FlexTalk

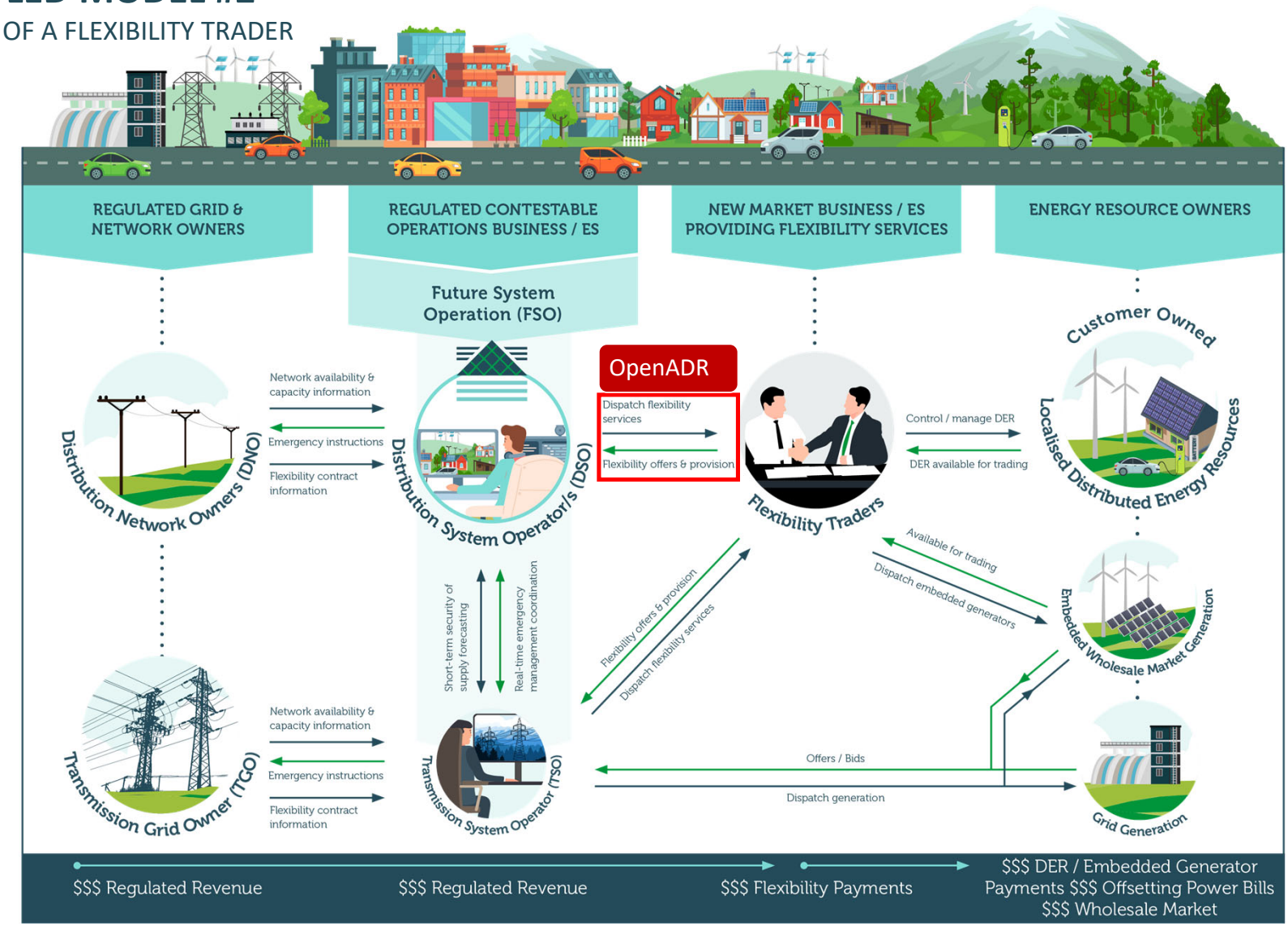
Project Overview

Introduction

Overview

A MARKET-LED MODEL #2

INTRODUCTION OF A FLEXIBILITY TRADER



INTRODUCTION

Key Stakeholders

Electricity Engineers' Association

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Sponsors

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- EEA
- Industry

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Delivery Partners

EDB's
Aurora
Orion
Electra

Flexibility Suppliers
Evnex
OpenLoop

INTRODUCTION

PROJECT OBJECTIVES

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1. Determine the use cases for flexibility services to be communicated and create process maps for these.
2. Assess the advantages and limitations of OpenADR within the New Zealand context, including a high-level comparison against other communication protocols.
3. Demonstrate interoperability of communication protocols between EDB's, EV flexibility suppliers and consumers.
4. Assist industry participants in understanding the systems investment involved with utilising flexibility services.

INTRODUCTION

PROJECT TIMELINE

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INTRODUCTION

Protocol Selection – Why OpenADR

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OpenADR

- Mature demand response protocol
- More suited to interfacing EDB's and Flex Suppliers
- Transpower already had an operational head end (VTN)

IEEE 2030.5

- Used in Australia for PV Management
- Suitable for interfacing directly with flexibility hardware
- Built on an IoT Concept

INTRODUCTION

OpenADR Concepts– VTNs and VENs

Thetrial will test OpenADR 2.0 communication protocol to achieve communication between the EDB and Flexibility Supplier.

Event Trigger Signal

These are the signals that are communicated via OpenADR from the EDB to the Flexibility Supplier. A SIMPLE messaging structure with signal levels 0 to 3 mapped will be used for Part A. The event details will also contain event information such as start time, date and Trigger Duration.

Event Response Signal

OpenADR 2.0 allows an acknowledgement to go back to the VTN.

Event Reporting

Post event reporting will be provide details of what was achieved during an event.

Trial Part A - OpenADR 2.0 communication flow

TRIAL DESIGN

Programmes

TRIAL DESIGN

TRIGGERS

The seven identified event triggers provide examples of the types of network scenarios that are likely to trigger the need for flexibility services.

Note. This list does not limit the scope of what might trigger an event.

01. Temporary Distribution Network Constraint

Physical network constraints forecast ahead of time to enable more renewable distributed generation to be connected. This could include:

- Management of thermal limits..

02. Power Quality Issues

Power quality issues caused by:

- Low voltage on the LV network due to high demand.
- High voltage on the LV network due to solar PV or low demand.

03. Unplanned Outage Management

A short notice network event requiring reconfiguration. This could be caused by a severe weather event.

04. Planned Outage Event

A pre-scheduled, planned maintenance event.

05. Network Investment/Deferral Replacement

Controlling peak demand on networks facing capacity constraints due to an increase in demand caused by electrification to defer the need for large capital investment in network infrastructure.

06. Grid Emergency

Grid emergency notice received from the System Operator requiring an immediate response to reduce demand or increase generation.

07. System Operator/Market Support

The System Operator calls for offers to reduce demand, particularly during times of constraints such as extremely dry years. This may include market mechanisms to fund participation or via a reserves market with, money offered to customers.

TRIAL DESIGN

OVERVIEW: TRIGGERS > PROGRAMMES > EVENTS

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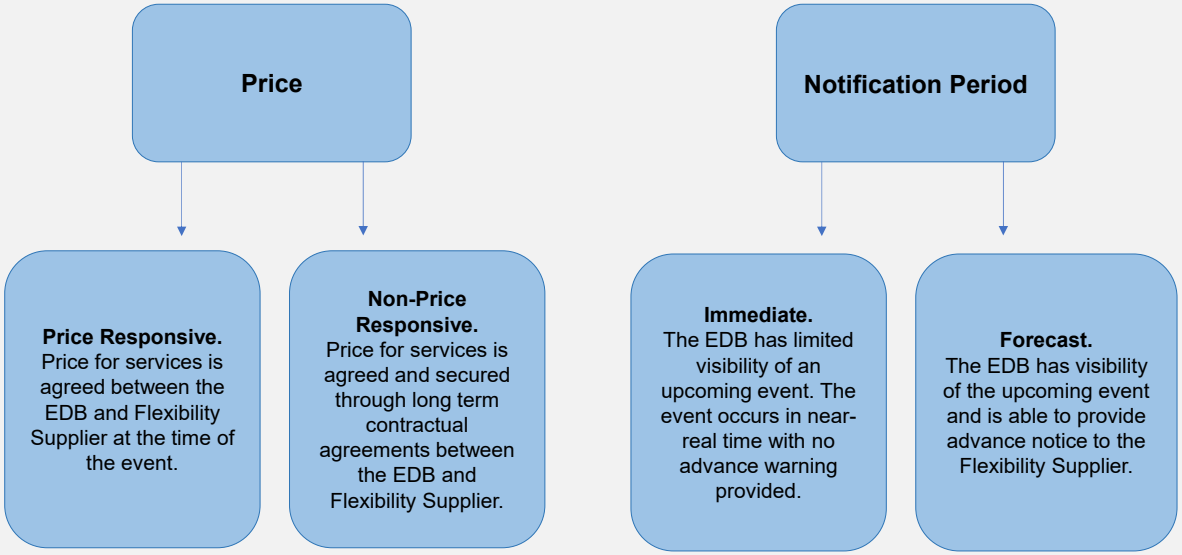
Definitions

- **Trigger:** A scenario on the network that triggers the need for flexibility services.
- **Programme:** The Demand Flexibility programmes that the Flexibility Suppliers are enrolled in. All programmes are supported by a contract agreed in advance from EDB and Flexibility Supplier.
- **Event:** A notification from the EDB to Flexibility Supplier requesting flexibility services.

Programme Structure

The programmes are defined by the following characteristics.



TRIAL DESIGN

TRIAL CONSIDERATIONS & PLANNING

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CRITERIA / CONSIDERATION	DETAIL (Real World)	PROPOSED APPROACH FOR TRIAL Note. These are suggestions only to be discussed and agreed with the team.
Notifications & Message Timings	**Programme 01. In Advance Non Price Responsive** - Event notification: Provided at least 7 days in advance. - Dispatch instruction: Provided 24 hours in advance. - Confirmation message: Required from FS 12 hours in advance.	- No change for the trial, however Flexibility Suppliers will still provide their customers with the opportunity to opt out of an event 2 hours in advance of the event occurring. This potential customer 'opt out' rate will be factored into a FS's capacity forecasting when choosing to 'opt in' or 'opt out' of an event. This comes with a risk that the 'opt-out' rate from the customers will be higher than what the Flexibility Supplier committed to. What was actually achieved will be provided to the EDB in the post event reporting.
	Programme 02. Dynamic Non Price Responsive - Event notification: No pre-event notification will occur. - The Dispatch Instruction will occur in near real-time.	- Dispatch Instruction 2 hours in advance - Confirmation message required within 1 hour of receiving the Dispatch instruction. - The Flexibility Supplier will provide customers with the opportunity to 'opt out' 30 minutes in advance of the event occurring.
	Programme 03. Immediate Emergency Response (Non-Price Responsive) - Event notification: No pre-event notification will occur. - The Dispatch Instruction will occur in real-time. - The Flexibility Supplier does not have the option to opt out of a Grid Emergency.	- A Grid Emergency requiring a real time response will not be actioned with the end customer.
	Programme 04. Price Responsive Offers - Price Offer Message: Provided at least 12 hours in advance. - Dispatch Instruction: Provided not less than 30 mins in advance.	- No change for the trial. - The Flexibility Supplier will provide customers with the opportunity to 'opt out' 2 hours in advance of the event occurring.
	Programme 05. Price Responsive Discovery - Price Discovery Message: Provided at least 48 hours in advance. - Dispatch Instruction: Provided 24 hours in advance. - Confirmation message: Required from FS 12 hours in advance.	- No change for the trial. - The Flexibility Supplier will provide customers with the opportunity to 'opt out' 2 hours in advance of the event occurring.

PROGRAMME 01.

IN ADVANCE NON PRICE RESPONSIVE

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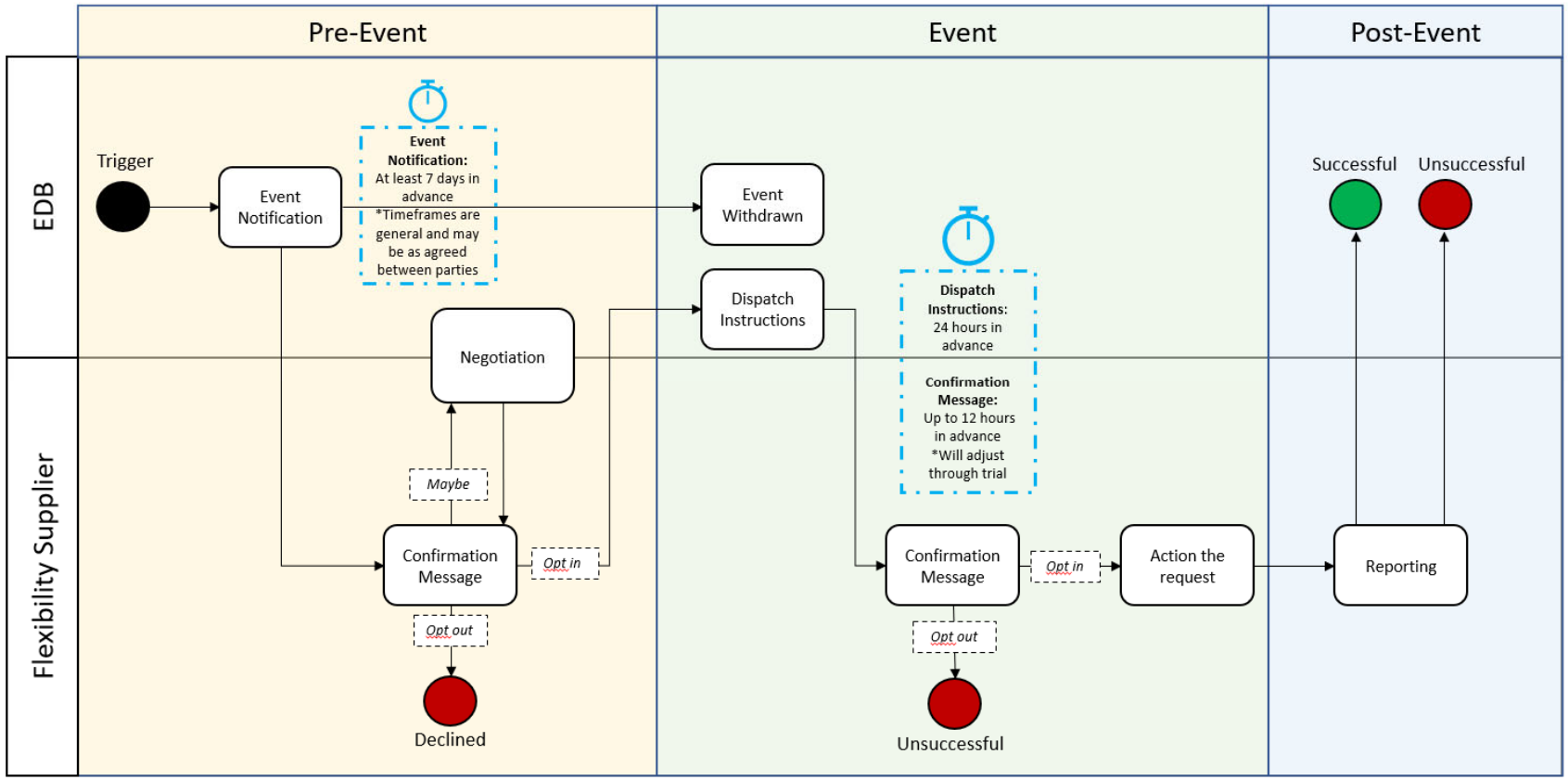

TRIAL DESIGN

Messaging Architecture