ELEXON white paper: Enabling customers to buy power from multiple providers

Webinar 5 June 2018

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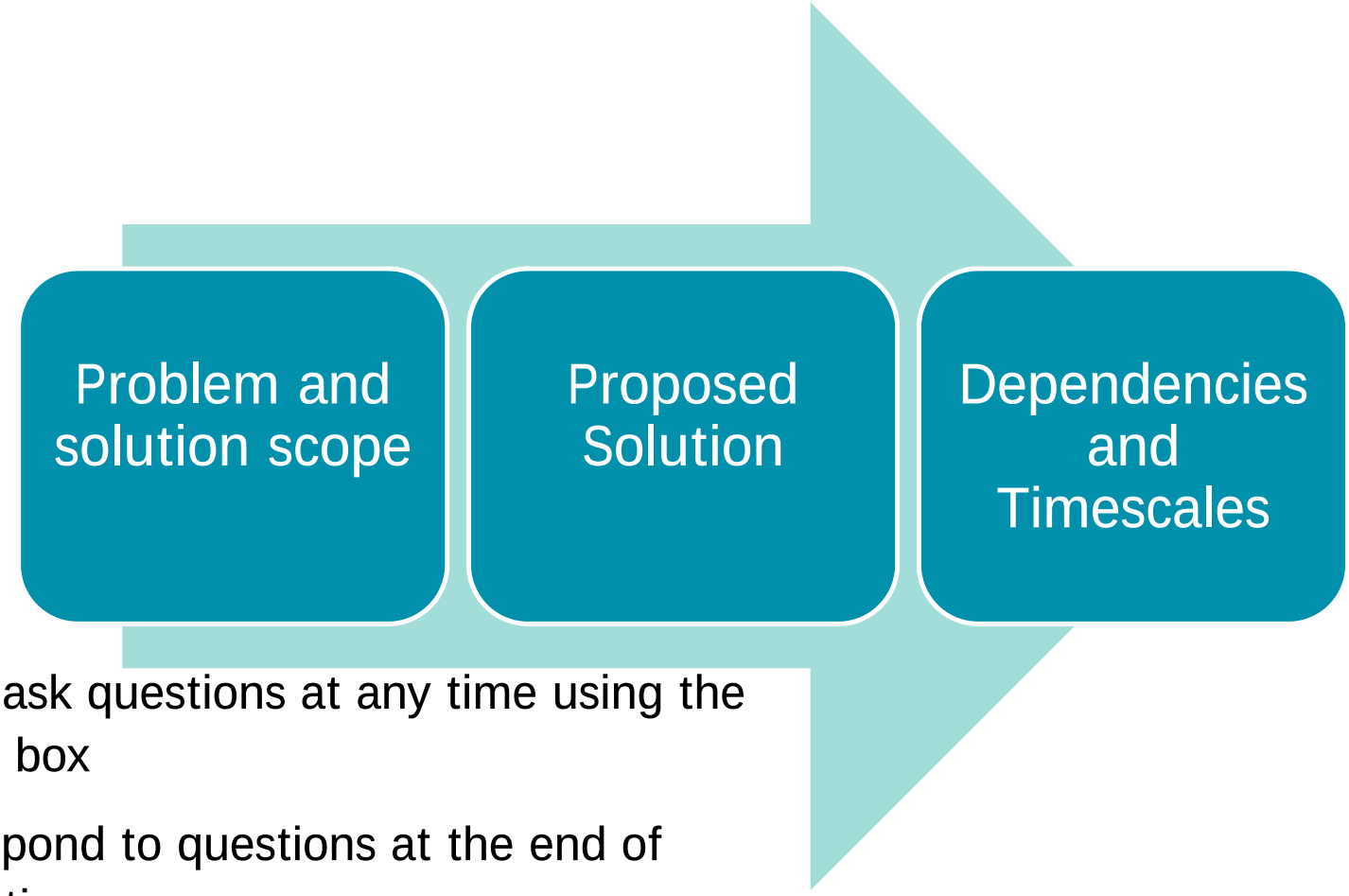
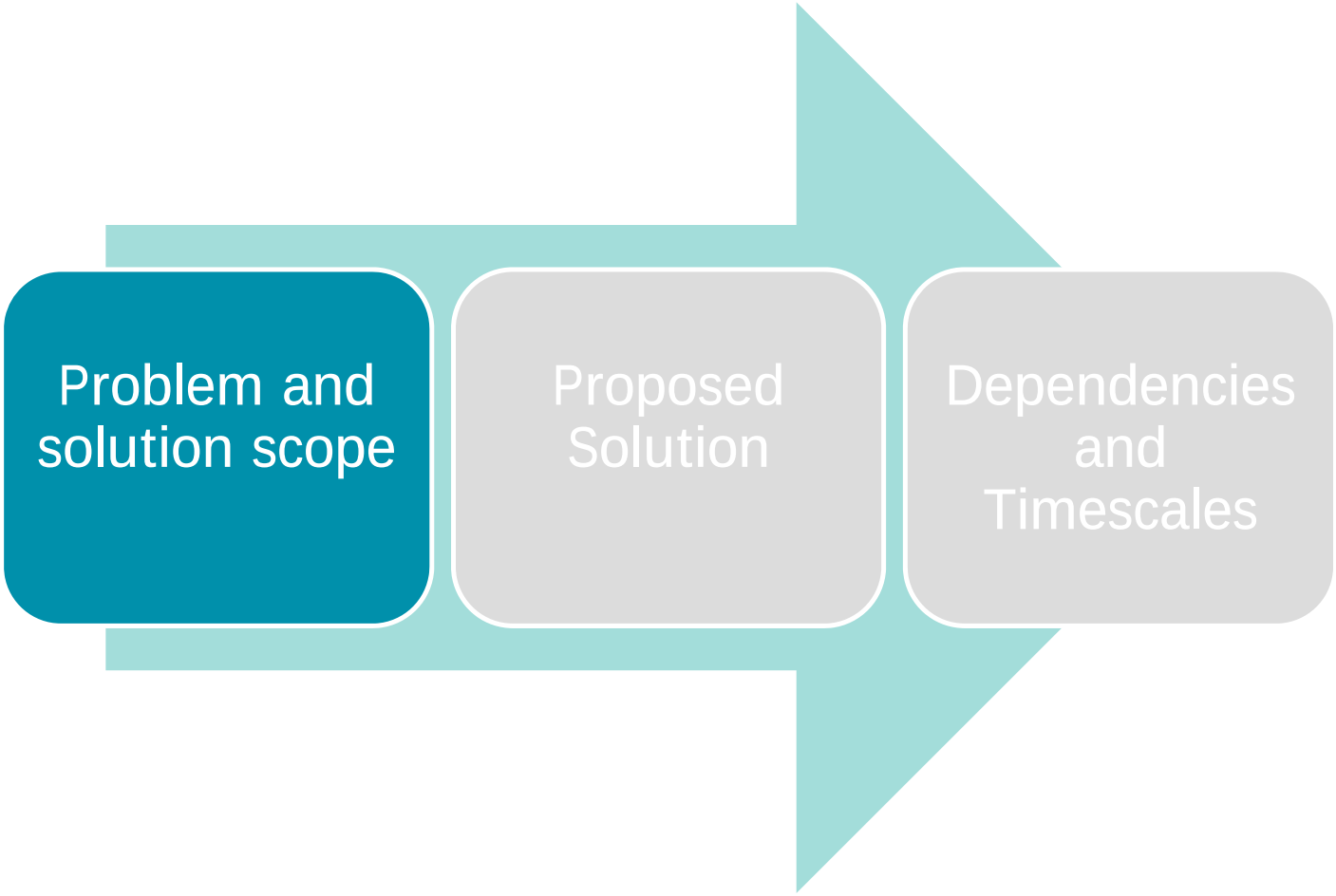
Problem and Solution Scope



- You can ask questions at any time using the question box
- I will respond to questions at the end of each section
- We will send out a Q&A document (including any unanswered questions)

The Problem


Problem and solution scope
Proposed Solution
Dependencies and Timescales

The problem . . .

Take the Balancing and Settlement Code. These are the arrangements which match up suppliers and generators' requests to buy and sell electricity.

Only a licensed supplier can perform this settlement function on behalf of their customers, restricting new players like car manufacturers from entering the market.

Having completed a project to install community-owned solar PV at X, residents have always asked if there could be a way to use the clean renewable energy themselves.

Frustratingly, due to the structure of the UK electricity market, this has not been possible so far, and the majority of the electricity is exported to the grid.

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The problem . . .

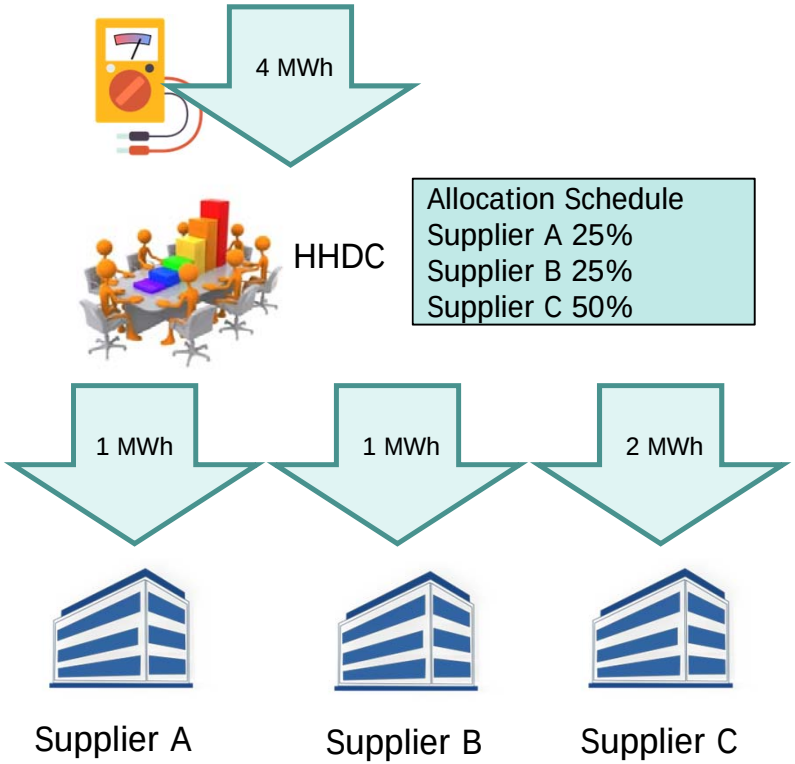
Existing arrangements can prevent potential new entrants with disruptive business models from entering the market, for example, by giving traditional suppliers privileged access to information and control over processes.

A challenge with peer-to-peer models is the inability to have multiple suppliers servicing a single consumer, and knock-on challenges with balancing and settlement.

The Supplier Hub

- Supplier is the principle intermediary between a customer and the energy market
- Referred to as the “Supplier Hub principle”
- The Supplier is responsible for metering, metering agents (Meter Operator, Data Collector, Data Aggregator), purchasing wholesale energy, network charges – Distribution Use of System (DUoS) and Transmission Use of System (TNUoS), Final Consumption Levies, as well as social and consumer protection roles
- The single-Supplier principle is embedded in industry licences and codes – the BSC, the Master Registration Agreement (MRA), the Distribution Connection Use of System Agreement (DCUSA), the Connection and Use of System Code (CUSC), the Smart Energy Code (SEC) and the nascent Retail Energy Code (REC)
- Multiple Suppliers are supported by the ‘Supplier Volume Allocation (SVA) Shared Metering Arrangements’, but these are limited in scope.

SVA Shared Metering Arrangements



- Defined in Section K and BSCP550
- Supplier-led rather than customer-led
- Designed for large non-domestic sites
- Half Hourly only
- Requires high levels of manual intervention and co-operation
- Allocations (usually fixed proportions) submitted in advance
- Only a handful of live instances

Our proposal

- We are delivering changes in 2019 to open up the balancing mechanism up to independent aggregators
- We plan to deliver these changes on a new BSC central services platform
- We believe that we can build on these developments to deliver a set of arrangements that will allow customers the flexibility to buy electricity from multiple providers
- This will be a tactical change which can be delivered in shorter timeframes than any strategic changes emerging from Ofgem's initiative
- This will have the dual benefit of allowing innovation in the shorter term and providing learning to inform longer term strategic changes.

Proposal supports a range of innovations

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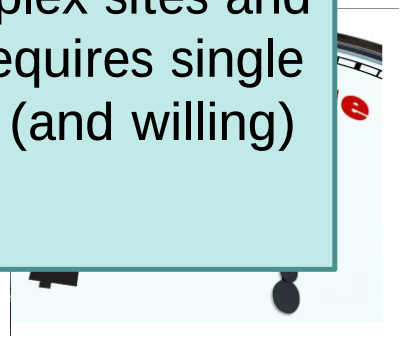
Community Energy Schemes

Community energy schemes – e.g. communally owned photovoltaic (PV) and/or battery, with export shared between local residents/members.

Such arrangements already supported by Settlement through combination of complex sites and shared metering. Requires single Supplier and single (and willing) agent.



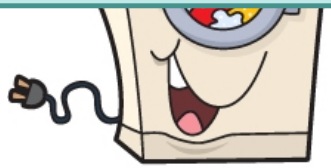
Electric vehicle schemes

Electric Vehicle (EV) manufacturer leases vehicle on a £/mile basis.

Meter in car or at charge point.

Proposal relies on knowing where the car was charged.

Multiple charging points at variable locations would require technology solutions from manufacturers



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Peer-to-peer trading

Ebay-style apps allowing customers to buy excess solar energy from neighbours. Or to donate spill to local charities or families in fuel poverty.

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Device-as-service

Household appliances sold/rented with energy included.

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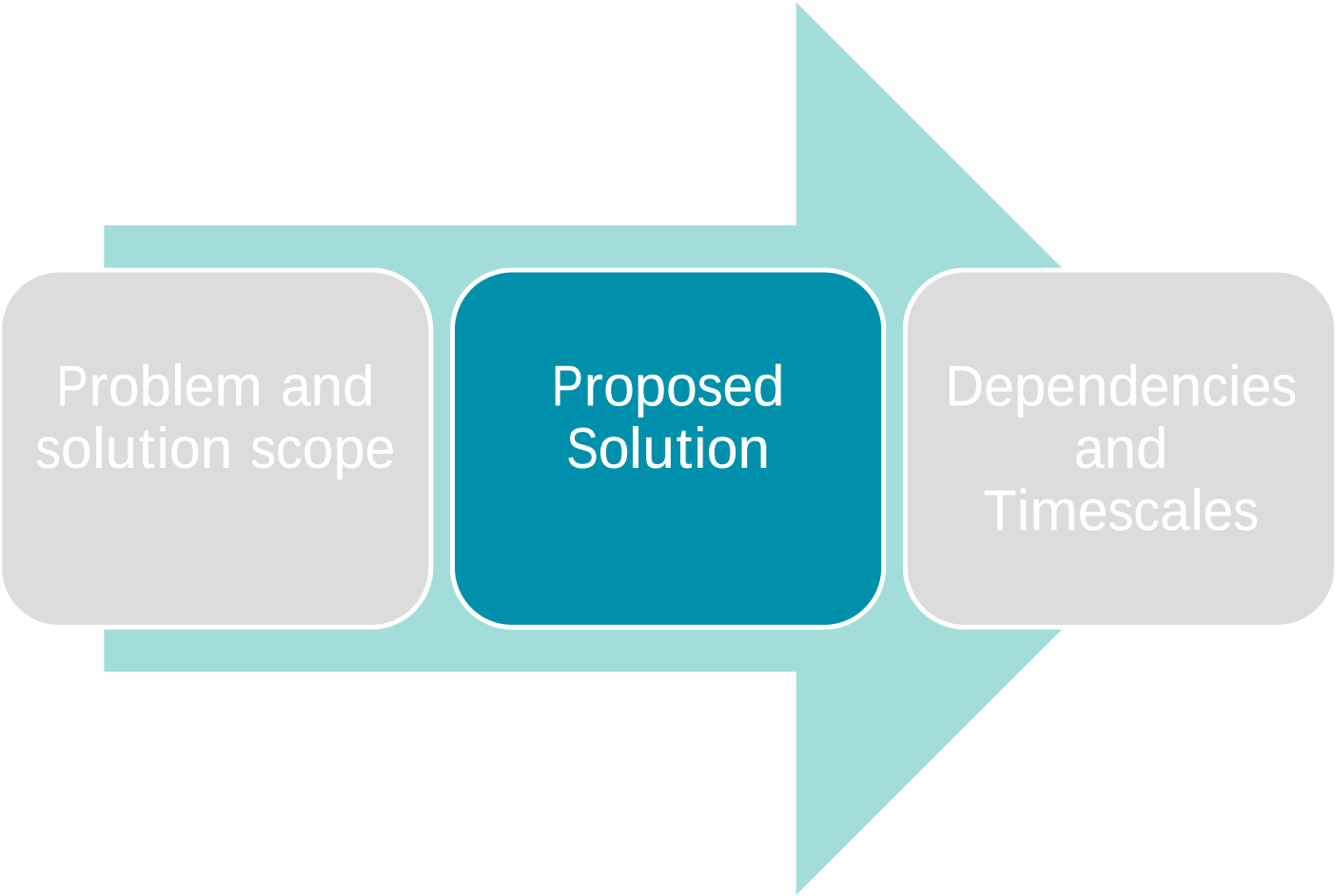
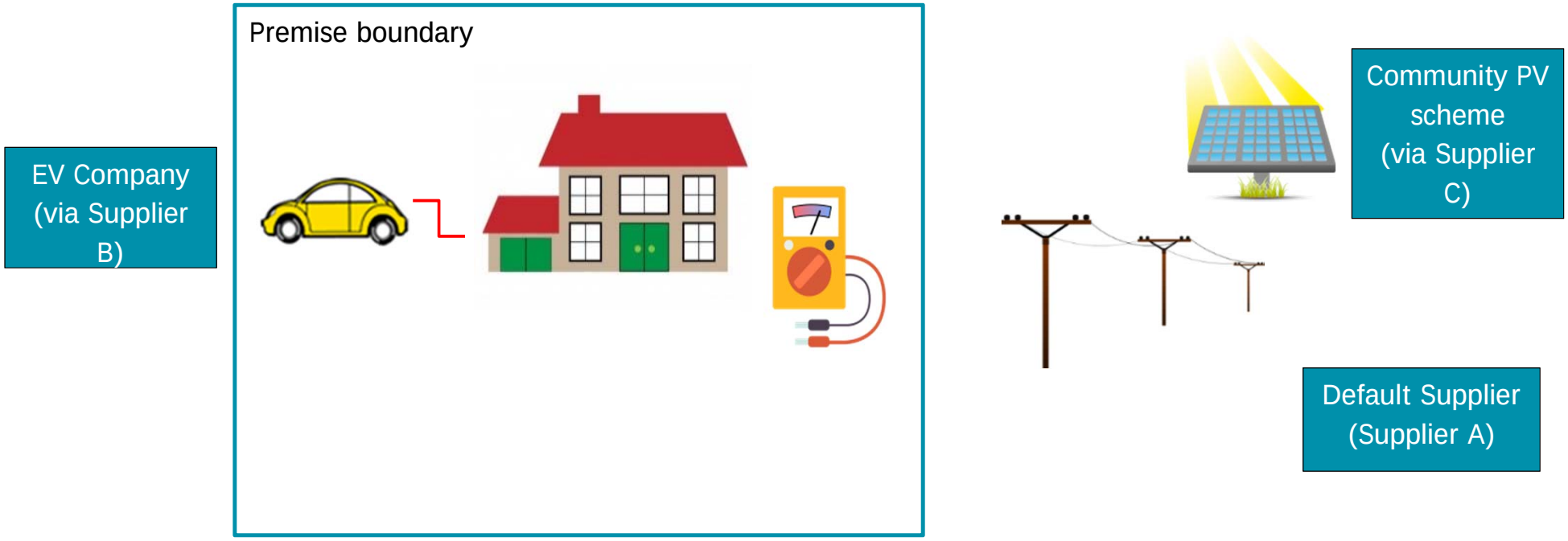
Rapid Switching

New apps allowing customers to buy energy from Suppliers or wholesale energy sources for periods as short as a Settlement Period

Proposed Solution



An example

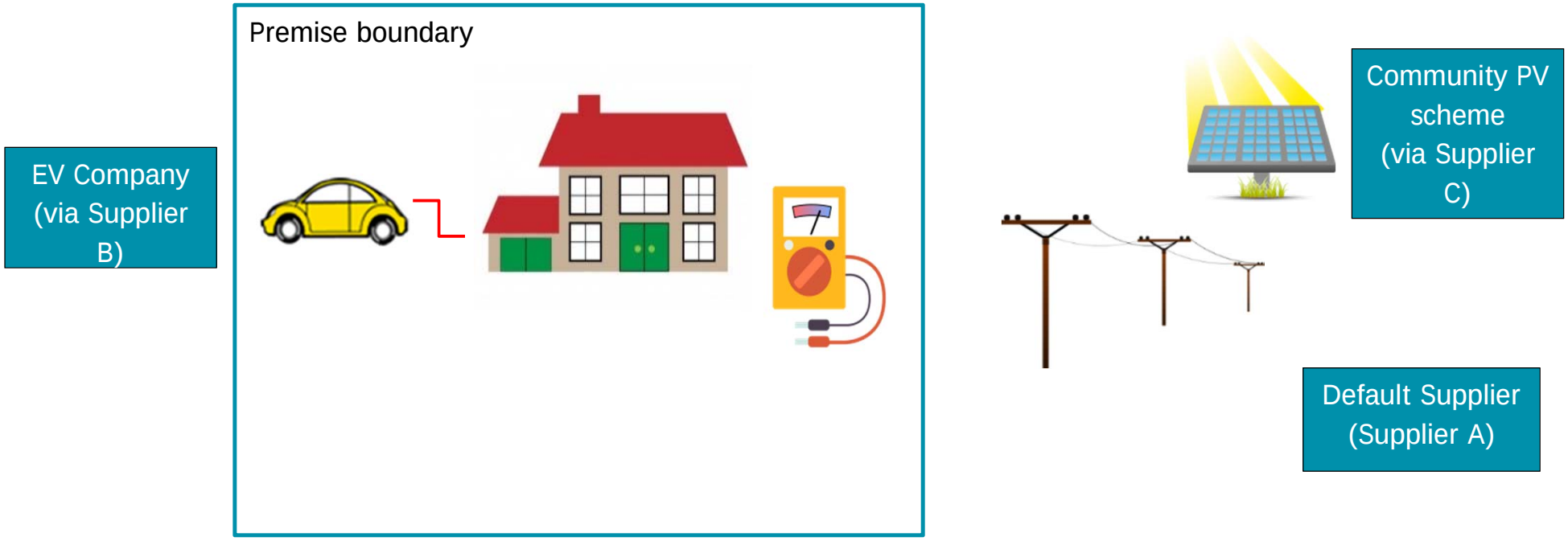


The Green family buy their electricity from Supplier A.

They run an electric car which they rent from a manufacturer who offers “free” charging under the terms of the rental agreement.

The EV company supplies too much energy to be licence exempt, so applies for a supply licence or enters into a ‘white label’ agreement.

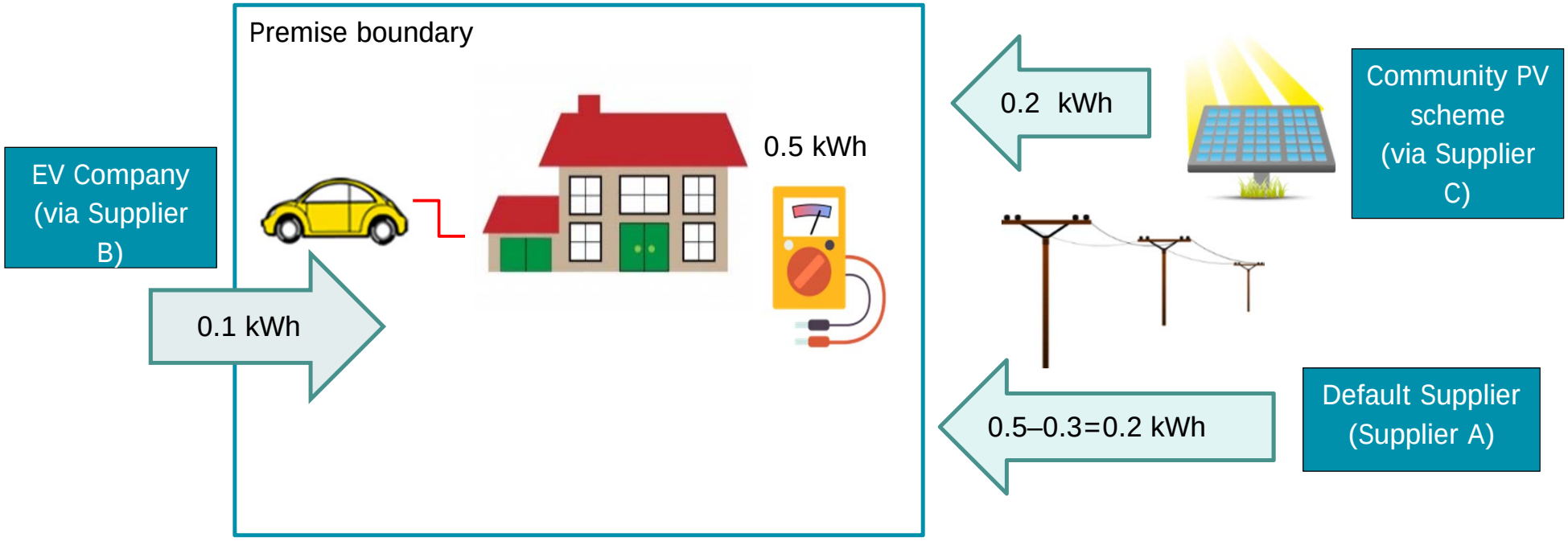
An example



The Green family live on an estate which includes some communal buildings with solar panels. They take part in a neighbourhood scheme which allows them to buy a share of the export from the photovoltaic (PV) cells.

The operator of the community scheme makes use of a ‘Class A’ licence exemption to supply domestic consumers with electricity they have generated themselves. They still need a licensed Supplier (Supplier C) to register their exports.

In a sample Half Hour . . .



In a sample Settlement Period, 0.5 kWh is recorded on the boundary Meter.

Supplier B supplies 0.1 kWh

Supplier C supplies 0.2 kWh

Supplier A supplies the residual volume i.e. 0.2 kWh

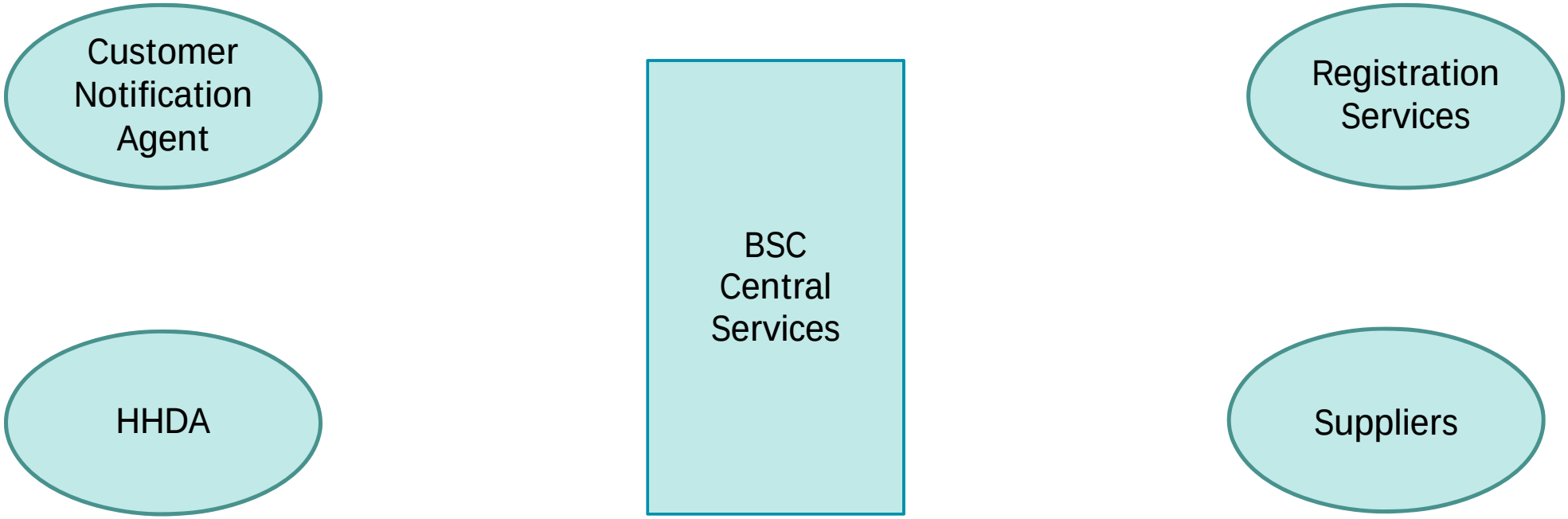
Supplier B's import volume is increased for every customer in the EV charging scheme

Supplier C's export volume is reduced by the amount sold/donated to customers in the local scheme

Implications of adjusted volumes

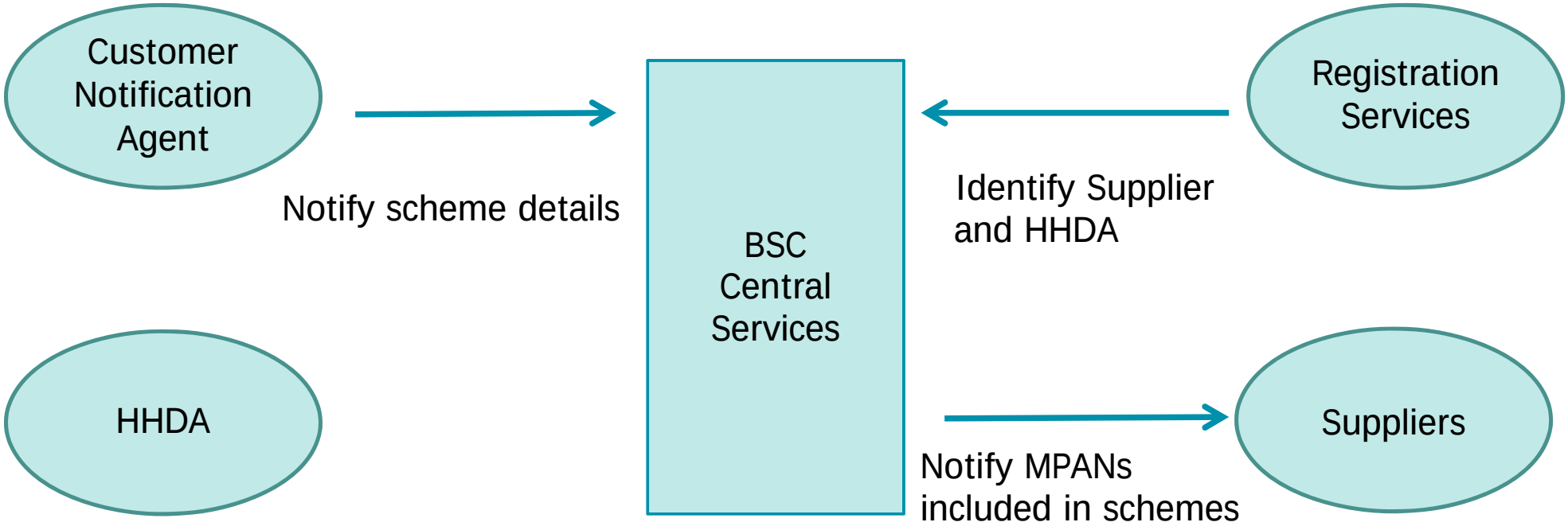
- Suppliers A, B and C are only responsible for the energy volumes that they supply in terms of –
  - Imbalance Settlement
  - Network charges (DUoS and TNUoS)
  - Final consumption levies
- The expectation is that Supplier A (the default or primary Supplier) will only bill the customer for the adjusted volume, but will itemise volumes (uncosted) of the energy bought from other Suppliers. The customer will be separately billed for these under the relevant scheme.

How it could work



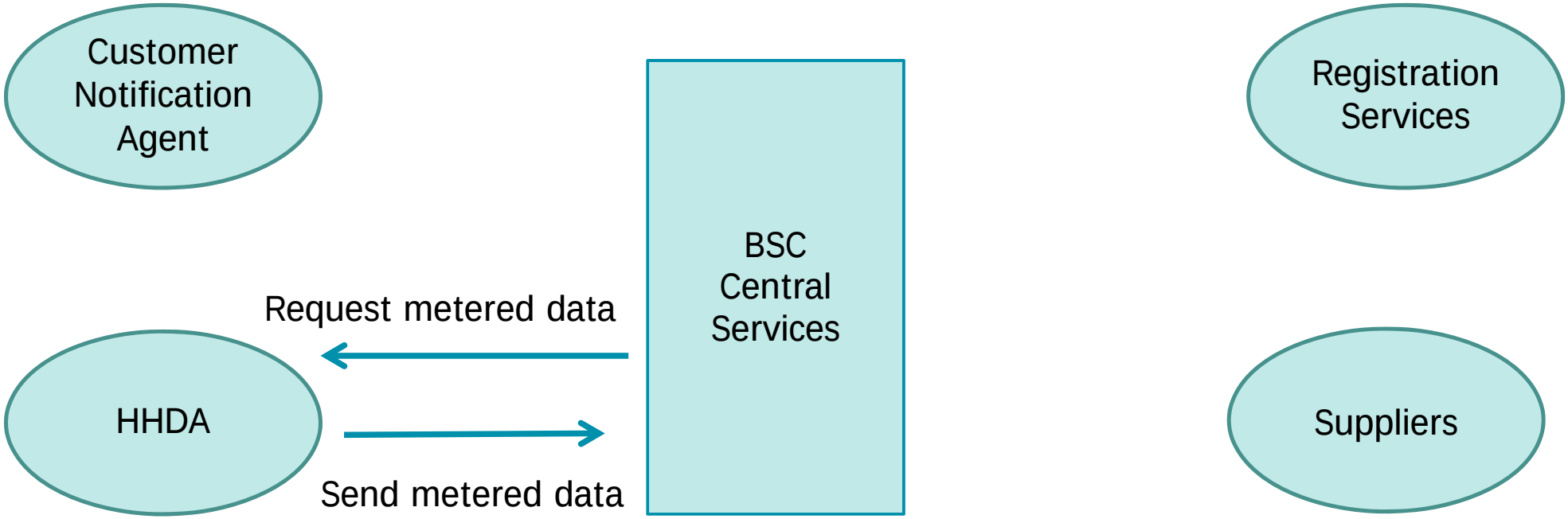
The Customer Notification Agent is a new BSC role, requiring qualification, but not a licence. Would typically be the commercial facilitator or technology platform provider of the relevant scheme. Would be a “lighter touch” party, like a Virtual Lead Party for P344.

The Customer Notification Agent



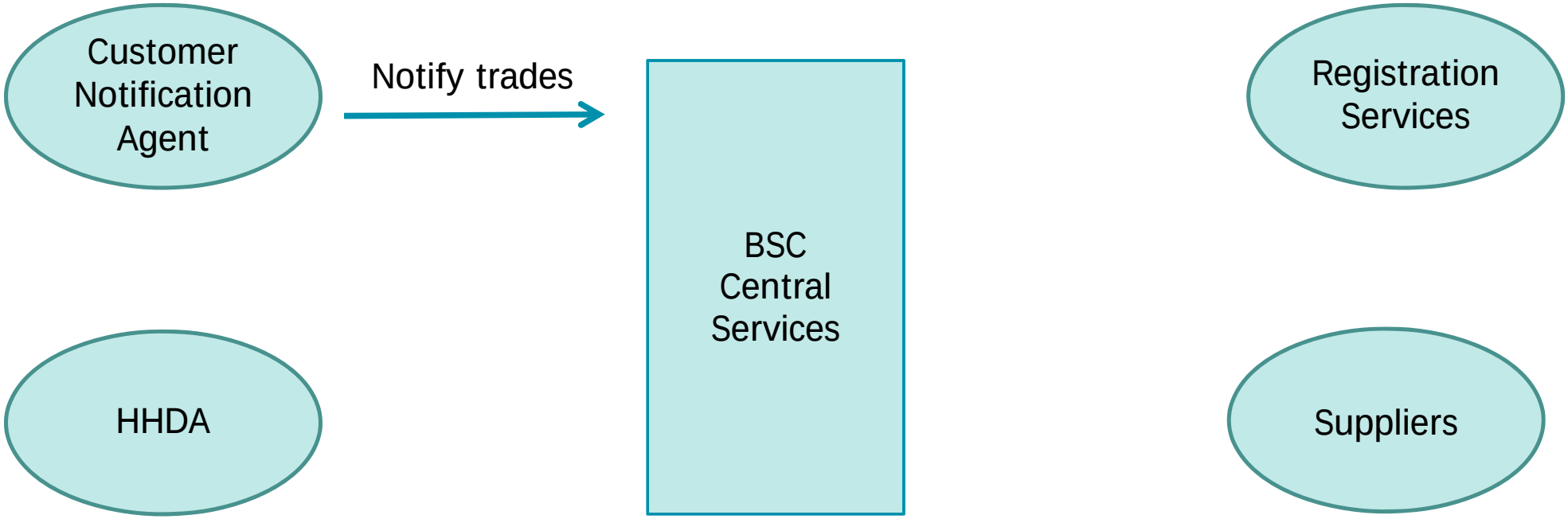
The Customer Notification Agent will notify BSC Central Services of the Meter Point Administration Numbers (MPANs) involved in each scheme. BSC Central Services will identify the Supplier and Half Hourly Data Aggregator (HHDA). This will be a manual Electricity Central Online Enquiry System (ECOES) look-up initially, as per P344. For the proposal to work at scale, we will need to explore the potential for ECOES Application Programme Interfaces (APIs) or using the Meter Point Administration Service (MPAS) or the new Customer Switching Service (CSS).

Half Hourly Data Aggregators



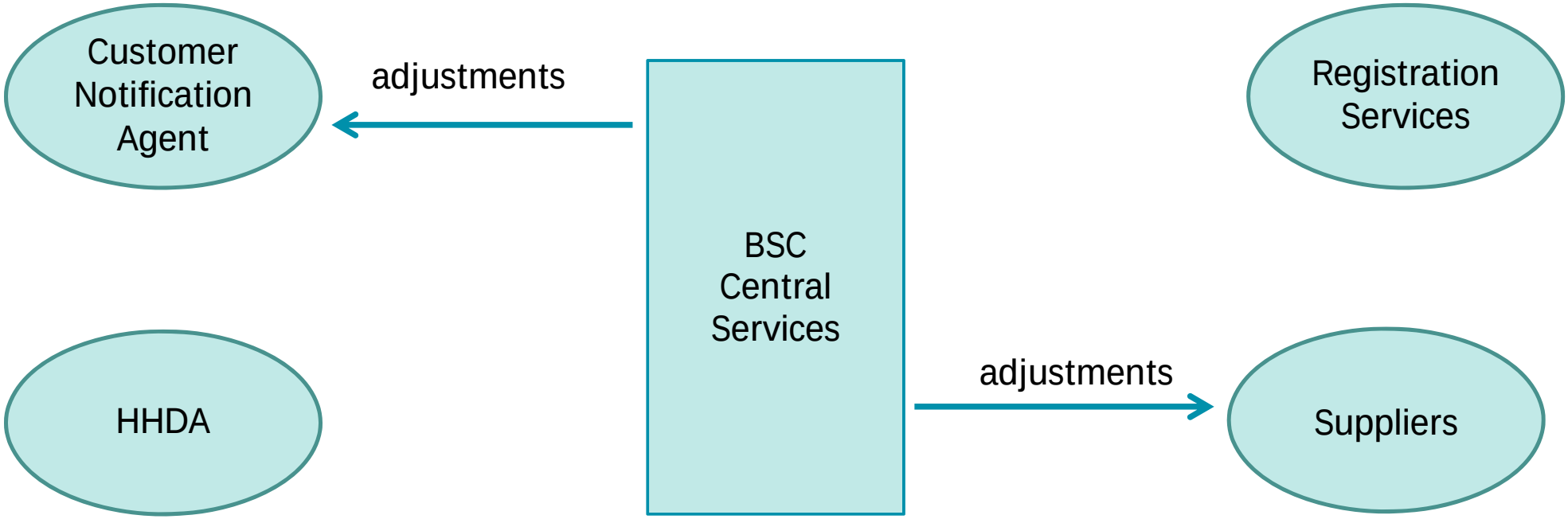
In many cases, trades would need to be verified using Half Hourly data from HHDAs. BSC Central Services would request this data for participating MPANs.

Customer Notification Agent notifies trades



The Customer Notification Agent notifies HH traded volumes. BSC Central Services check that the total energy purchased by a consumer (from parties other than their main Supplier) in any given Settlement Period does not exceed their metered import. The total energy sold by a Class A exempt Supplier in any given Settlement Period should not exceed their metered export in that period.

BSC Central Services report adjustments

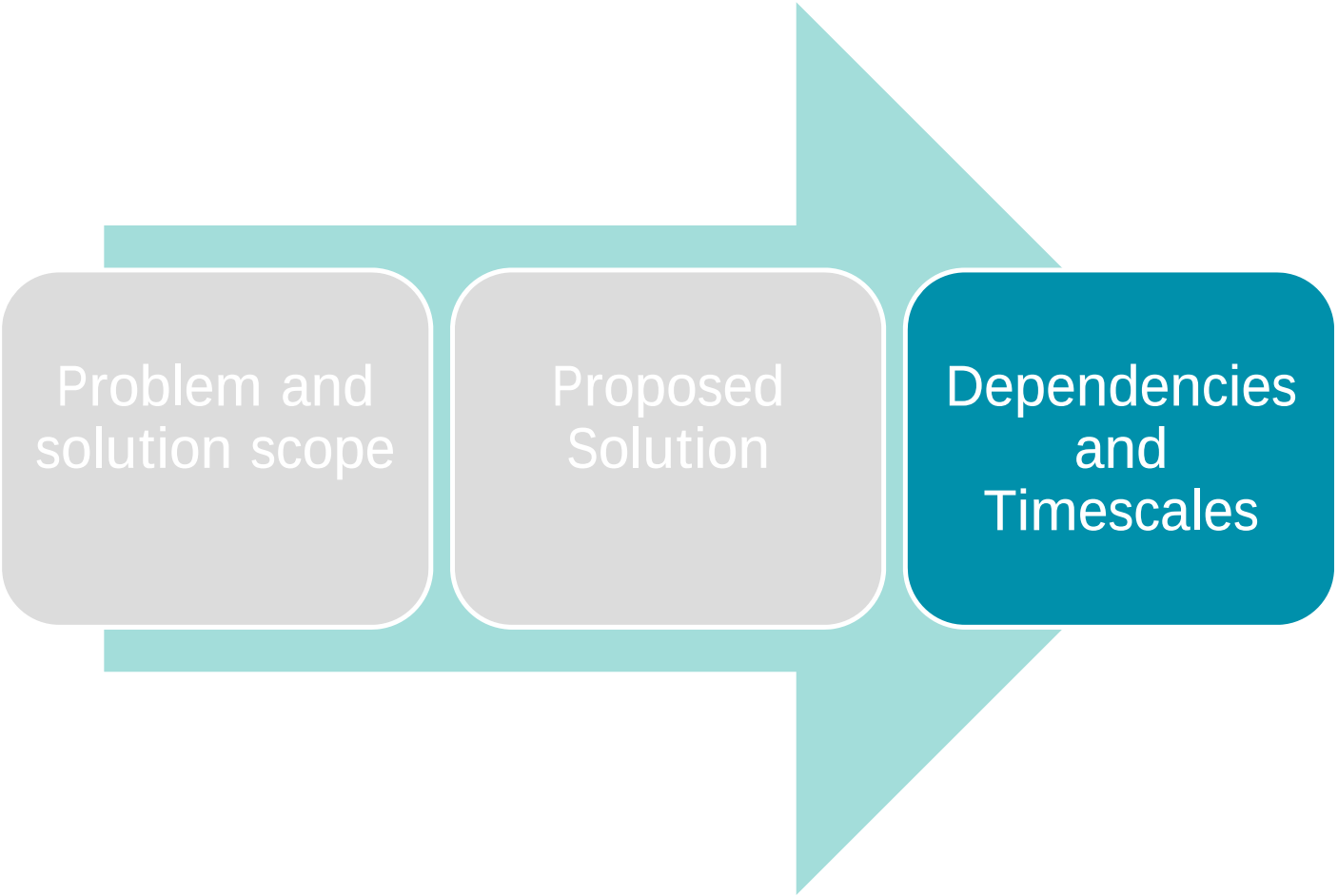


BSC Central Services will notify Suppliers and Customer Notification Agents of the adjustments made. National Grid will receive adjusted volumes in the TNUoS Report and Licensed Distribution System Operator (LDSO) will receive adjusted NHH and aggregated HH volumes in the 'Aggregated DUoS Report' (D0030). For customers billed on 'Validated Half Hourly Advances for Inclusion in Aggregated Supplier Matrix' (D0036) data from HHDCs, we would need to notify adjustments to LDSOs.

Further considerations

- it is expected that some Suppliers will not want to support particular types of schemes or may not want to participate at all. Participation will be optional. Customers wishing to participate in particular schemes may need to switch to a participating Supplier
- Some schemes (e.g. export schemes) may have a negative impact on Suppliers in terms of demand forecasting and wholesale purchasing, whilst others (e.g. EV schemes) may simplify demand forecasting
- In the event that industry parties consider that Settlement adjustments create undesirable consequences for DUoS (or TNUoS), changes may need to be raised under the DCUSA or CUSC.

Dependencies and Timescales



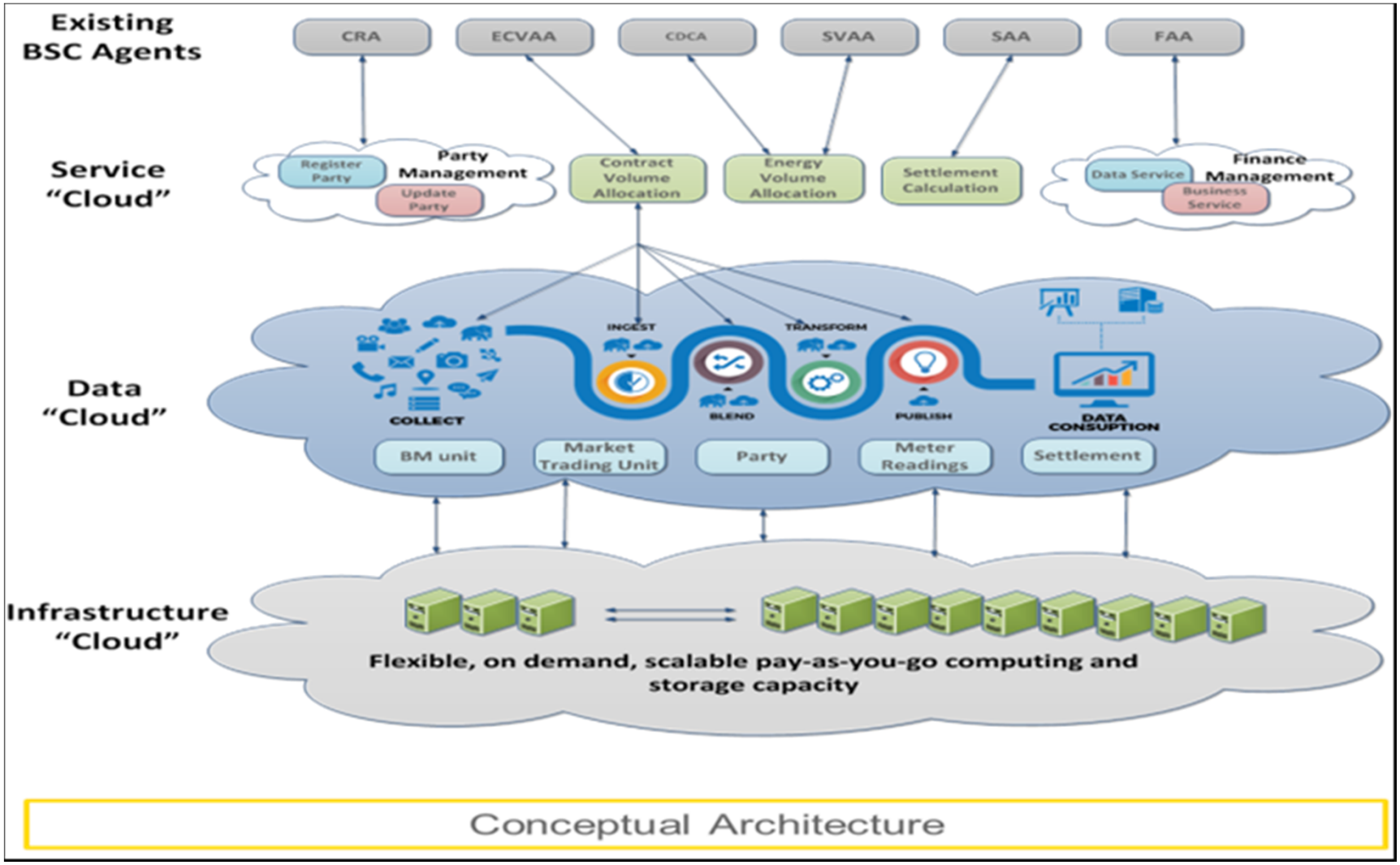
P344 / P354

- ‘Project Trans European Resplacement Reserve Exchange (TERRE)’ implementation into GB market arrangements (P344) – currently in Report Phase – February 19 target implementation date
- Use of Applicable Balancing Services Volume Data (ABSVD) for non-BM Balancing Services at the metered (MPAN) level (P354) – with Authority – April 19 target implementation date
- BSC Central Services had only processed aggregate data until P344/P354. They will now process data at MPAN level, as required for the multiple Supplier proposal
- Both P344 and P354 adjust Supplier imbalance positions, paving the way for the proposed processes.

Our new central systems architecture

- Market changing faster than at any time in the 20 years since the advent of retail competition
- Summer 2017 - Architecture Strategy Project defined how ELEXON services need to be delivered in the future, to give the industry the flexibility required to adapt to this rapidly changing market.
- Current systems were built to directly encode fixed BSC procedures. New services are composed from reusable modules (“Micro Services”) and a new version can be added where needed
- These will run on a scalable cloud based (Microsoft Azure) platform
- We have recently completed Proofs of Concept for our proposed architecture
- The plan is to implement modifications P344 and P354 on the new platform over the coming year.

Our new central systems architecture



Strategic change

2017
- ‘Future supply market arrangements – call for evidence’ published by Ofgem in November

2018
- Ofgem to publish response to call for evidence

2022/23
- Half Hourly Settlement implemented (assuming supports long-term solution)

2023-2028
- Longer term retail market reform

Tactical change

2019

- P344/P354 implemented on new central systems platform

2020

- New multiple supplier functionality implemented, building on top of P344/P354 functionality and utilising new cloud based, micro-services architecture

The White Paper and next steps

- We will circulate these slides, Q&As and a recording of the webinar
- We are talking to Ofgem, industry parties and innovators (on request)
- We will be talking to network operators about DUoS implications
- We are looking for a BSC Party to raise a Modification
- You can find the White Paper here –
- https://www.elexon.co.uk/about/innovation-developments-industry/
- If you have any further questions, please contact Jon Spence jon.spence@elexon.co.uk / 020 7380 4313