



Welcome

FlexTalk Webinar – 29 May 2024

Project findings, recommendations & next steps

Please **mute** your mic and **turn off** your camera.

Thank you to our presenters and to you, our audience for your attendance. EEA values your support.

Please note, this webinar will be recorded and shared on the EEA website.

29th May 2024



eea | Electricity Engineers'
Association

EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

FlexTalk – The Demand Flexibility Common Communication Protocol Project

The project is a collaborative partnership between industry (represented by EEA) and EECA that evaluated the processes that need to be in place to apply the OpenADR 2.0 (2.0a and or 2.0b) communication protocol to achieve active managed charging of electric vehicles (EVs), enabling flexibility services to be utilised in the electricity sector in New Zealand.

Introduction

Today we will share the FlexTalk project context, key findings, recommendations, and next steps.



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Rodger Griffiths

GM – Generation &
Technology / FlexTalk
Design Team Chair

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Reports



REPORT

International review of open communication/standards or protocols for flexibility management

Private and Confidential
Prepared for: EEA, NZ
Report No: J002380
Document Version: Final
Date: February 2024

ea technology



flextalk

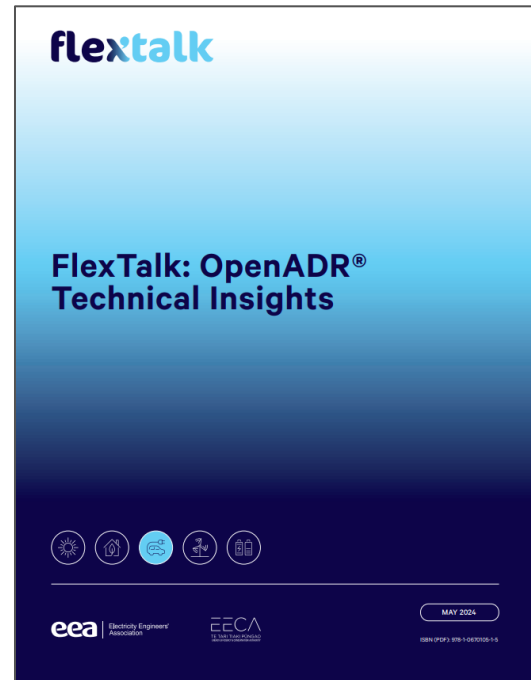
FlexTalk: The Demand Flexibility Common Communication Protocols Project Final Report

OpenADR® ASSESSMENT, FINDINGS AND RECOMMENDATIONS

eea | Electricity Engineers' Association EECA | Electricity Engineering Council of Australia

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flextalk

FlexTalk: OpenADR® Technical Insights

eea | Electricity Engineers' Association EECA | Electricity Engineering Council of Australia

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flextalk

EECA's Role

Our purpose

Mobilise New Zealanders to be world leaders in clean and clever energy use.

Our desired outcome

A sustainable energy system that supports the prosperity and wellbeing of current and future generations.

Strategic areas of interest

- 1) Electrification of the energy system offers increased security, affordability and a significantly reduced emissions profile
- 2) Accelerating electrification requires a focus on making the most efficient use of the system as a whole
- 3) Providing system-level market analysis to help coordinate investment and match energy supply to demand
- 4) Transitional low-carbon fuels, such as biomass and hydrogen, will play an important role in complementing electrification to improve security of supply
- 5) Quality EV charging infrastructure is central to increasing public confidence in electric vehicles
- 6) Demonstration of new technologies and applications is vital to market uptake

EECA's role in demand flexibility

EECA has an important role in supporting the development of a functioning flexibility system that empowers consumers to participate in clean & clever energy use. Accordingly, we conduct activities to influence, coordinate, and promote aspects of the broader system.

Coordination

Facilitating reviews and supporting stakeholders to address market & regulatory barriers, and coordinate system settings.

Regulation

Regulating products & services for energy efficiency and smart functionality.

Education

As a trusted Authority, raise public awareness via monitoring, arranging research, assessment studies & demonstrations.

Influence

Providing advice to the Minister and engaging other agencies & stakeholders to promote & align efforts.

Momentum is building

Standards

Supercharging EV infrastructure programme includes enabling standards to improve consumers' ability to shift home EV charging demand away from network "peaks"

Consumer information campaigns

Pursuing consumer information campaigns e.g. "Smart Homes" & "Electrify your Home"

Government coordination & engagement

We are working closely with MBIE, EA, ComCom and Ara Ake to coordinate our demand flexibility activities, including through cross-agency working groups

Stakeholder engagement

EECA is supporting FlexTalk, OpenADR and FlexForum projects and engaging with various international counterparts for shared learnings

Research & insights

EECA is pursuing a "Smart" insights programme and purposefully build our evidence base. An initial smart EV charging insights piece was launched alongside EECA's approved list of smart EV chargers

Smart EV chargers

Deliberate marketing of the list of approved smart EV chargers. As a priority "smart" product, EECA is positioned well to regulate the smart functionality of EV chargers, once our legislation is amended



Project Context – The Why



The future is electric

Energy is becoming more decentralised yet still interconnected

Electricity networks must be responsive to shifting demands for traditional services while enabling new opportunities for energy resource sharing and balancing.

Consumers now have choice and control!



Source: CSIRO and Energy Networks Australia, 2017: Electricity Networks Transformation Roadmap: Final Report

The role of flexibility

Flexibility in the energy system can contribute to resolving the key challenges

1. Avoiding the curtailment of renewables by utilising flexible demand at times of high supply.
2. Avoiding the deployment of peak generation capacity
3. Deferring grid and network infrastructure investment



Project Approach



Project Objectives

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.

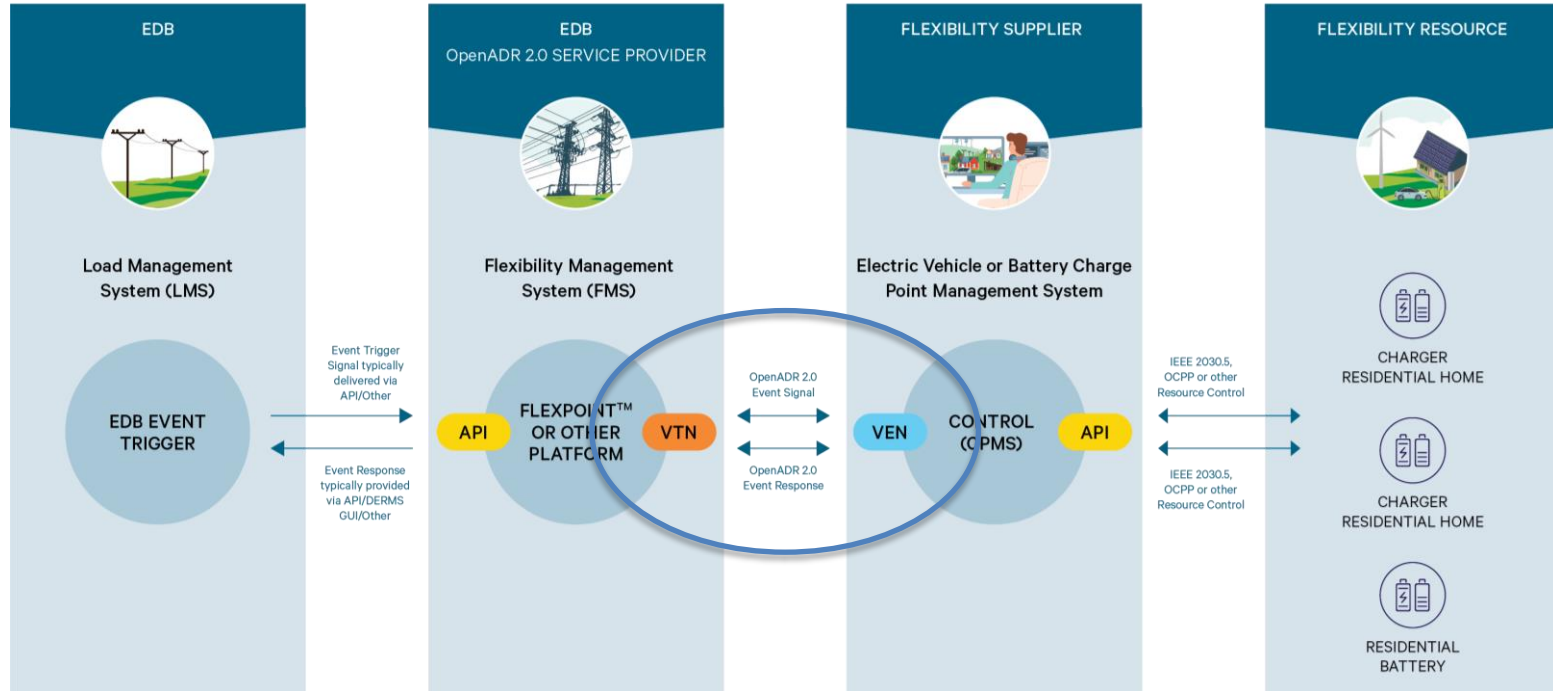
Who was involved?

PROJECT STEERING GROUP
P Berry – EEA (Industry)
B Fitzgerald – EECA
G Coates – South Island EDB representative
R Kuggeleijn – Retail Sector
B Abernethy – Electricity Retailers
B Bennett – Ara Ake (Future Energy)
W Qureshi – Asset Management Group representative
E Pellicer – EV Industry
Q Tahau – Transpower
J Tipping – North Island EDB Representative
A Davison – Electricity Authority

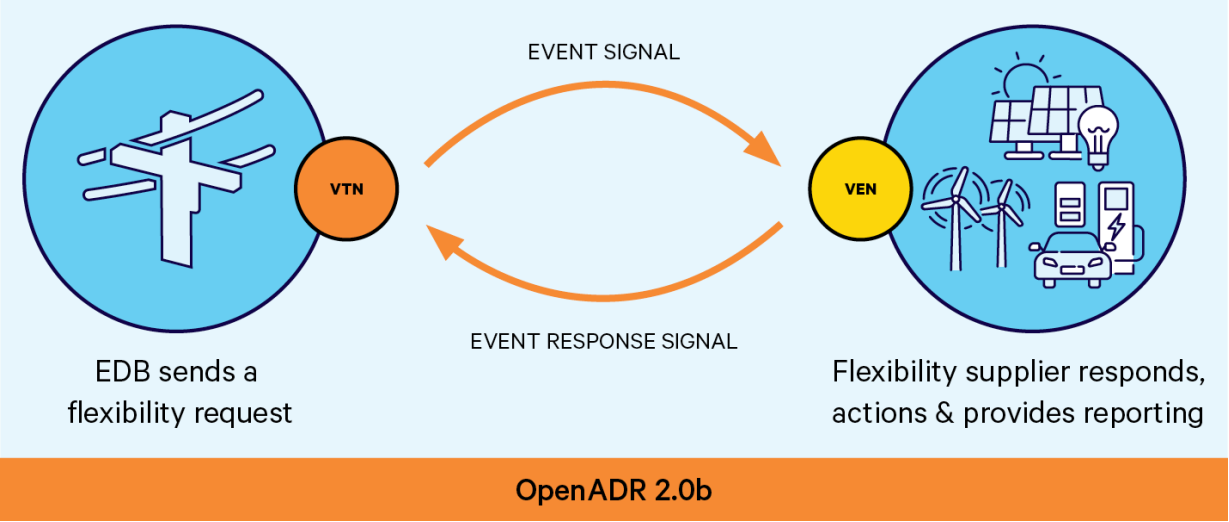


PROJECT DESIGN TEAM			
PROJECT LEAD	INDUSTRY DESIGN TEAM	PROJECT DELIVERY PARTNERS	BUSINESS ANALYST
C Dunbar	R Griffiths – Electronet (Chair)	Technical Lead Cortexo	Assurity Consulting Limited
	M Smith – Vector	EDB Orion	
	E Trolove – Orion	EDB Aurora	
	T Paddy – Cortexo	EDB Electra	
	L Zheng – WEL	Flexibility Supplier Evnex	
	R Beatty – Independent	Flexibility Supplier OpenLoop	
	R Watson – Northpower	Flexibility Supplier SolarZero	
	M Richardson – Transpower		
	S McNab – University of Canterbury – EPECentre		
	B Fitzgerald – EECA		
	S Johnston – EEA		
	J Levy – Mercury		

The system architecture



A Flexibility “event”



What was the assessment methodology?



What did we learn?

- › Open communication standards / protocols are a key enabler of flexibility
- › Agreed industry standardisation of protocols will provide enhanced interoperability, real-time data exchange, improved flexibility and scalability
- › The two most mature open communication protocols are OpenADR and IEEE 2030.5, each have advantages specific to their intended use case

What did we learn cont...?

- › International adoption of standard protocols vary due to individual needs and context
- › While simple APIs allow industry to participate in flexibility, they are short-term solutions and will hinder long term participation, interoperability, scalability and security.
- › Assessment of OpenADR within FlexTalk met all defined assessment criteria for “least-regrets” functionality to enable flexibility

Protocol Recommendations

- R1** Continue to monitor international adoption of communication protocols
- R2** Build on existing body of knowledge on communication protocols and map the capabilities against New Zealand's requirements
- R3** Create Industry communication guideline
- R4** EDB program design standardisation



Wider Considerations of Flexibility

What else must be solved for fully demand flexible electricity system?



Project Engagement

WEBINARS

Project Proposal webinar – Mar 2022

Why OpenADR – Dec 2022

Expanding Electric Vehicle Infrastructure in NZ – Sept 2023

FlexTalk Part A – Oct 2023

FlexTalk: making sense of communication protocols to enable demand flexibility – Feb 2024

RELATED PROJECTS

South Island Distribution Group, DSO project

Project Edge (Australia)

Project Edith (Australia)

Project Symphony (Australia)

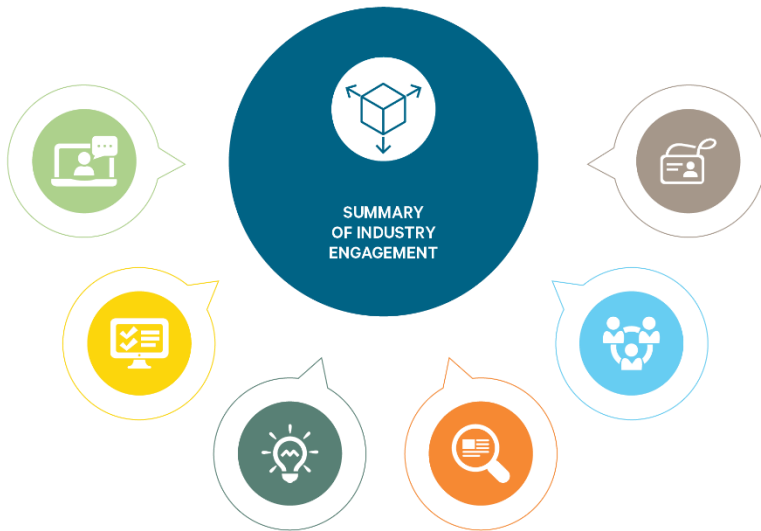
Resi-Flex

My Electric Avenue (UK)

National Grid ESO's Winter Demand Flexibility Service (UK)

Smart Flex demand flexibility trial (UK)

NREL – Electrification Futures Studies (USA)



WORKSHOPS/FORUMS

FlexTalk Workshop – 27 June 2023

FlexTalk Workshop at AMG Forum – 2 Nov 2023

EEA Asset Management Group

RESEARCH

Readings

Referrals

CONFERENCES

EEA Conference 2023

OpenADR Alliance Conference 2023 – (London)

Clean Energy Summit 2023 – (Sydney)

Electric Energy Society of Australia 2023 – (Melbourne)

COLLABORATION

Ara Ake

ARENA (Australia)

DEIP Interoperability Steering Committee (Australia)

Drive Electric

Flexforum

Northern Energy Group (NEG)

Electricity Authority

ENA NZ Future Network Forum (FNF)

ENA UK

Energy Catapult (UK)

ERANZ

Octopus Energy

OpenADR Alliance

RACE for 2030 (Australia)

SolarZero

Xcel Energy

Wider Recommendations

WR1 End device functionality

WR2 Gap analysis for other needed technical standards or protocols

WR3 NZ alignment with international standards

WR4 Determine common functional requirements for EDB IT systems to enable operational flexibility

Wider Recommendations

WR5 Define industry roles and responsibilities

WR6 Identify data access and management requirements to deliver flexibility

WR7 Establish consumer social license

WR8 Build on FlexTalk 1.0 to expand learnings

Wider Recommendations

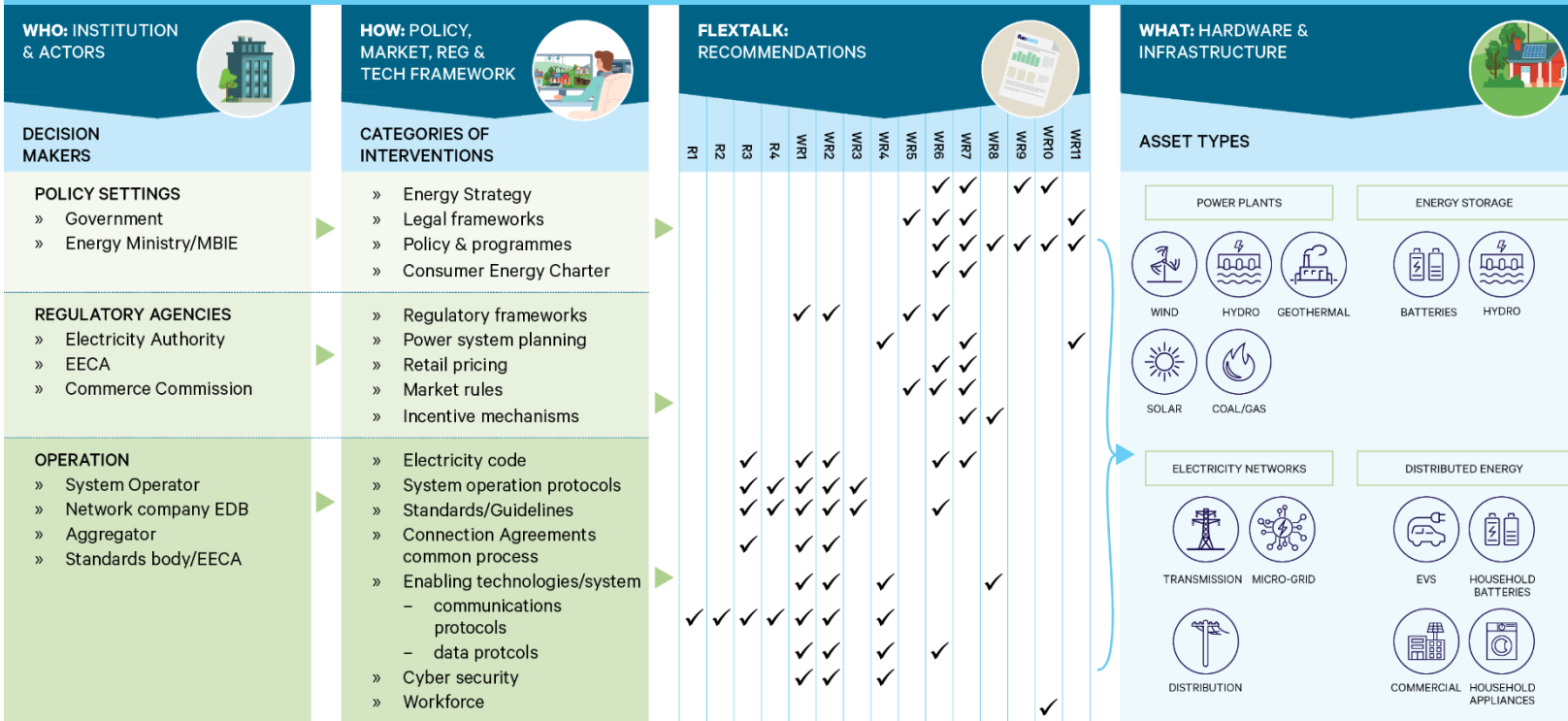
WR9 Continuation of knowledge sharing and collaboration

WR10 Establish clear vision and roadmap for the energy transition (from the top down)

WR11 Greater accessibility to regulatory sandboxes / exemptions

FIGURE 20: DELIVERING FLEXIBILITY IN THE ELECTRICITY SYSTEM

WHY: EMPOWERING ALL CONSUMERS WITH GREATER CHOICE, CONTROL AND AUTONOMY WHILST ENJOYING THE SECURITY AND BENEFITS OF THE GRID



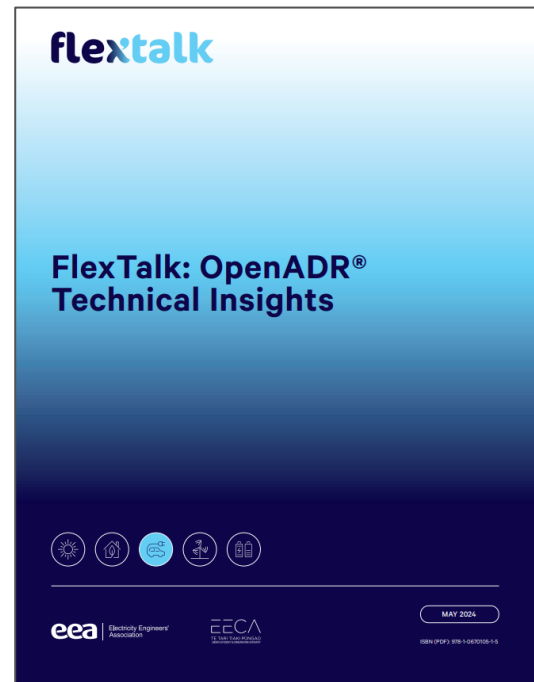
OpenADR Technical Insights Report

Provides:

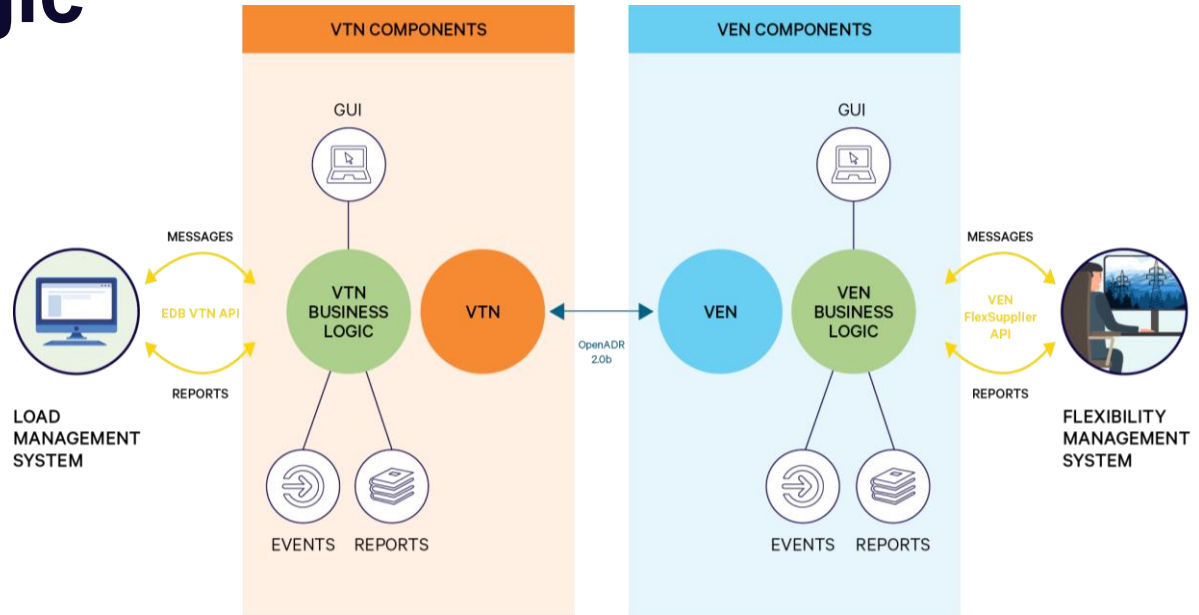
- Explanation of how OpenADR works
- Outlines what is needed to implement OpenADR

Uses what was learned in FlexTalk project to:

- Define typical technical architectures
- Define industry-tested demand response programs
- Provides list of possible VTN / VEN products

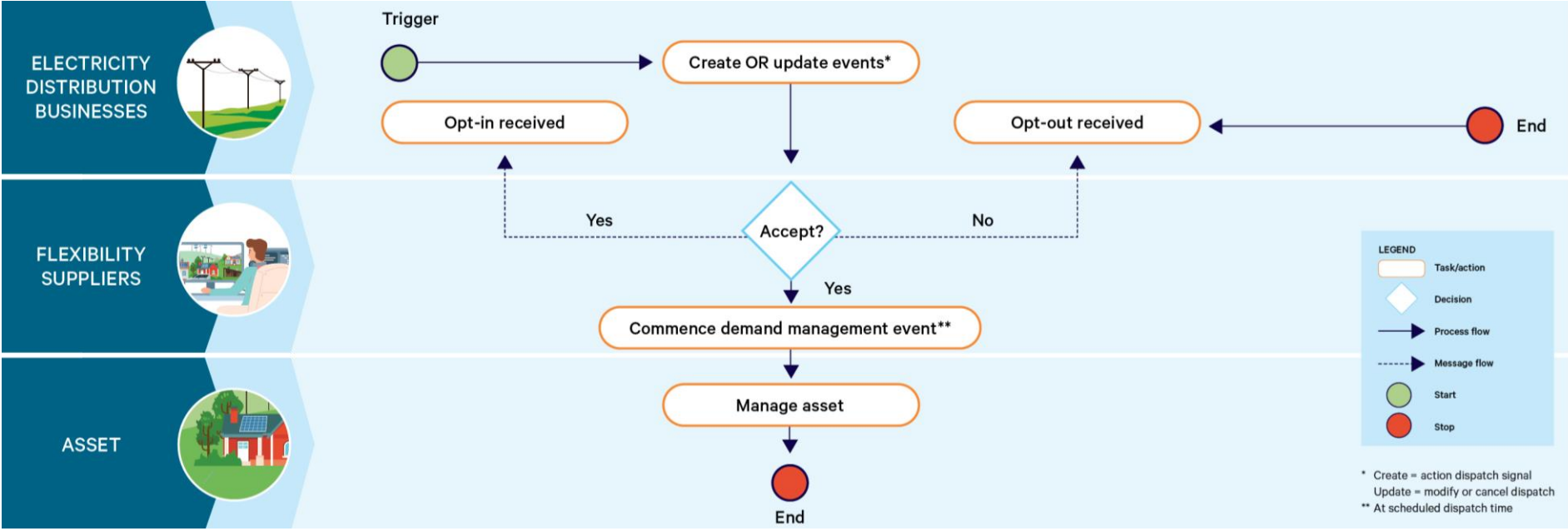


Event components – reports, GUI & business logic



Note: Only the core VTN and VEN software must be certified by the OpenADR Alliance through conformance testing.

A Flexibility “event”



FlexTalk 7 defined programs

- In Advance
- Dynamic
- Emergency
- Price Responsive Bid
- Price Responsive Discovery
- Dynamic Operating Envelope
- Battery Level

Questions?



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Want to hear more?

Join us for more practical insights into:

- Starting the flexibility journey
- OpenADR and implementation approaches
- Key design and implementation challenges
- Panel session



Asset Management Forum

WEDNESDAY 12TH JUNE 2024

RYDGES WELLINGTON AIRPORT

28 Stewart Duff Drive, Rongotai Wellington

Where to from here?

flex**talk**^{2.0}

- Build on FlexTalk 1.0, more DER, more customers
- Collaboration will be key, watch this space for a chance to get involved!

Thank you!



ASSURITY



networktasman



Northpower



Orion



Westpower

flextalk