAI  
GRADUATE ENGINEER  
JBC



DEREK HODGES  
VEGETATION ASSISTANT  
PUKETONA



ZARA GUTHRIE  
TRAINEE TECHNICIAN  
PUKETONA



JAALI KAPUA  
LINE MECHANIC TRAINEE  
PUKETONA



TROY REIHANA  
LINE MECHANIC TRAINEE  
PUKETONA



LILY WILSON  
TRAINEE TECHNICIAN  
PUKETONA

# Affordability

## Kia māmā te utu

### Winner of the 2023 NZ Energy Excellence Outcomes Award for Affordable Energy

Top Energy prioritises affordable electricity in the Far North as one of our top five objectives, which is deeply ingrained in our organisational goals and sustainability initiatives.

Our commitment to providing affordable electricity to our community was acknowledged at the NZ Energy Excellence Awards.

Over the past four years, we have reduced distribution charges by 23%, and in the latest year, we absorbed a 205% increase in transmission charges to shield our customers from price hikes.

A big thanks to the Top Energy Consumer Trust and our 34,000 consumers for their unwavering support.

\$577

According to Consumer NZ, how much people in the Far North could save on power bills by changing retailers

22%

of Far North residents have never switched electricity retailers

### Discount and Dividend

In May 2024, the consumer annual credit which was paid via electricity bills increased to \$300.

The payment is made up of a \$200 lines discount from Top Energy and a \$100 Consumer Trust dividend, reflecting returns from other business investments, notably Ngāwhā Generation.

While we have reduced our lines prices over recent years, your electricity retailer decides if they will pass on the price decrease or not. You can compare prices at [powerswitch.org.nz](https://powerswitch.org.nz).

Together with our community we weathered cyclones Dovi and Gabrielle, which hit our network hard. With the increasing frequency of major storms, we need to invest more in lines maintenance to improve the resilience and reliability of our electricity network.

While prices are expected to rise in the future, we remain committed to our focus on affordable electricity.

CARING  
FOR OUR  
PEOPLE

# Tackling energy hardship

## Ko te taimaha hihiko kia ngāwari

Building on the success of the EnergyMate trial, in partnership with ERANZ, Kaitiāia Family Budgeting Services and Kaiwhitu in Te Kao, we looked at extending our role.

This year we applied for Support for Energy Education in Communities Programme (SEEC) Funding from MBIE to run a Home Energy Saver programme to reduce electricity bills of Far North households experiencing energy hardship.

We were seeking partial funding while providing additional funding of our own. We were not successful in our funding application.

While we have not established an Energy Hardship Programme just yet, we have successfully set aside budget to fully fund our own programme for the coming year and are working through what that will look like.





HE KAI KEI TE KAPU O AKU RINGA

PROSPERITY IS IN THE PALM OF OUR HANDS

PROSPERITY

ENSURING  
LONG-TERM  
PROFIT

# Our future with low carbon Ko te āpōpō kia iti te tukuwaro



CALLUM HOULT  
TECHNICAL PLANT OPERATOR TRAINEE  
PUKETONA

This year, our newest power plant began successfully reinjecting emissions back underground which would otherwise be released into the atmosphere.

Reinjection at Ngāwhā Generation represents the elimination of 98% of Top Energy's carbon emissions. While we will not stop trying to reduce our carbon emissions as a business, this is a big win.

Looking forward, we are operating in a future where high carbon emissions would not hold social licence. We were exposed to \$8m a year to offset our emissions which represents 20% of our net operating revenue prior to reinjection.

This massive achievement has laid the groundwork for a brighter and more sustainable future for Top Energy.

# Growth will secure our collective future 21

## Mā te tupu e ū ai tō tātou āpōpō

### New Connections

New connections to the Top Energy electricity network remains steady after the post lock-down influx a few years ago.

You can see the increase of subdivision and solar applications that reflects a growing Far North with a desire to produce their own home electricity.

NEW CONNECTIONS	RESIDENTIAL	COMMERCIAL	SUBDIVISIONS	SOLAR
FY 24	385	45	56	329
FY 23	392	45	32	340
FY 22	582	55	45	276

### Resilience

South Road (Kaitāia) Automation is now up and running. This significantly reduces the number of customers who are impacted by outages by adding automated devices onto the line to section off the damage. This also decreases the amount of time customers are without power.

The interconnection between the Matauri Bay and Whangaroa feeders was completed in January 2024. This provides a ring of lines for the region, so that if the power goes off, some customers can be back-fed electricity from another direction.

In the late 1970s, concrete poles were used in the construction of the line feeding Te Kao. Some of the structures, now over 40 years old, are showing signs of end of life. Many are on high ground exposed to severe winds from the East and West contributing to the poles' shortened lifespan. They have been replaced over the last year to increase resilience in the area.

We have been working on Rawene's line replacement over the last couple of years. The final stage is 2.1km of line being replaced next year.

ENSURING  
LONG-TERM  
PROFIT

# Sustainability measures

## Ko ngā mahi whakauka

We have achieved a lot this year but not quite everything we had set out to achieve.

We engaged Ecosolutions to perform a waste audit. This triggered an initiative which doubled the amount of paper we recycle, we found ways to recycle fluorescent bulbs and small batteries, and we are working with our building managers to install mixed recycling bins in our kitchens.

Residential solar increased organically, and Lodestone Solar Farm in Kaitiāia went live this year.

Our annual discount now comes with a dividend payment which increased to an overall \$300 to our consumers.

And instead of hiring three local trainees, we managed to hire eight, plus the import of a graduate engineer and a vegetation assistant.

Where we didn't hit the mark this year was the establishment of an Energy hardship program, however we continue to progress this initiative and hope to have a program in place in FY25.

MEASURE	FY23	FY24	FY25 FORECAST	TARGET
WASTE TO LANDFILL BY 2030	157t	91t	< 91	Zero waste to landfill by 2030
RESIDENTIAL SOLAR INCREASE (MW CUMULATIVE)	9.5MW	11.4MW	13MW	
LARGE-SCALE SOLAR INCREASE (MW CUMULATIVE)	0MW	23MW	67MW	
COST PER CONNECTION IN LOWEST QUARTILE BY 2030	18 / 29	14 / 29	< 14/29	< 8/29 lowest cost lines company by 2030
INCREASE DISCOUNT/DIVIDEND EVERY THREE YEARS	\$250	\$300	\$300	Discount/Dividend to reach \$400 by 2030
ESTABLISH ENERGY HARDSHIP PROGRAMME				Establish an Energy Hardship Programme in 2024
HIRE THREE LOCAL TRAINEES EVERY YEAR	2	8	3	Hire a minimum of three new locally based trainees each year



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.

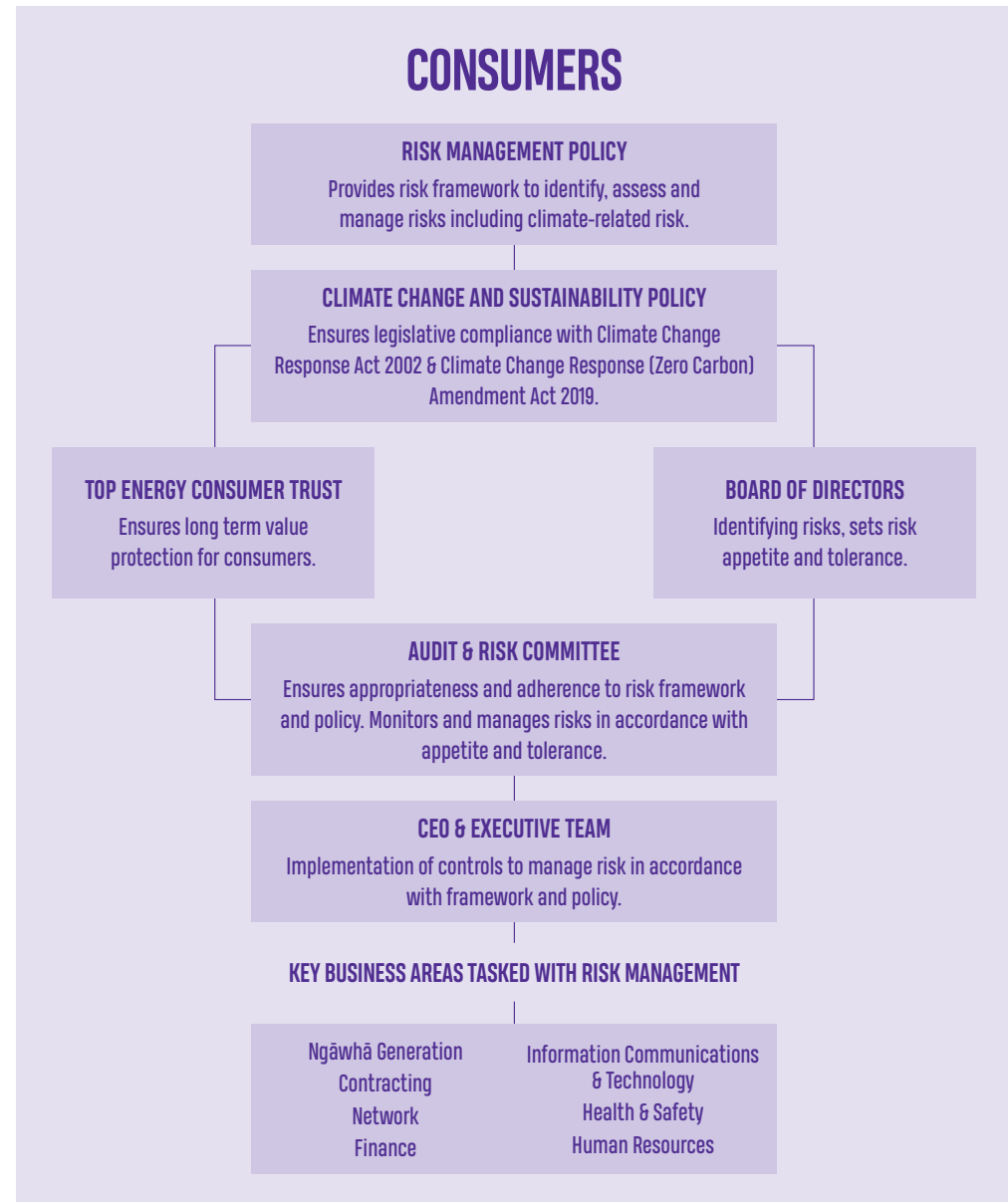
The Audit and Risk Committee meets at least six times a year and reports proceedings back to the Board.

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 26 and 27.

## Governance of climate-related risks



# 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. 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.

**CLIMATE  
RELATED  
DISCLOSURES**

# 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 & WIND	VEGETATION	RAIN & FLOODING	SEA LEVEL RISE	FIRE & DROUGHT	AMBIENT TEMPERATURE
SCALE	High (24)	High (18)	High (18)	Low (01)	Low (04)	High (18)
LIKELIHOOD	Almost certain	Almost certain	Almost certain	Remote	Possible	Almost certain
TIMEFRAME	Medium to long term	Medium to long term	Medium to long term	Medium to long term	Medium to long term	Medium term
SEVERITY	Major localised damage and extended outages	Serious financial impact	Serious financial impact	Minor	Minor	Serious financial impact
IMPACT	<ul style="list-style-type: none"> <li>Overhead lines and poles at risk of damage from storms and high winds. Rural and coastal customers most exposed to risk.</li> <li>Treefall resulting in unplanned power outages.</li> </ul>	<ul style="list-style-type: none"> <li>As temperatures rise, faster growth rates of vegetation will lead to an increase in unplanned outages when branches grow into powerlines.</li> </ul>	<ul style="list-style-type: none"> <li>Slips causing damage to assets.</li> <li>Treefall resulting in unplanned power outages.</li> <li>Reduced cable installation work and increased cable faults.</li> </ul>	<ul style="list-style-type: none"> <li>Increased water table level in the Far North, particularly in coastal areas, resulting in reduced cable installation work and increased cable faults.</li> </ul>	<ul style="list-style-type: none"> <li>Drier conditions pose additional fire risks to the network with vegetation near overhead lines.</li> </ul>	<ul style="list-style-type: none"> <li>As the temperature rises our geothermal generation will reduce output and become less efficient.</li> <li>Electricity consumption will reduce in winter however demand will increase in summer shifting load due to cooling requirements and increased irrigation.</li> </ul>
MITIGATION	<ul style="list-style-type: none"> <li>Additional network communication and remote switching for faster restoration.</li> <li>Continued pole replacement to increase resilience.</li> </ul>	<ul style="list-style-type: none"> <li>We will adapt our maintenance program including vegetation resources annually in our Asset Management Plan.</li> <li>We will make ongoing submissions to have the Hazards from Trees Regulations changed.</li> </ul>	<ul style="list-style-type: none"> <li>Additional network communication and remote switching for faster restoration.</li> <li>Additional works and budget targeting resilience.</li> </ul>	<ul style="list-style-type: none"> <li>Remediation complete at substations with potential flood risks.</li> <li>We are quantifying assets affected by 0-50 and 50-100 year impacts against FNDC sea-level rise and river flooding projections.</li> <li>We assess new coastal assets against FNDC sea-level and flood projections to minimise risk.</li> </ul>	<ul style="list-style-type: none"> <li>We will talk to commercial entities about vegetation and clear zone agreements.</li> <li>Submissions made re: Hazards from Trees Regulations.</li> <li>We will campaign for the removal of encroaching bamboo shelter belts.</li> </ul>	<ul style="list-style-type: none"> <li>Add temperature factor into future generation design.</li> <li>Investigating additional cooling bays for existing plant.</li> <li>Additional network capacity planned as part of decarbonisation resilience.</li> </ul>

# 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 customer preference reducing the ability to generate due to high generation emissions.

RISK DRIVERS	INCREASED COST	ELECTRICITY WHOLESALE PRICE VOLATILITY	NEW TECHNOLOGY	REDUCED PEOPLE AND SUPPLY CHAIN RESOURCE AVAILABILITY
SCALE	Medium (15)	Moderate (10)	Medium (5)	Medium (16)
LIKELIHOOD	Almost certain	Almost certain	Likely	Almost certain
TIMEFRAME	Medium to long term	Medium to long term	Medium to long term	Short to medium term
SEVERITY	Serious financial impact	Minor financial impact	Moderate financial impact	Major financial impact
IMPACT	<ul style="list-style-type: none"> <li>The costs of equipment and materials (including concrete poles, steel and timber), shipping and transportation will likely increase, due to rising global carbon prices and supplier costs.</li> </ul>	<ul style="list-style-type: none"> <li>Increase in demand will lead to increased renewable generation that is intermittent, resulting in fluctuating prices.</li> </ul>	<ul style="list-style-type: none"> <li>New technology such as solar and EVs may mean a traditional network is no longer the most efficient energy solution as demand increases.</li> </ul>	<ul style="list-style-type: none"> <li>Not enough people to maintain the network.</li> <li>Supply chain may not meet the requirements of the network resulting in cost increases.</li> </ul>
MITIGATION	<ul style="list-style-type: none"> <li>We will investigate new technologies to reduce carbon-heavy equipment and materials.</li> <li>We will influence our supply chain to achieve low-carbon outcomes, including for fleet and transportation.</li> <li>We will ensure that increasing equipment and materials costs are accounted for in annual budgets.</li> </ul>	<ul style="list-style-type: none"> <li>We will ensure that the impacts of accepting the risk are within our risk framework.</li> <li>We will continue to manage the risk within agreed parameters.</li> </ul>	<ul style="list-style-type: none"> <li>Significant network investment over the past 10 years means we can meet new technology requirements.</li> <li>We are exploring alternative network models to adapt to increased 2-way flow.</li> <li>Newly installed equipment will provide greater capacity as we replace old equipment.</li> </ul>	<ul style="list-style-type: none"> <li>Hiring from overseas (e.g. Fiji) and increasing our trainee numbers to future-proof capability in the Far North.</li> <li>Communicate pipeline work and future resource requirements as early as possible.</li> </ul>

CLIMATE  
RELATED  
DISCLOSURES

# Opportunities Ko ngā āheinga

## 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 customers 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.

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.

## 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.





0800 TOP ENERGY



OUR SUSTAINABILITY JOURNEY 2023-24

