



TOGETHER, A BRIGHTER TOMORROW

OUR CLEAN ENERGY FUTURE

ENGAGING WITH OUR KEY STAKEHOLDERS

DECEMBER 2021



SOUTH ISLAND
TE WAIPOUNAMU
DISTRIBUTION GROUP



**“THE WAY FORWARD IS CLEAR.
THE TIME FOR CLIMATE ACTION IS NOW.
OUR CHILDREN AND THE WORLD
ARE WATCHING.”**

DR ROD CARR, CHAIR, THE CLIMATE CHANGE COMMISSION



SETTING THE SCENE

AN INTRODUCTION



WE ARE BEING CALLED TO ACTION.
OUR CLIMATE IS DEMANDING A RESPONSE.
WE NEED TO ENABLE OUR CUSTOMERS AND COMMUNITIES TO ADAPT.

- We have the opportunity to lead the step change that is needed for our sector, and on behalf of customers.
- An increasing focus on decarbonisation and sustainability will require our sector to transition from a passive controller, to an active coordinator as new technologies will place increased demand on our power system and associated network constraints will emerge.
- Customers are also starting to adapt as part of this future and are increasingly faced with the energy trilemma - an expectation of a sustainable, yet secure and affordable energy supply.
- In June 2021 the South Island's electricity distribution businesses agreed to jointly fund and resource an investigation project into future Distribution System Operation models as a collaborative initiative that is in direct response to this changing landscape. Our investigation project best enables a collective view to be formed for the South Island, as the most efficient way of progressing plans around future models on behalf of the whole of New Zealand.
- The SIDG's investigation responds to the Climate Change Commission's report, the Electricity Network Association's Network Transformation Roadmap, the Government's Renewable Energy Strategy, reviews underway by our industry regulators (the Commerce Commission and the Electricity Authority) and also seeks to address discussions amongst industry participants and stakeholders about how to best transform the operating system (or function) across the distribution sector.
- Collaboration and engagement with market players, our peers, industry regulators, and Government agencies will therefore be critical to advancing the robustness of our investigation and to helping demonstrate innovation from the entire NZ distribution sector as a critical component of the future energy system.
- It will also help to ensure there is alignment that is in the long-term interests of customers, and in a future that delivers a greener, cleaner Aotearoa.

“INĀIA TONU NEI – THE TIME IS NOW.”

CLIMATE CHANGE COMMISSION REPORT – A LOW EMISSIONS FUTURE FOR NZ
JUNE 2021





RESPONDING TO THE CALL FOR ACTION

DRIVERS FOR CHANGE



GETTING READY FOR A CHANGING FUTURE THROUGH A CUSTOMER'S EYES

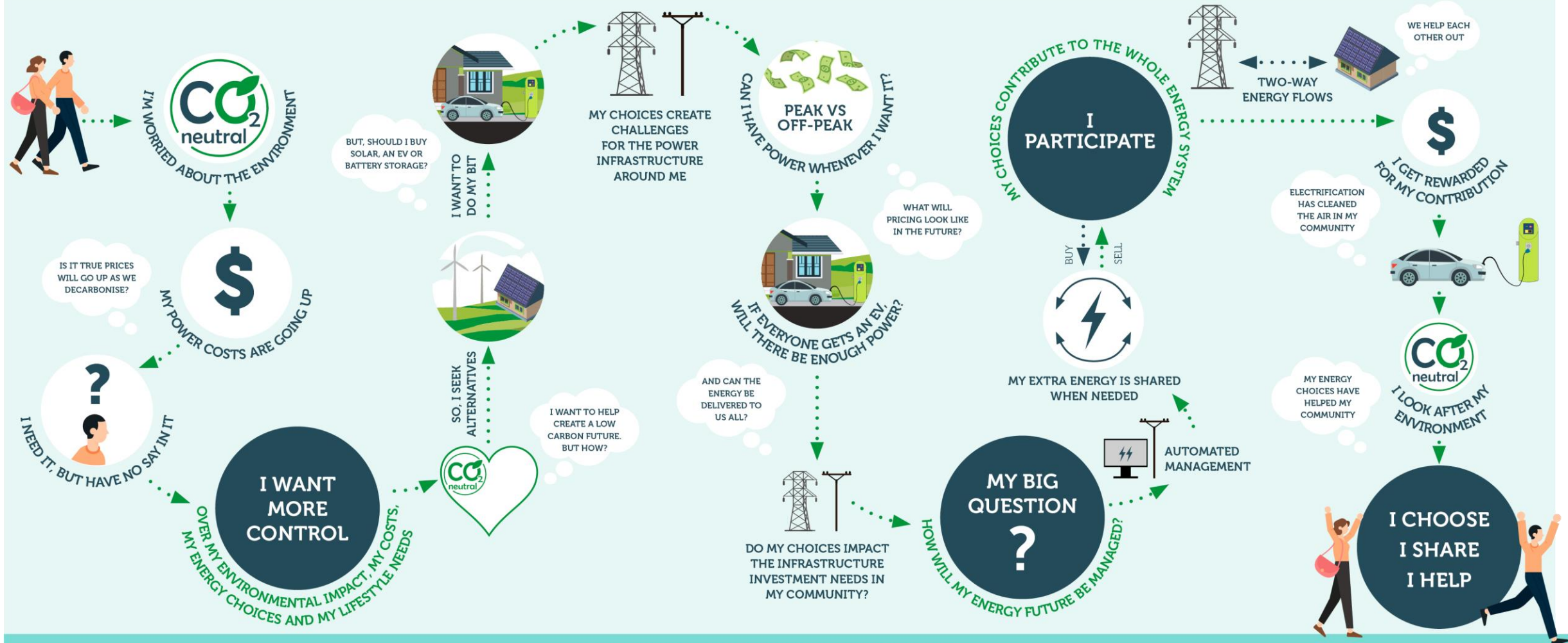


CUSTOMERS DRIVING CHANGE

NETWORK CHALLENGES

INDUSTRY COLLABORATION

A PARTNERSHIP ECOSYSTEM



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OUR CLEAN ENERGY FUTURE.

A VIEW TO TOMORROW AND THE DRIVERS FOR CHANGE



THESE FACTORS ARE PAINTING A PICTURE OF A NEW, EMERGING FUTURE FOR OUR INDUSTRY
– A FUTURE WHERE PROBLEMS TO SOLVE TODAY BECOME OPPORTUNITIES FOR TOMORROW



New sources of renewable generation will include intermittent sources such as wind and solar, creating **greater supply side variability**.



Decarbonisation will be supported by electrification and **an opportunity exists** to utilise new technologies to meet strong electricity demand growth in an efficient way.



There will continue to be a **wholesale market system operator function** to schedule and dispatch large scale grid connected renewable generation to match demand.



New technologies such as electric vehicles and battery storage, smarter appliances and hot water management systems will create **greater demand flexibility** and **increased customer service expectations**.



An opportunity exists to provide customers and communities with well informed technology choices, and to reward them for their contribution to a brighter and cleaner energy future.



There is an emerging **distribution system operations function** on the distribution network to ensure that Distributed Energy Resources are value stacked on the power system to **deliver maximum value to connected customers**.

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“UNPRECEDENTED CHANGE AND UNPREDICTABILITY IN THE ELECTRICITY SECTOR... CREATING OPPORTUNITIES.”

ENA NETWORK TRANSFORMATION ROADMAP, 2019 (OVERVIEW)



IT IS OUR VIEW THAT A STEP CHANGE IN NETWORK OPERATIONS IS REQUIRED

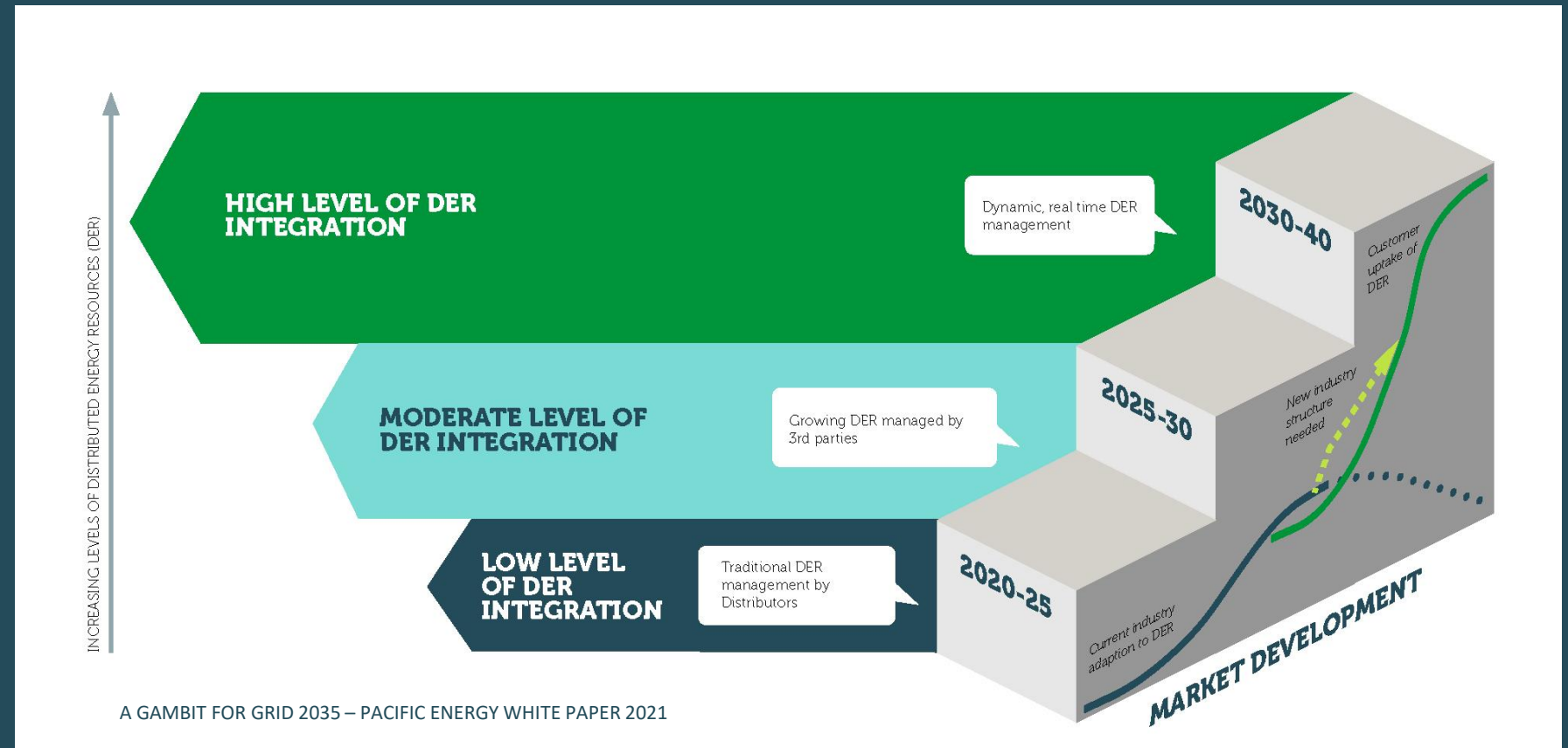


THE PROLIFERATION OF DER DRIVES THE NEED FOR A STEP CHANGE

By stepping to a new Operations structure/paradigm we significantly increase our capability to support DER uptake

New approaches to Planning and Operations will enable value stacking and increased customer participation in de-carbonisation and power system efficiency

Without a step change in our approach we may be unable to keep pace with customer expectations and over time we become less relevant (dark blue line)





POSSIBLE FUTURE MODELS

A ROBUST REVIEW OF THE OPTIONS



FUTURE DISTRIBUTION SYSTEM OPERATIONS

EMERGING MODELS

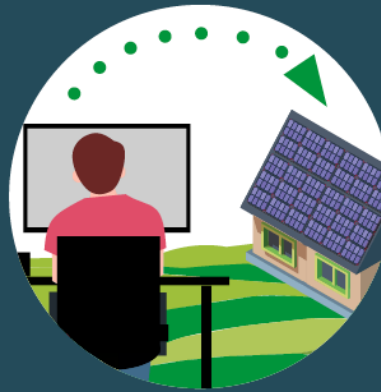


OUR INVESTIGATION PROJECT SO FAR HAS UNCOVERED AND EXPLORED THREE EMERGING MODELS FOR THE COORDINATION OF DISTRIBUTED ENERGY RESOURCES, AND THEIR RELATIVE MERITS.



Utility Led

Distribution Network Owner (DNO) directly controls DER (similar to hot water management)



Market Led

The Distribution System Operator (DSO) and Transmission System Operator (TSO) manage DER in real-time through procurement of flexibility services



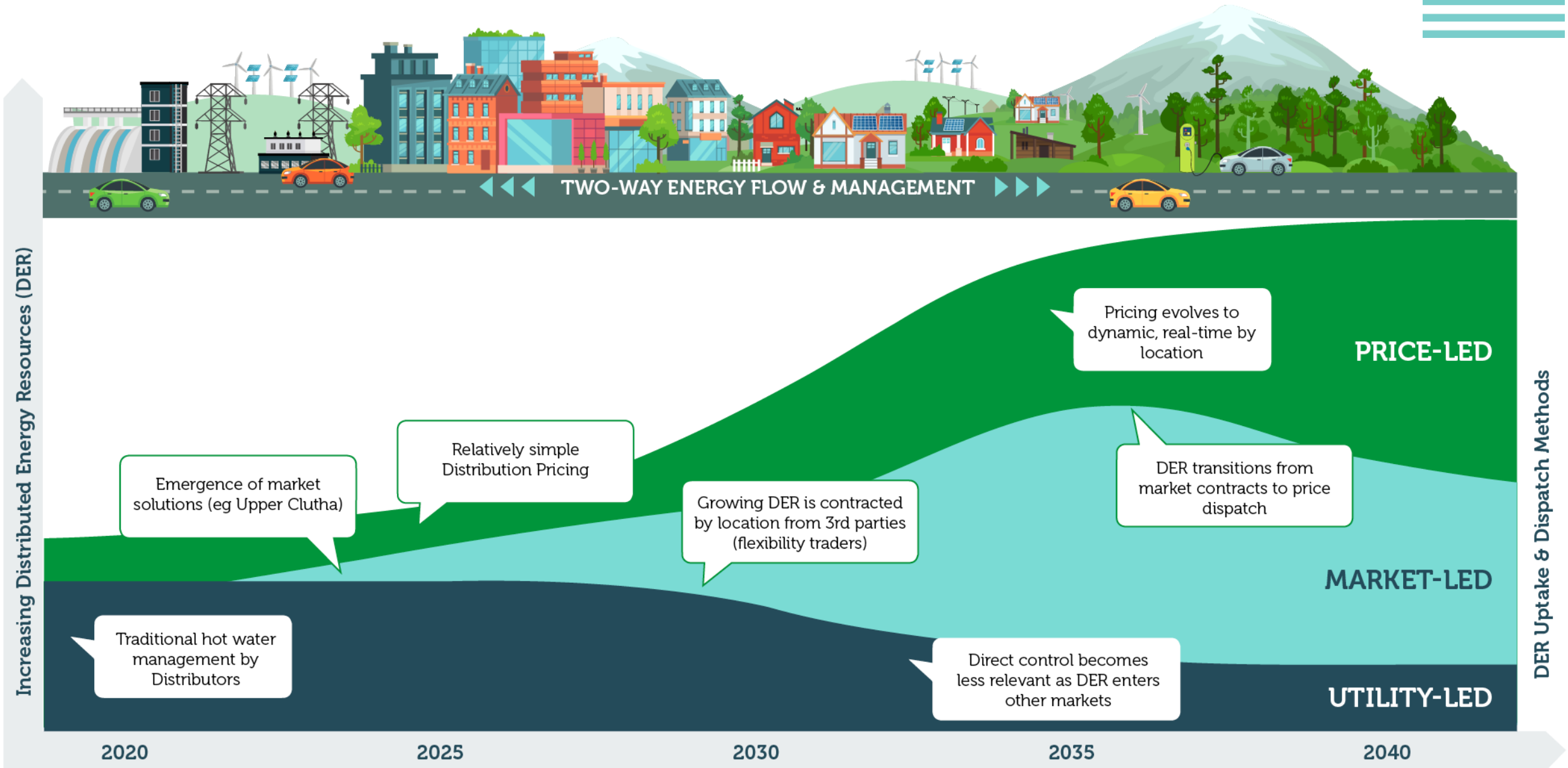
Price Led

Location and infinitely variable real time distribution network nodal prices deliver DER response to help manage network constraints and deliver a secure and stable power system

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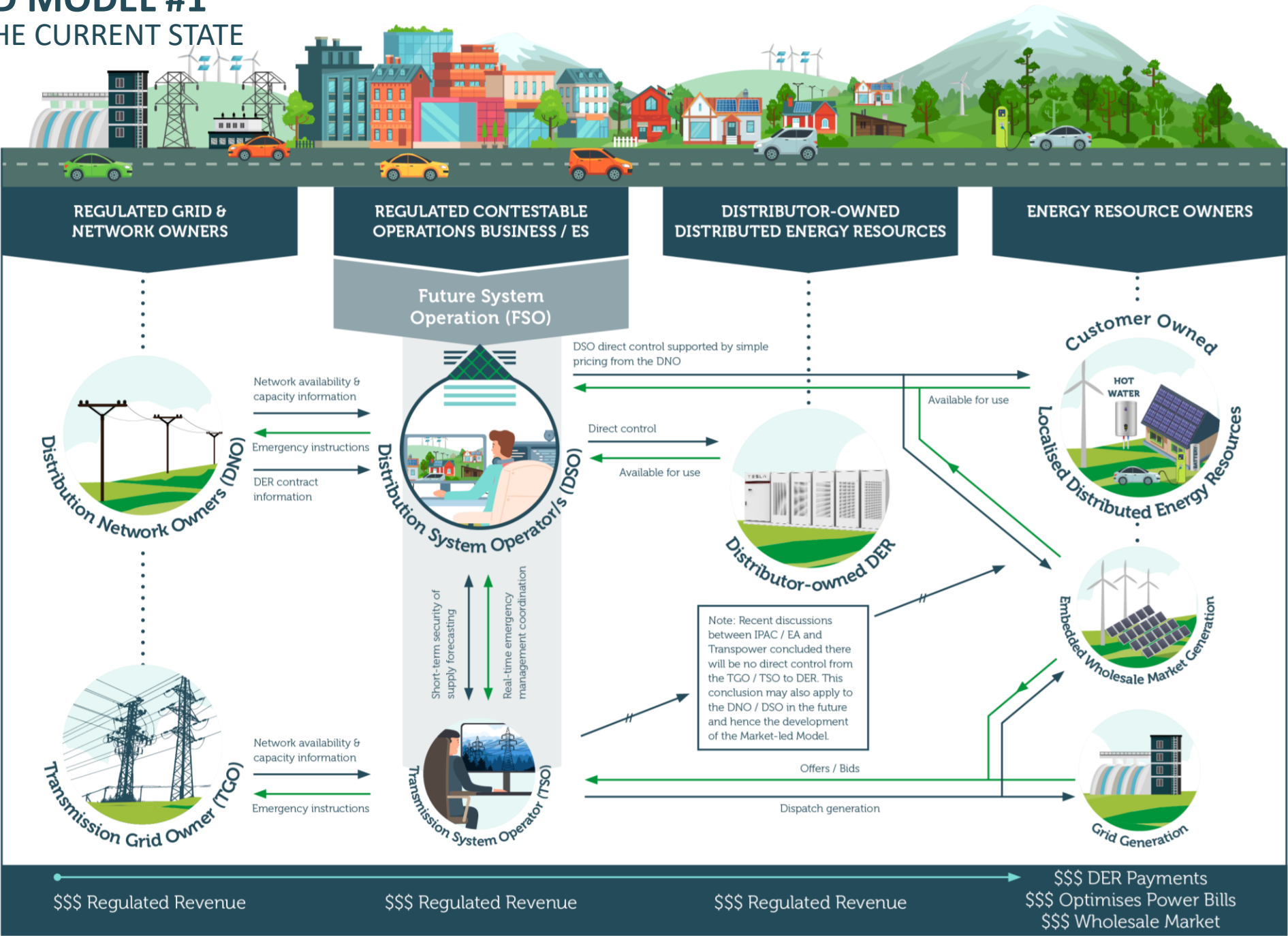
THE EVOLUTION OF THESE POSSIBLE FUTURE MODELS

DIRECT CONTROL TO MARKET UPTAKE & REAL-TIME PRICING



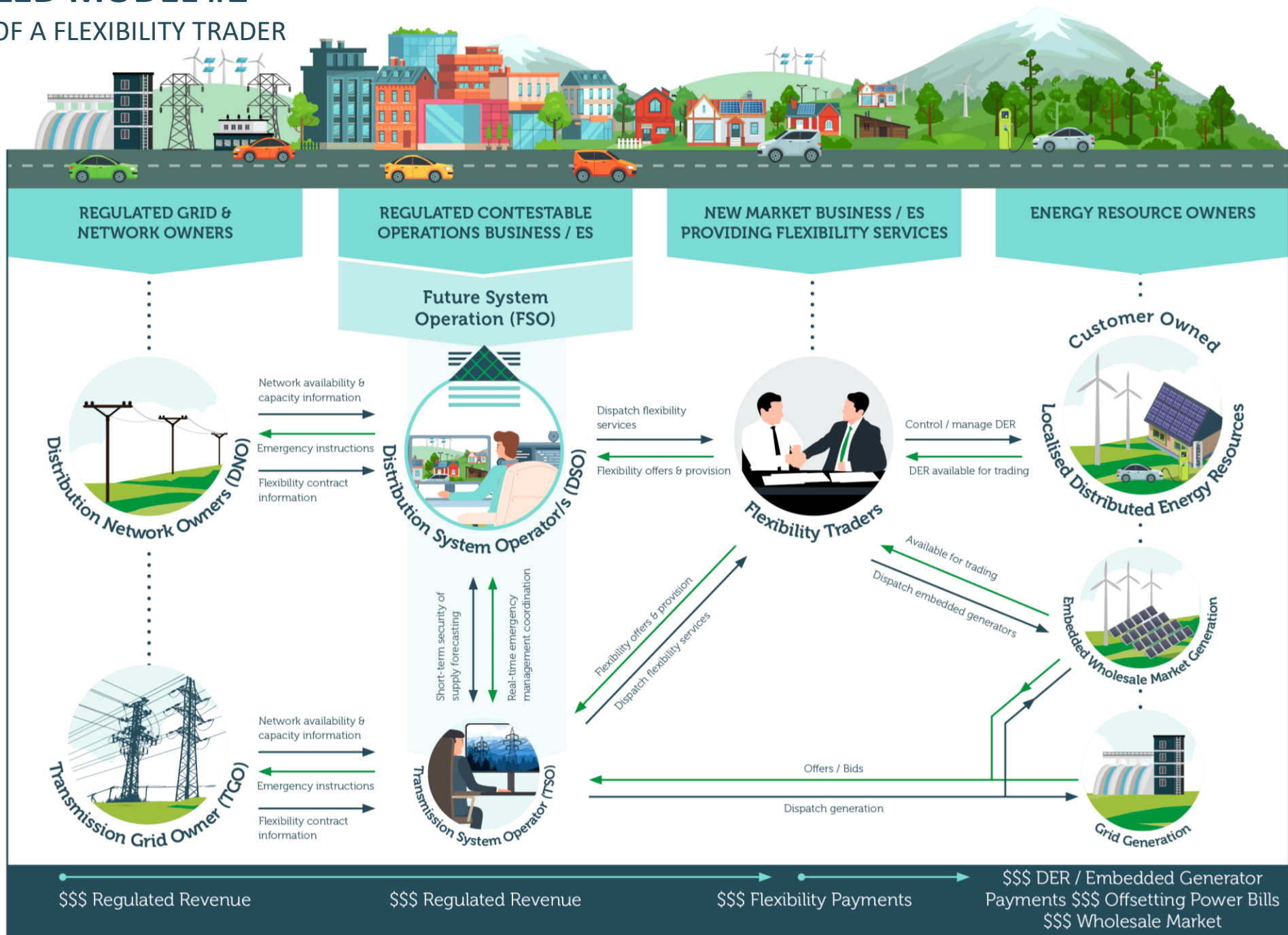
UTILITY-LED MODEL #1

EXPANDING THE CURRENT STATE



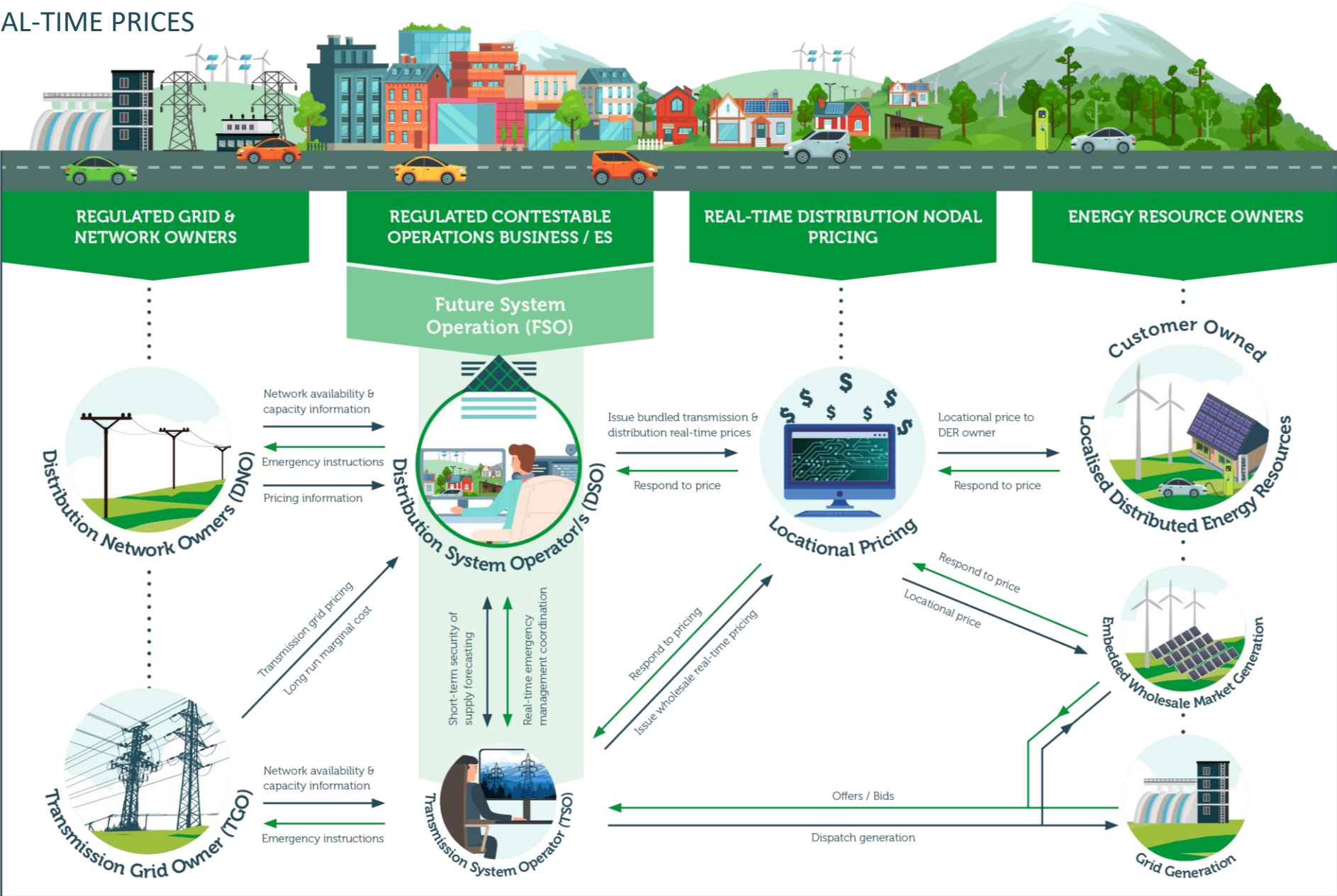
A MARKET-LED MODEL #2

INTRODUCTION OF A FLEXIBILITY TRADER



A PRICE-LED MODEL #3

TRANSITION TO REAL-TIME PRICES



\$\$\$ Regulated Revenue

\$\$\$ Regulated Revenue

\$\$\$ Offsetting Power Bills
\$\$\$ Wholesale Market



STAKEHOLDER INTERESTS & OUR PROJECT

LEARNING FROM EACH OTHER



WE ARE KEEN TO UNDERSTAND YOUR VIEWS

IT HELPS ENSURE OUR INVESTIGATION IS ROBUST



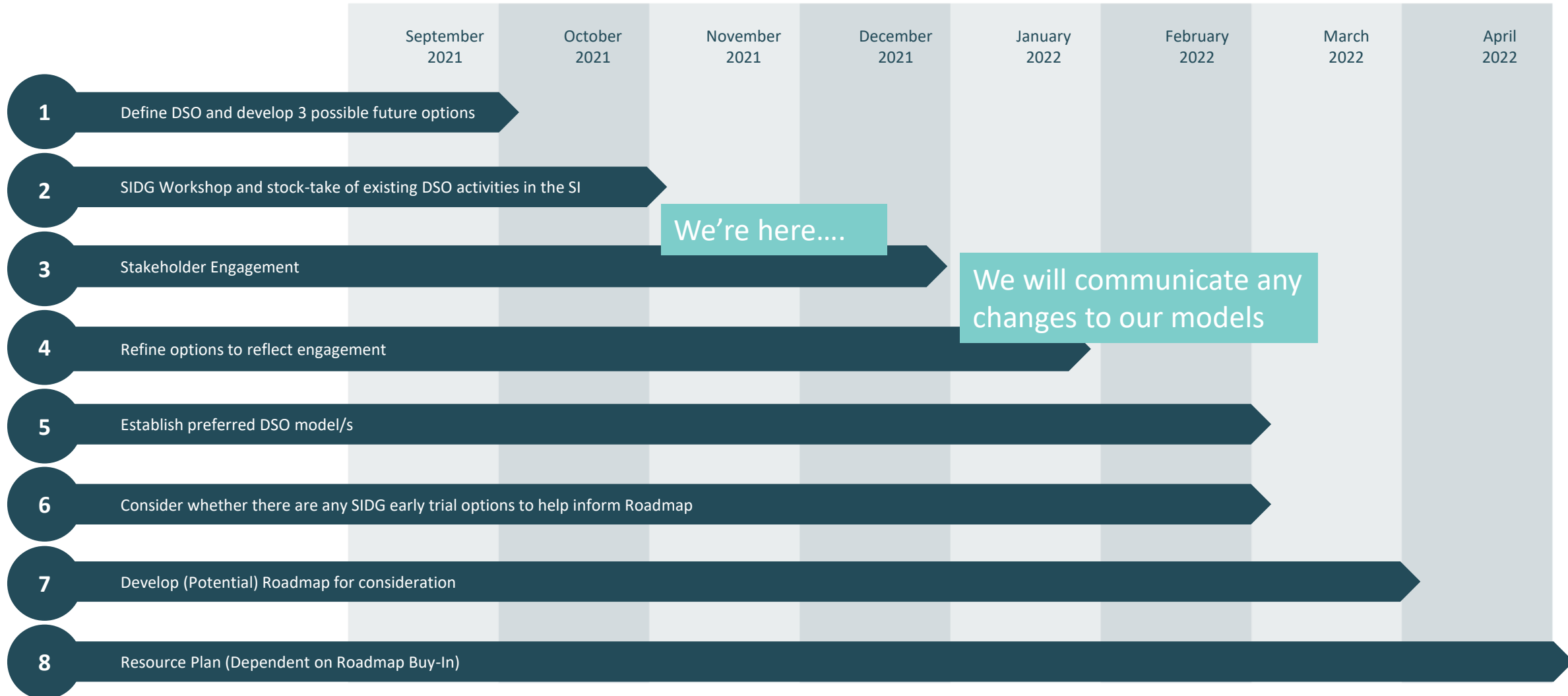
CENTRAL TO OUR INVESTIGATION PROJECT IS ENSURING YOUR VIEWS HELP INFORM OUR INVESTIGATION.

- What do we need to understand from your organisation, your objectives and plans, that will be important for our project?
- What would you like to know more about from us?
- How do we best channel and engage with your organisation – through who?
- At this stage of our investigation project we'll be talking to: Transpower, the Electricity Networks Association (ENA), the Commerce Commission, the Electricity Authority, Ministry of Business, Innovation and Employment (MBIE), the Electricity Engineers' Association (EEA), the Electricity Retailers Association of New Zealand (ERANZ) as well as keeping the Climate Change Commission, the Energy Efficiency & Conservation Authority (EECA), and New Zealand's Infrastructure Commission across what we are doing.
- Are there others that you think we need to talk to?
- Your feedback will help progress our investigation, so we welcome your ideas and input – so please share with us as we go!

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OUR PROJECT PLAN AT A GLANCE

HOW WE'RE GOING & WHERE WE'RE AT....



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PROJECT INFORMATION

IF YOU WANT TO KNOW MORE



To help ensure we best coordinate our many stakeholders and their interests, if you would like more information, or to arrange meetings in future, please liaise in the first instance with our Project Manager, Ben Bulling.

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SOUTH ISLAND
TE WAIPOUNAMU
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Alpine Energy
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Buller Electricity
Electricity Ashburton
Mainpower
Marlborough Lines

Network Tasman
Network Waitaki
Orion NZ
Powernet
Westpower

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