Towards All-Electric Bus Operations

Identifying the Technical and Economic Challenges

Professor John Miles
University of Cambridge
U.K.
Milton Keynes – A City of 230,000 people
Route 7

Fully electric service; heavy duty timetable, operating between 06:00 and 23:00; 5 year demonstration period

8 x 9.5m buses

46 passengers per bus

56,250 miles per bus p.a.

450,000 fleet miles p.a.

775,000 passenger journeys p.a.

15 miles each way

16.3mph average speed
Our Chosen System

IPT-Tech (Conductix-Wampflier)
4x30kW = 120kW
20kHz, liquid cooled
Battery SoC’s (7 buses)
Options Study: Milton Keynes Route 7

CASE A
- 8 Buses
- 150 kWh Batteries
- 120 kW IPT Chargers

CASE B
- 7 Buses
- 150 kWh Batteries
- 200 kW IPT Chargers

CASE C
- 8 Buses
- 410 kWh Batteries
- No IPT Chargers
Options Study: Milton Keynes Route 7

Battery Price = £500/kWh
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Options Study: Milton Keynes Route 7
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Battery Price = £250/kWh

£2.13M
£2.04M
£2.33M

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