

Learning from Scottish CALE projects on flexibility

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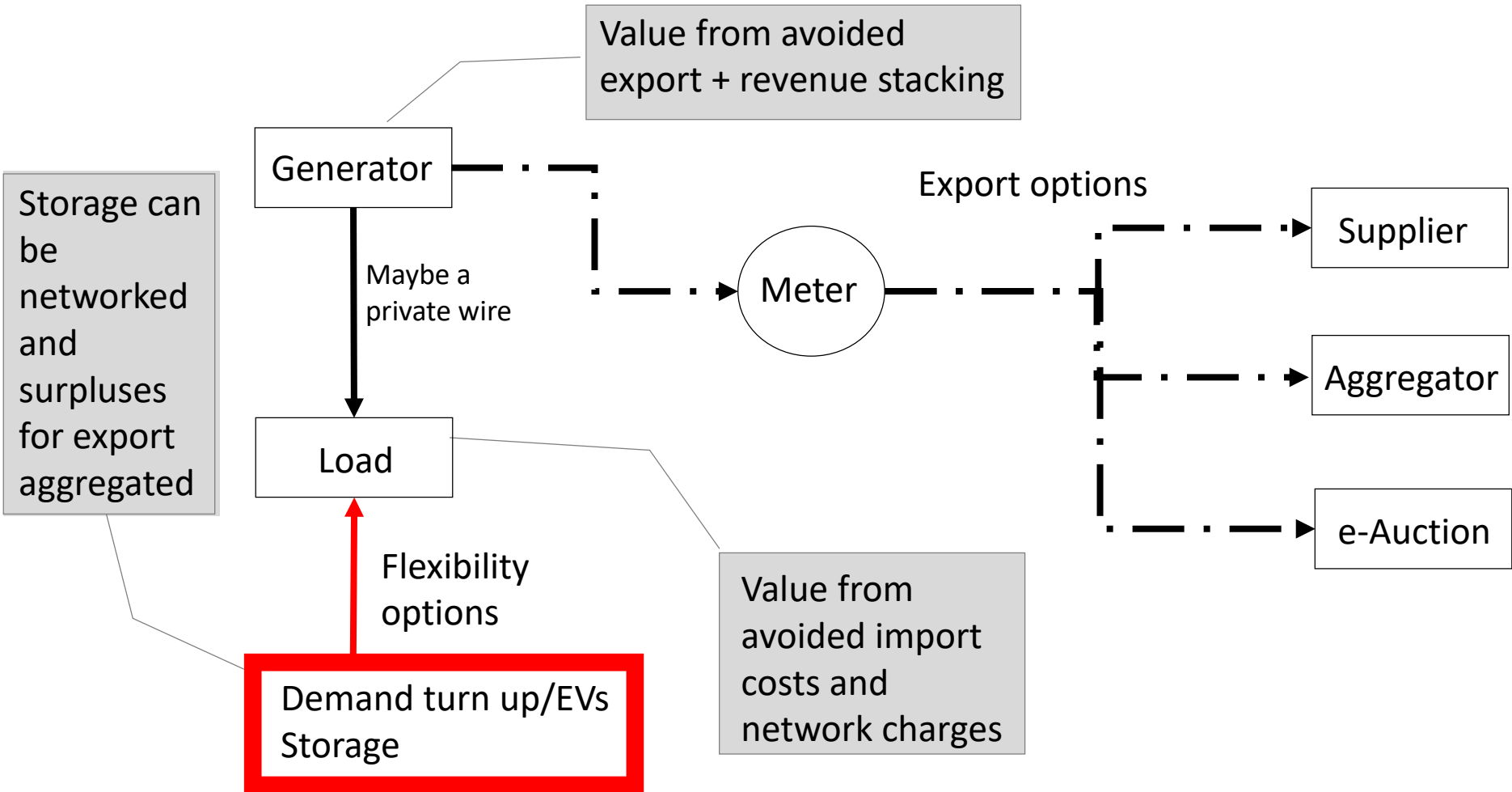
Flexibility options – limited!

- CALE groups often too small to offer flexibility directly – Piclo platform requires 100kW direct or 200kW aggregated (ENW)
- Regulatory barriers to entry likely to exist for next 4 years
- Need to examine alternative pathways to market
- Careful selection of project purpose, location and size required

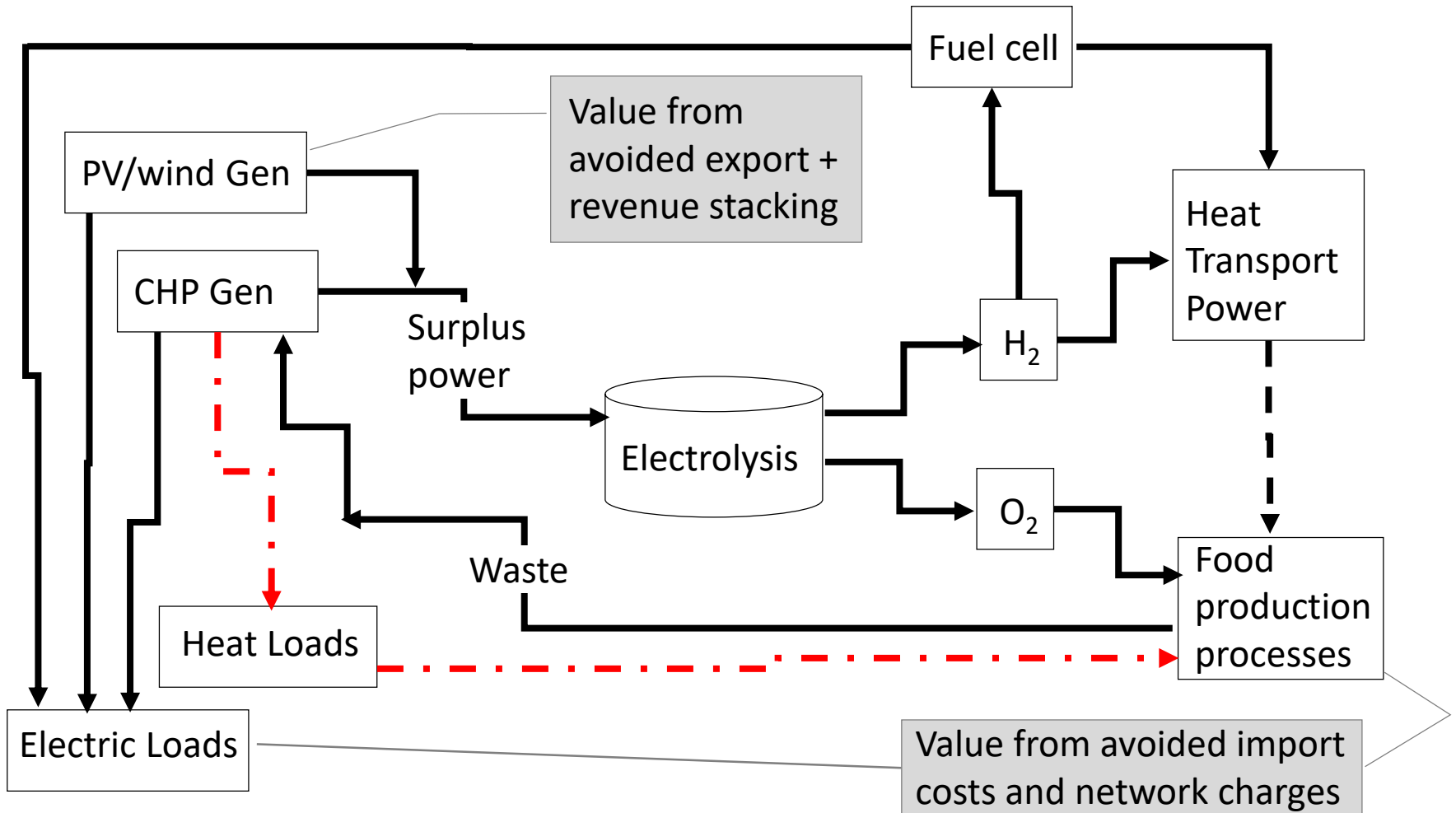
Possible 'flexibility' pathways

- Maximise self-supply (import avoidance) - consider private wires
- Seek export opportunities – consider ePower auction PPA, maybe as a virtual energy community, diversification (eg. clean transport, heat)
- Take a whole system approach – create a circular energy economy
- Curtailment avoidance - and possibly network services where appropriate
- Collaboration in objectives (eg. fuel poverty) – local resident associations, charities and advice groups, CE groups, regional CE organisations, LAs, DNOs, businesses

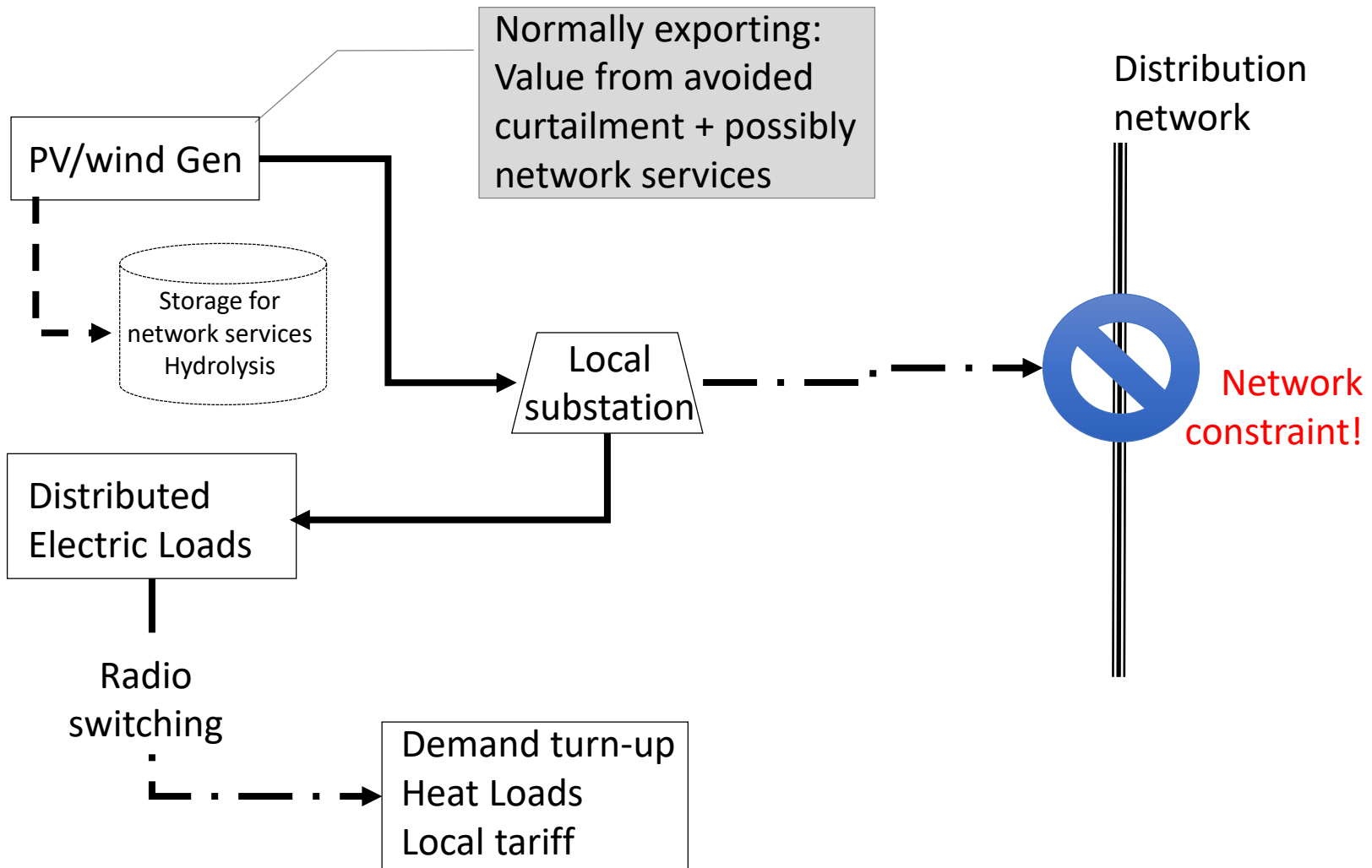
Pathway 1 - self-supply



Pathway 2 - circular energy economy



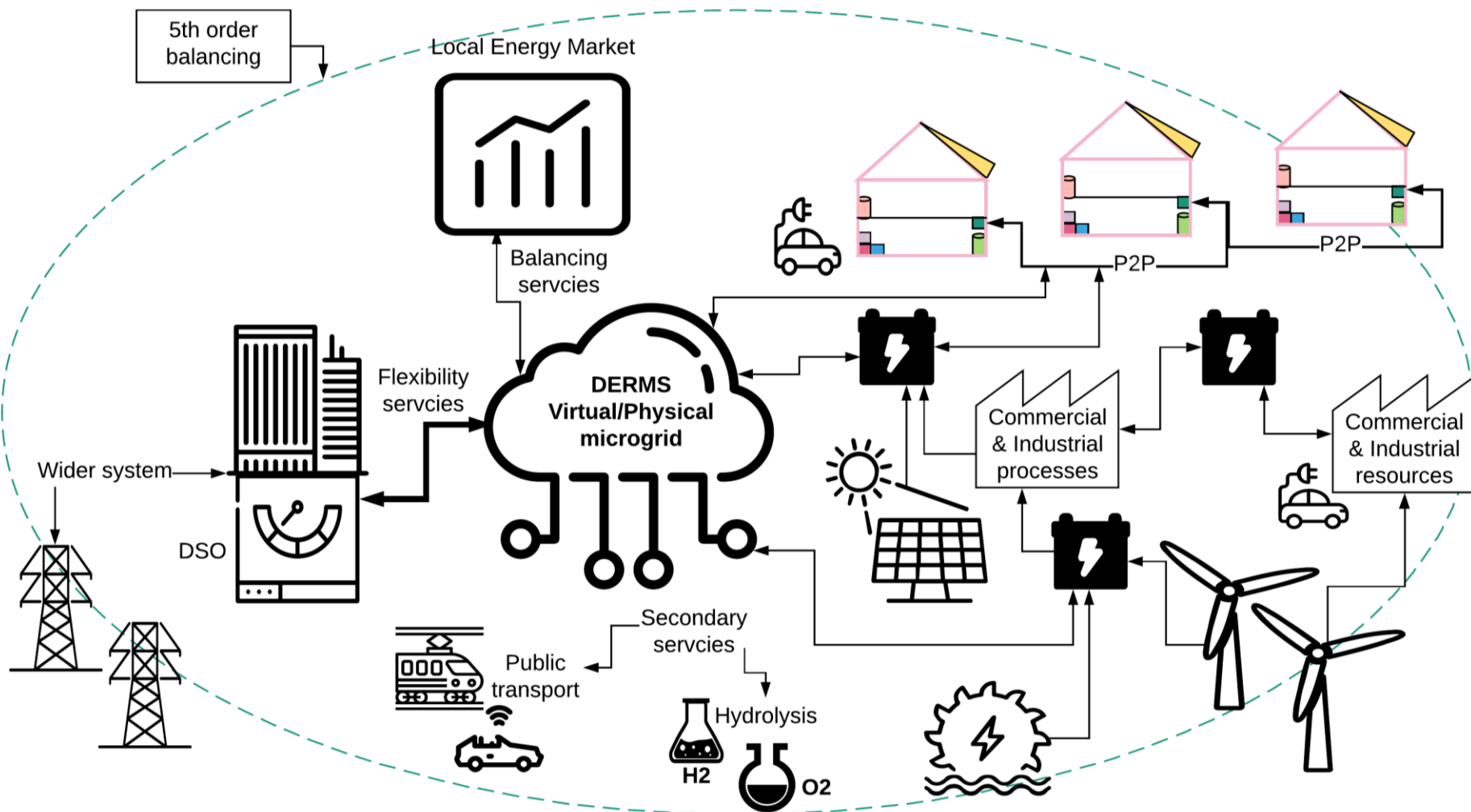
Pathway 3 - local energy economy



Scottish CALE groups surveyed

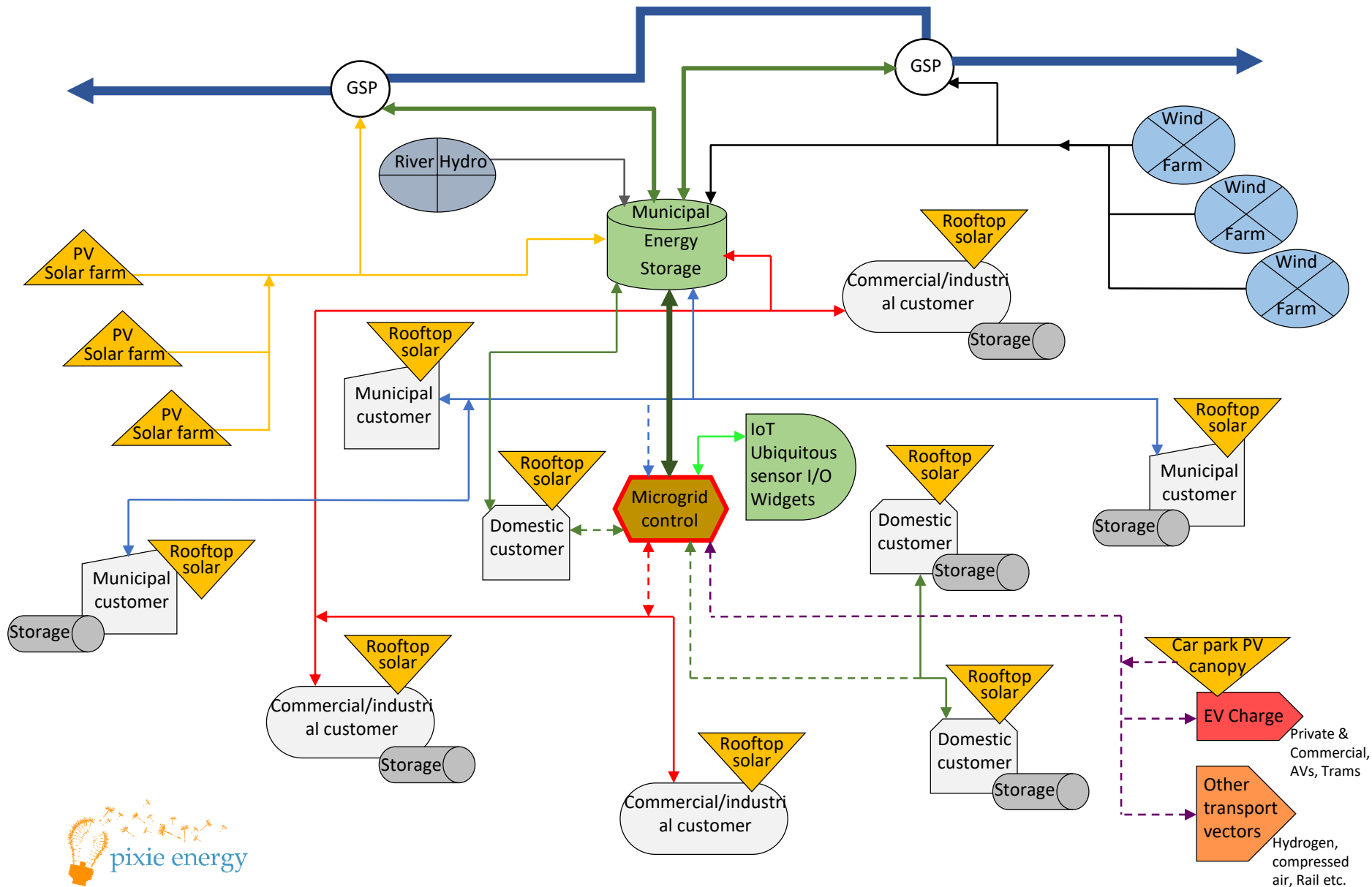
- Mull ACCESS – curtailment avoidance, 400kW hydro, 53 properties, DTU, Vcharge electric heater & energy efficiency retrofit, fixed tariff, virtual district heating, ‘demand stacking’ based on customer priority, incentives and loyalty payments
- Surf’n’Turf Eday – constrained grid, 900kW wind + 2MW marine, H₂ production only, transported to Kirkwall 90kW fuel cell to run EU Marine Energy Centre
- Levenmouth CE – 750kW wind + 160kW solar, H₂ production for vehicles leased to local businesses, office heating & heating a swimming pool
- Heat Smart Orkney across 3 islands – curtailment avoidance (up to 60% by ANM last in first out stack), O/P across Orkney wind, controllable heating and boilers, local tariff (7p/kWh) for DTU, two thirds homes off gas grid, alleviate fuel poverty incentives and loyalty payments, 100 distributed participant targeted
- Smart Fintry – curtailment avoidance, 200kW AD + two WTs, community tariff (11.03p/kWh) to alleviate fuel poverty, smart metering, displacing LPG & oil heating systems, community website energy dashboard informs participants of weather & energy forecasts
- OHLEH – circular economy, 150kW CHP, AD, 30kW electrolyser, 300kW wind, trading energy and waste, multiple revenues including costs avoidance

Pathway X - Future trading scenarios



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Asset integration for a smart energy city



DSO, P2P & Local trading model data relationships

