PROJECT RESULT / CASE STUDY

A Power of Good: How ADB's Climate-Resilient investment is Boosting Tonga's Energy Future

July 2020

Energy security is an ever-present concern for Tonga. To address the dual challenges of climate change and energy security, the Government of Tonga confirmed the Renewable Energy Act in 2008.

The small island state of Tonga in the South Pacific is one of the most vulnerable countries in the world to natural disasters and the effects of climate change. With a population of 103,000 spread across 177 islands, it is ranked second (behind Vanuatu) as the most disaster-prone country in the world, according to the 2016 World Risk Index.

In the past decade, cyclones have been an increasing threat. Two of the most recent, Cyclone Gita in 2018 and Cyclone Harold in April this year, devastated parts of the four main island groups: Tongatapu, Ha'apai, Vava'u, and Niuas. An estimated 80% of the country's population was affected by these Category 4 storms. People lost their livelihoods, and critical infrastructure, including power poles and lines, were destroyed.

Energy security is an ever-present concern for Tonga. To address the dual challenges of climate change and energy security, the Government of Tonga confirmed the Renewable Energy Act in 2008. A transition to renewable energy has been a national priority ever since, and the government is working toward an ambitious goal of 70% renewable energy generation by 2030.

Partnering for Resilience and Inclusion

CYCLONE IAN RECOVERY PROJECT
Completed—Total financing: $10.61 million

CYCLONE GITA RECOVERY PROJECT
Active—Total financing: $9.42 million

OUTER ISLAND RENEWABLE ENERGY PROJECT
Active—Total financing: $27.73 million

TONGA RENEWABLE ENERGY PROJECT
Active—Total financing: $50.20 million

And ADB is part of that journey. Since 2013, ADB has forged a strong partnership with Tonga's sole state-owned power utility, Tonga Power Limited (TPL), through its support of four energy projects: the Outer Island Renewable Energy Project, Cyclone Ian Recovery Project, Cyclone Gita Recovery Project, and Tonga Renewable Project. A key focus of all these ADB-supported projects is improving the resilience of power infrastructure—to ensure it stands up under the harshest of natural disasters. And encouraging women to become more and more involved in the maintenance of that infrastructure.

34-year-old Laura Lolohea started her training with TPL in 2010 as a Line Mechanic and has been a staff member since 2013. Her job involves climbing electricity poles to connect power lines to houses, doing repairs, and installing meters.

Ms. Lolohea says in her experience, TPL encourages and supports women to pursue work as line mechanics and in other roles predominantly filled by men in Tonga's power sector.

Since hiring Laura, TPL has engaged more female technical staff, who now account for about 10% of the workforce. TPL says it is creating more long-term employment opportunities for women in keeping with their obligation to invest in a healthy, well-trained, and gender-diverse workforce.

Laura says working in the power sector has taught her a lot. "When I first started in this male-dominated working culture, I was the only female line mechanic," she said. "I managed to break the norm that says women cannot do this work by asking a lot of questions and learning from my male colleagues, who were always inclusive."

Storm-proof Infrastructure

Tonga Power line mechanic Laura Lolohea

ADB continues to work with TPL to restore and improve the resilience of Tonga's electricity network following extensive damage from the two most recent cyclones, Harold and Gita. After Gita, for example, 50% of Tongatapu's electricity network was found to be significantly damaged. But there were still signs of encouragement. Work to improve electricity infrastructure climate resilience conducted under ADB-supported projects such as the Cyclone Ian Recovery Project and the Outer Island Renewable Energy Project resulted in minimal damage to power grids and solar plants on the outer island of 'Eua.

Laura has been involved in this work under several ADB-supported projects to strengthen and secure the TPL network. To make power poles more resistant to extreme weather, she says, they need to be buried at the right depth. Underground cables need to be protected by cable guards to boost their resistance to storms.

This upgrading work of power infrastructure was tested during the onslaught of the Category 4 fury of Cyclone Harold this year—and Laura says the improvement was immense.

"After Cyclone Harold we were able to restore power relatively quickly, because of the resilience-building on the network we did between Gita and Harold. Most people had their power restored in a couple of days instead of a couple of weeks," says Ms. Lolohea.

Innovative technology for a Future Without Fossil Fuels

The ADB-TPL collaboration has helped Tonga step into its renewable energy future by reducing its dependency on diesel fuel through projects such as the Outer Island Renewable Energy Project, which is establishing new solar-diesel hybrid power systems on

the country’s eight outer islands.

ADB and TPL’s working relationship embraces innovation. For example, the Tonga Renewable Energy Project will install the country’s first utility-scale battery energy storage systems, which will allow more intermittent renewable energy to be integrated into the grid while maintaining power quality and system reliability.

“It is a passion of mine to develop my own skills, find new ways of working, to learn from my colleagues and from TPL as we prepare for a renewable energy future together,” Laura said.

Related

- Renewable Energy Project
- Tonga and ADB
