

Manufacturer Net Zero

Invest Net Zero Cheshire

IKIGAI



CATAPULT
Energy Systems



Project reference number: 001

Project type: This large blue-chip manufacturer in the Ellesmere Port region is considering a multi-vector decarbonisation project comprising rooftop solar PV, onsite electric vehicle (“EV”) chargepoints to serve their corporate fleet and staff vehicles and waste heat recovery technologies.

Project maturity: Concept / feasibility stage.

Key strategic drivers: Carbon abatement of scope 1 related emissions (via heat recovery and reutilisation), scope 2 related emissions (via partial switch from grid consumption to behind-the-meter onsite solar PV generation) and scope 3 related transport emissions (via additional EV chargepoints)

Locations: Manufacturer’s operations at Ellesmere Port.

Proposed phases:

1. Development and construction of up to 5.1 MW of rooftop solar PV, representing c.3% of their annual demand, for onsite consumption. As 100% of generation is expected to be consumed onsite, an export connection has not been considered (Phase 1 to commence development in 2021; commissioning by Q1 2023).
2. Installation of 10 additional carpark EV chargepoints (Phase 2 to commence development in 2021; commissioning by Q1 2023).
3. Recovery of waste heat arisings from furnace and plant flue gases (up to 6.9MWth) for use either within the manufacturing process and possibly for export to a multi-user heat network. Where captured waste heat is used onsite this will directly displace natural gas usage (Phase 3 to commence development in 2021).

Total estimated carbon savings p.a.:

- Onsite solar: circa. 1,081 tonnes / year.
- EV charging – enabling take up of low carbon transport (10 cars), savings circa 20 tonnes / year.
- Waste heat recovery and reuse: circa. 13,800 tonnes per year.

Estimated project costs:

- Phase 1:
 - Solar PV: Circa. £3 million
- Phase 2: EV chargepoints and installation: £65,000-75,000
- Phase 3: Waste heat recovery: £1.35 – £2 million

Technology, construction and operation:

- Rooftop solar PV system
- EV Charging: Ten 7- 22kV chargers. Further due diligence is needed on forecast dwell times to determine the optimal chargepoint size and design
- Waste heat recovery technology:
 - Combustion air pre-heating utilising heat recovered from flue gas
 - Installation of economisers for heating boiler feedwater
 - Heat recovery from manufacturing process
- Construction: EPCM/EPC, to be considered for each Phase further with prospective investors
- O&M: Only highly experienced operators with strong sustainability credentials will be considered

Revenue streams:

Assuming all aspects of the project are developed under a separate special purpose vehicle to facilitate non-recourse/limited recourse financing (as opposed to procured directly by the manufacturer):

- EV chargepoints could either be rented to the manufacturer or alternatively purchased using grant funding
- electricity would be sold under a long term “take or pay” or “exclusive supply and first dispatch” power purchase agreement to the manufacturer (providing for a peppercorn rental of the relevant land); and
- heat recovery could either deliver operational cost savings for the site by displacing natural gas use (with such savings being shared with the project entity under an energy savings agreement with a floor and upside sharing/fixed payment) or be exported for distribution to other potential users via the proposed local industrial heat network being considered as part of Invest Net Zero Cheshire (under a long-term heat supply agreement).

Initial stakeholders: Blue chip manufacturer

Professional advisors to date: Ikgai (bankability), Atkins (heat technical) and EA Technology (electrical technical).

Opportunity:

- Grant funding
 - Industrial Energy Transformation Fund (IETF).
 - The Workplace Charging Scheme (WCS).
- Third party financing finance
- Technology and delivery partners

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