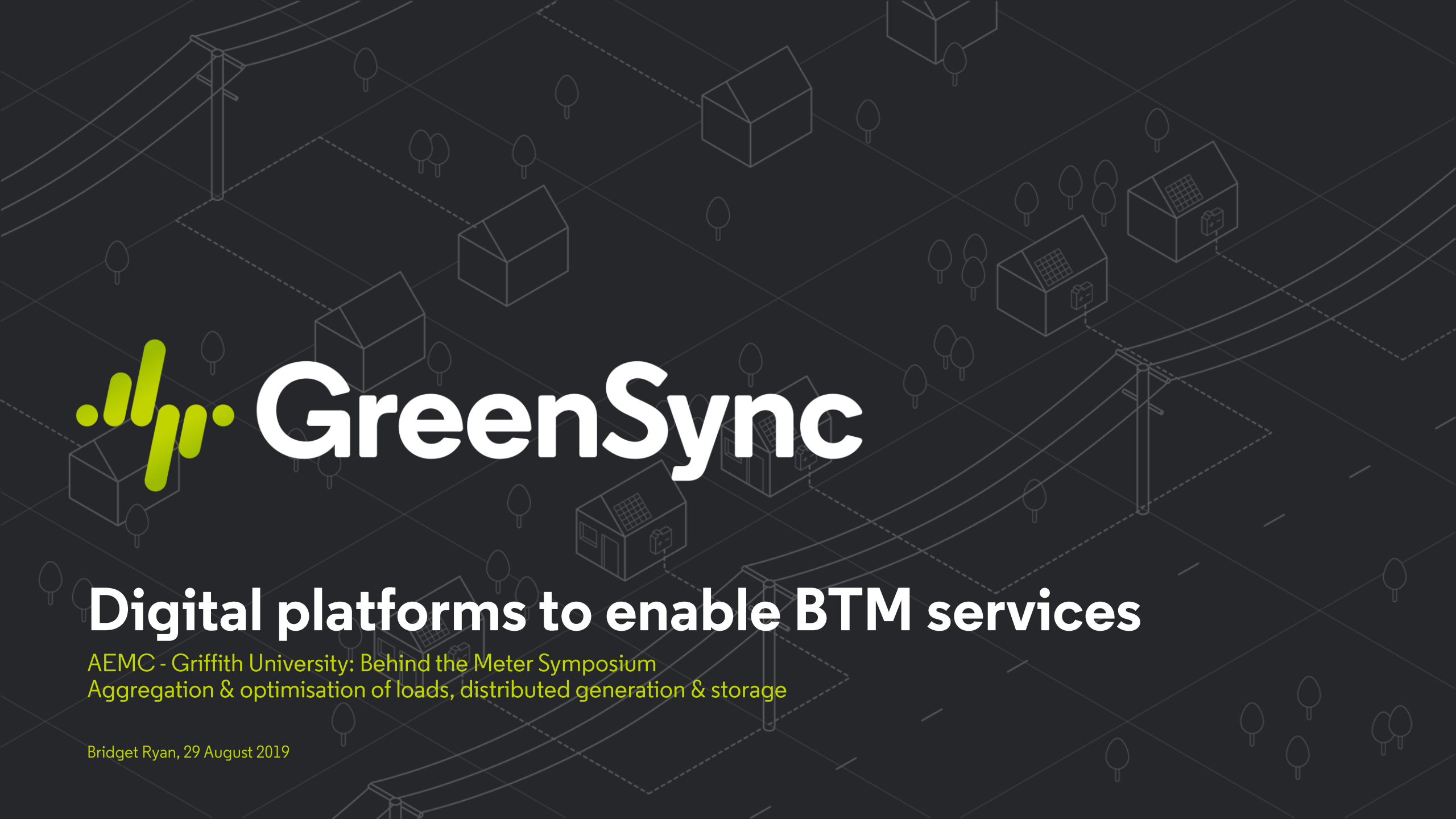


GreenSync

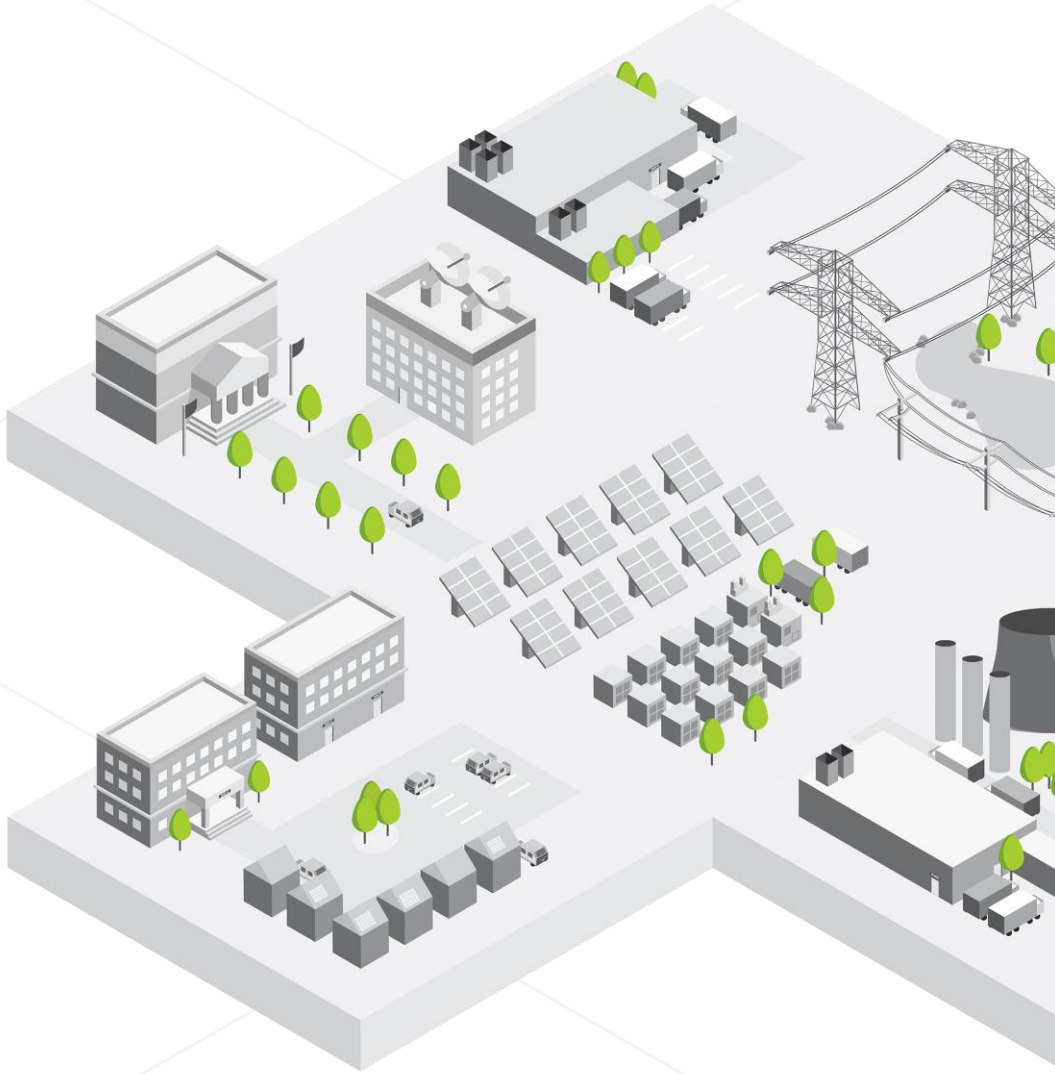
Digital platforms to enable BTM services

AEMC - Griffith University: Behind the Meter Symposium
Aggregation & optimisation of loads, distributed generation & storage

Bridget Ryan, 29 August 2019

Who is GreenSync?

A global energy-tech company that is connecting millions of distributed energy resources and turning electricity grids into marketplaces.



What does this mean for services from BTM assets?

	1: Rooftop PV	2: Aggregated storage	3: Electric vehicles
Network challenges	Visibility Voltage impacts Hosting capacity	Visibility Voltage impacts No correlation to weather	Visibility Voltage impacts No correlation to weather Volume & capacity
Opportunities	Hardware capabilities Connectivity -> visibility Shared access-> services Value for services	Hardware capabilities Connectivity-> visibility Shared access-> services Value for services	Hardware capabilities Connectivity-> visibility Shared access-> services Value for services
Requirements to enable opportunities	Customer consent Standardised visibility Dynamic Connection Agreements	As per 1 plus: Connection policies Coordination & interaction between network & market	As per 1 & 2 plus: Connection policies Smart charger product preferences/mandate

What’s a digital marketplace?

Digital marketplace examples

All at least 20 years old…

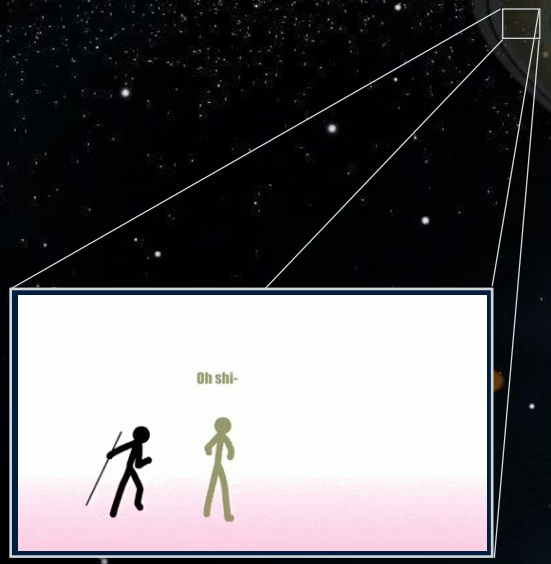
ebay

amazon

Australian stock exchange

Markets evolve within and without regulation

Markets by coercion / regulation



Modern market-based economies

Markets by convention / commercial

Enabling opportunities from BTM assets

Enable customer participation

Start with what we've got

Don't break the grid

Digital architecture needs to support

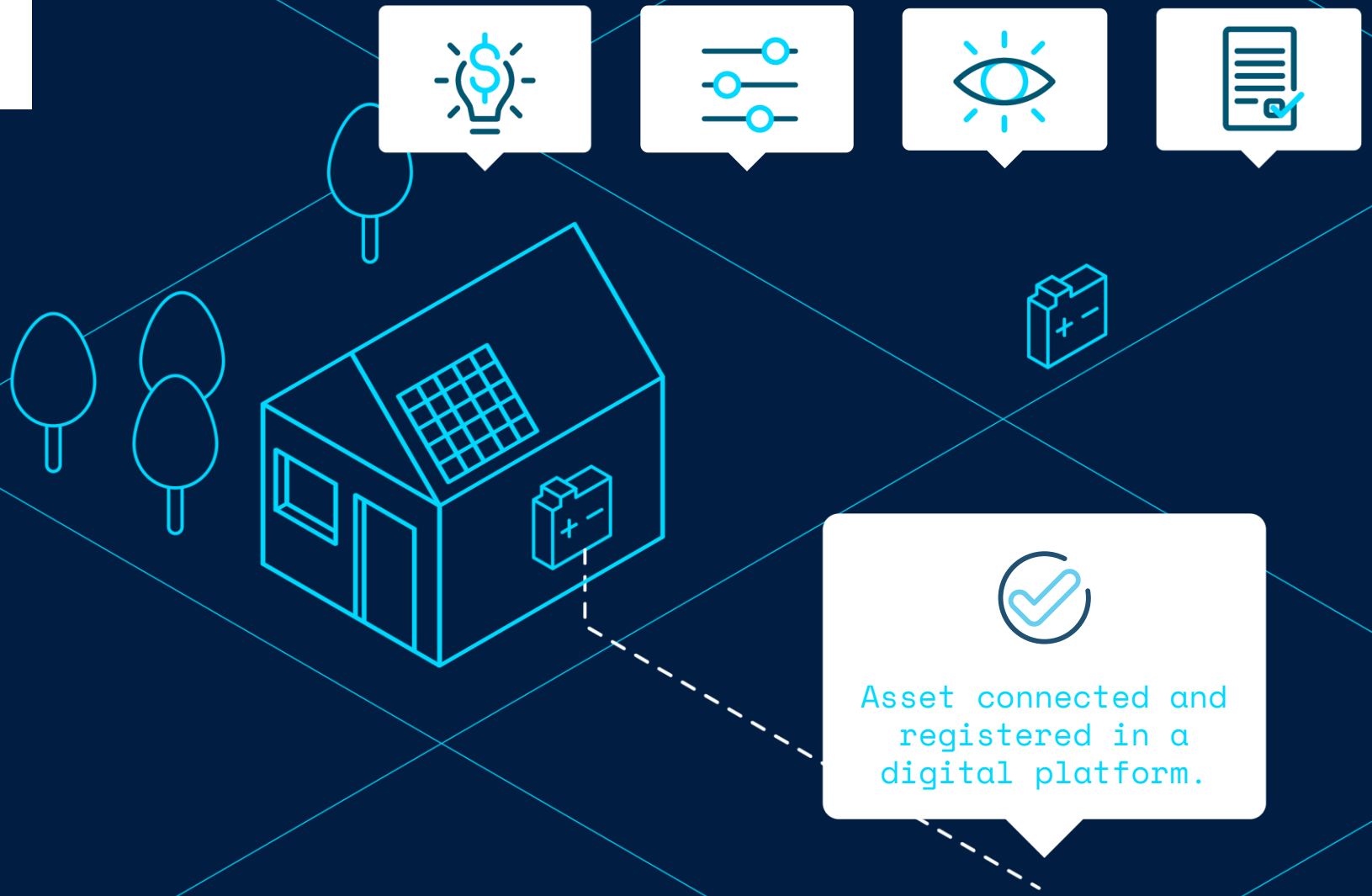
System & Market Operators

Distribution Networks

Retailers & Aggregators

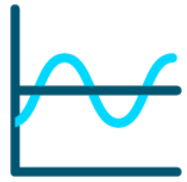
Technology vendors & asset owners (customers)

Digital Asset Registration



Aggregated BTM asset services

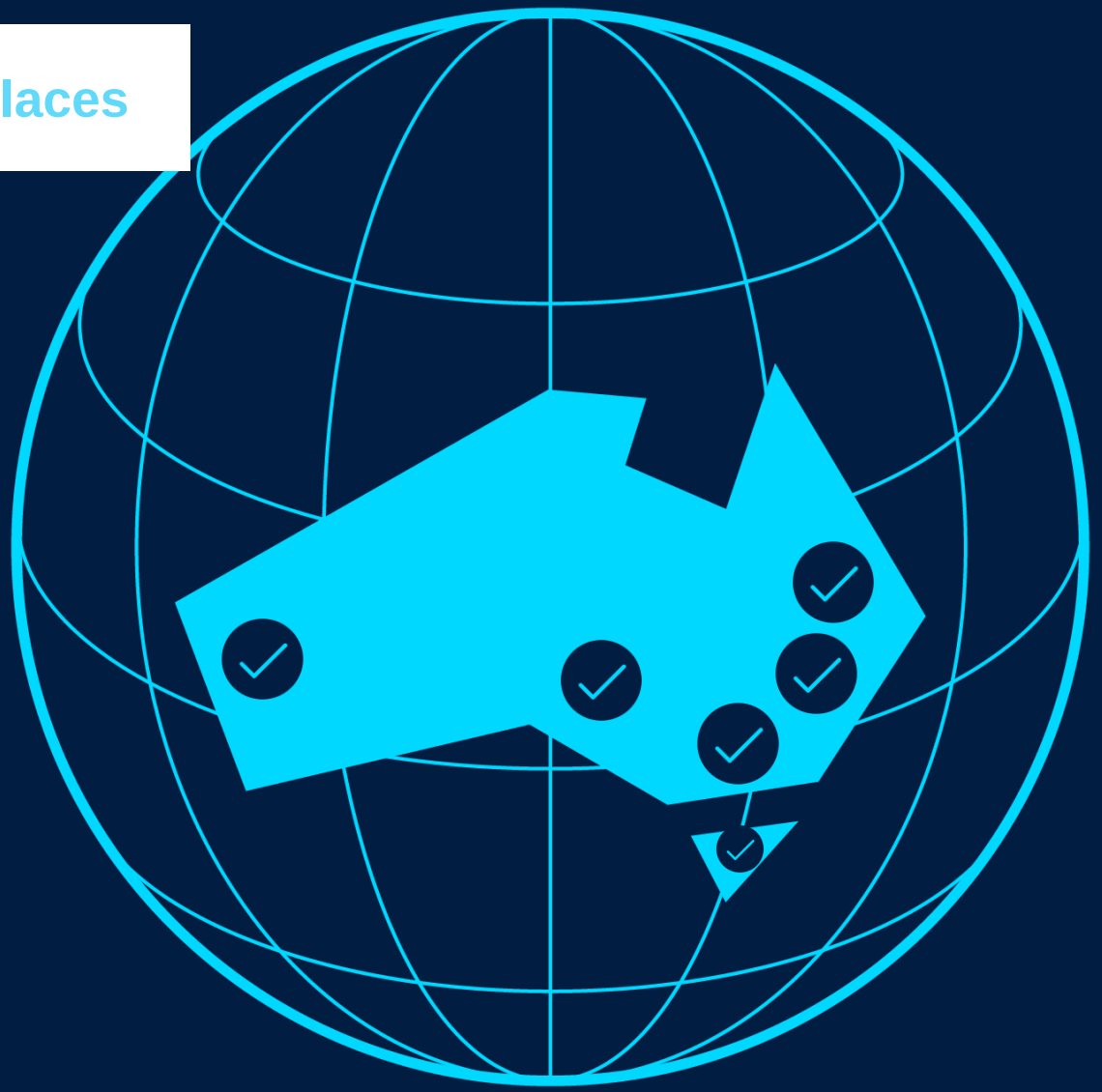
ENERGY SERVICES



ANCILLARY SERVICES

NETWORK SUPPORT EVENTS

From services to marketplaces



A practical example

UK Power Networks Flexibility Markets

Customer

UK Power Networks

Opportunity

Create digital flexibility service contracts to manage Medium Voltage constraints with C&I demand response.

Solution

deX

Market platform

Nexant

Control centre analytics and customer interface

smarter grid solutions

Mediation from network ADMS via DERMS

Key messages

- **Capabilities, connectivity & visibility provide asset foundations**
- **Digital platform architecture provides foundation for service contracting**
- **Service contracts can grow into markets**

Pre-release previews

Navigating standards & frameworks for DER: GreenSync's approach & Reference guide

Dynamic Connection Agreements for DER

Thanks!

Contact: bridget.ryan@greensync.com

GreenSync

The deX Platform

deX Markets
For ISOs & Market Operators

A digital market for DER contracts, capacity, day ahead and real time market mediated dispatch, verification and settlements.

deX Platform

A mission critical hosting platform, and open access smart registry and middleware solution that enables all DERs and market participants onto the platform.

deX Command
For Retailers & Aggregators

A powerful API for market participants to execute dispatch commands at scale to manage millions of DERs.

deX Vision
For Distribution Networks

Visibility of deX connected DER to distribution networks and system operators, dynamic connection agreements for mediation of system security.

deX Connect
For Technology Vendors

Open-standards based OEM integration and asset registries that enables the cloud-to-cloud connectivity of DER to grids and markets.

Benefits of deX

The Exchange Platform enables $bn's in benefits across the system

For End Customers

More value streams

Customers who can connect their DER via the platform to gain access to value from distributed energy markets. Typically this would be facilitated by their VPP aggregator or retailer, but they could ultimately trade directly with DNSPs for network services, or with other customers via P2P trades.

Lower transaction costs

Lower transaction costs means more money in customer's pockets – up to 30% of total contract value can be saved via digital contracting and removing custom integration costs.

Price Transparency

Price signals for DERs to customers means stronger market competitiveness.

For Retailers & Aggregators

A role for aggregators

Retailers or DER aggregators gain access to additional markets for network services and can trade DER with other aggregators through a common platform. Granular geo-locational markets and pricing also reduces the need to broad based constraints on trading and connection as it can isolate issues to specific locations.

Ease of recruitment

By having a common platform for DERs to connect to markets, new DERs entering the market (solar inverters, EV, storage systems) can be connected, and subsequently transferred between providers, without additional truck-roll to customer sites, simplifying and reducing cost to acquire.

For Distribution Networks

Securing networks

A platform that can integrate DERs with the DNSP in near-real time to enable evaluation of network constraints and dynamic export control will ensure VPP and DER behaviour does not impact grid security and reliability.

Locational price signals

A platform that can provide the opportunity for DNSPs to send price signals directly to DER customer base to supply network services – such as demand response to support network augmentation deferral (non-wires solutions).

For System Operators

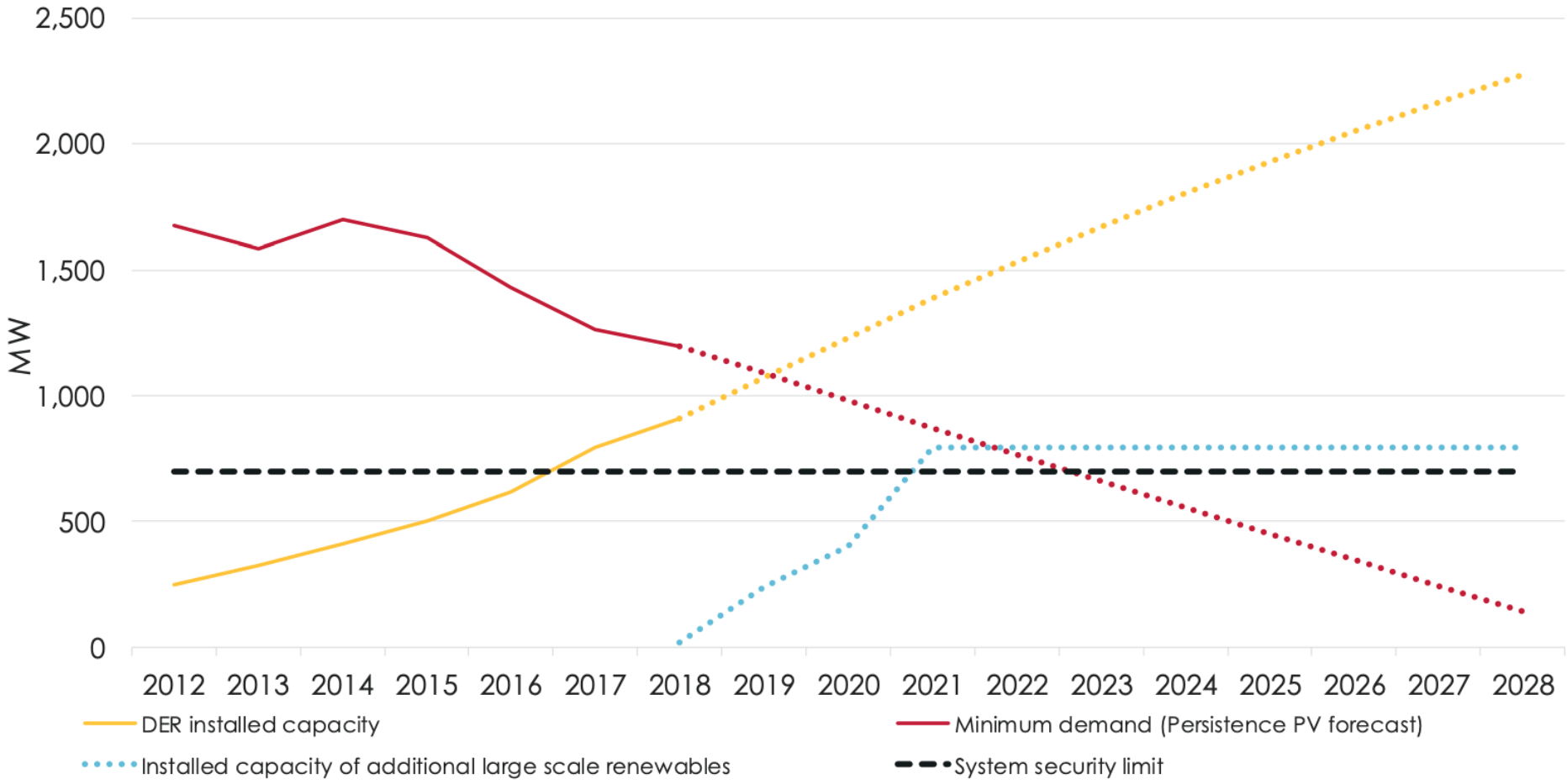
Localized DER markets

A regional flexibility market operator which could be organised at a state, distribution area, or embedded network utilizes a common management and market platform to enable access for multiple VPPs and upstream value streams for DER.

Better forecasting & operation

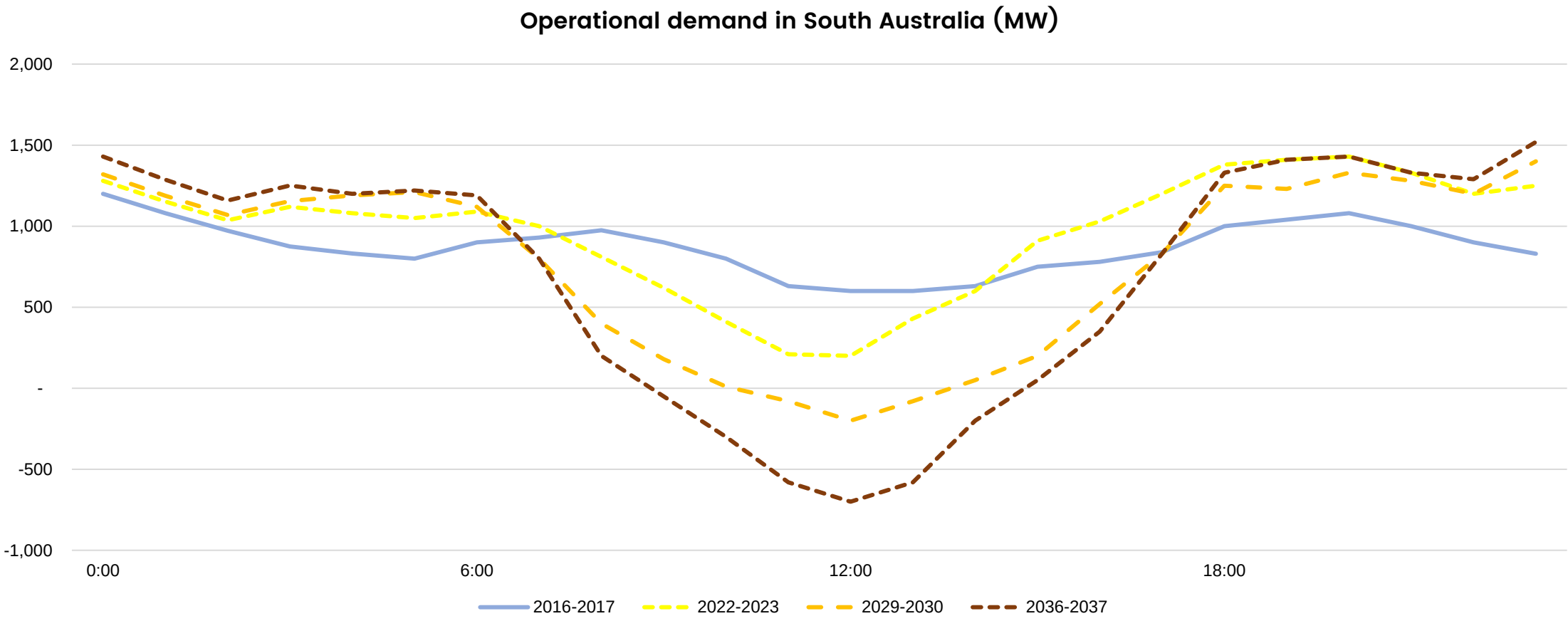
Visibility of DER fleet and the market activity for the system operator provides improved forecasting and planning, and further opportunity for DER to participate in dispatch planning and operational reserves, reducing costs and adding further security and reliability to the overall system.

System security risks are real



Source: AEMO 2019

Outages and spills are now real



Source: AEMO Presentation at APVI Asia Pacific Solar Research Conference, Dec 2017

What is deX?

- deX is a digital exchange for distributed energy services to be transacted between players across the electricity system.
- deX specifically interfaces with the distribution grid to enforce boundaries for the safe operation of networks.

Enables physical contracts.

Enables multiple DER markets.

Is digital.