TBC Owned car fleet running cost implications of converting to electric vehicles

Based on the assumption that vehicles would be similar to the Kia e-Nero, charing from 20% - 100% battery charge
Applied Advisory Fuel Rates published 'https://www.gov.uk/government/publications/advisory-fuel-rates/how-advisory-fuel-rates-are-calculated' for a petrol vehicle engine size 1400- 2000cc based on costs of 13.9p/Mile

Vehicle	Current Annual Mileage	Estimated Cost/Mile	Total annual Fuel Cost	CO2 Emissions
8 x small/Med petrol cars	55,819	13.9	£7,759	16.66
		Estimated cost/Mile (Public Charge Points)		
KIA e-NERO	55,819	7.2	£4,019	4.76
		Estimated cost/Mile (Home charging)		
KIA e-NERO	55,819	3.34	£1,864	4.76
		Estimated cost/Mile TBC elec import rate)		
KIA e-NERO	55,819	4.53	£2,528	4.76
		Estimated cost/Mile (TBC PV Generated Fuel)		
KIA e-NERO	55,819	0	£0	0.00

Notes

co2 based on 1kWh = 3.5 miles
16.66T/co2e from transport = 53,725kWh when converted back using elec CF 0.31598. Where 1kWh = 3.5 miles the energy to be generated from PV needs to be 15,064kW

see PV calculator below for system

** The 2 existing EV/Plug-in Hybrid vehicles have not been included, so subject to method of refueling, additoinal costs may be incurred*

TBC Fleet - Owned Cars Only

Solar PV Impact : Offsetting electricity demand (2019 data) using Electric Vehicles

System Sizing by Area

Area required	85 m2
Estimated capacity	17.00 kWp

System Capacity & Export

PV system chosen capacity	17 kWp
Solar collection factor (shading)	100 %
Current electricity tariff	15.9 p/kWh
kWh used on-site (offset)	100 %
Deemed export rate	0 %

Export Generation - Not Applicable

Bonus for exported units	5.5 p/kWh

Generation Breakdown

- Annual Generation	15,300	kWh
- Offset units	15,300	kWh
- Exported units	0	kWh

Annual Revenue Breakdown

Export bonus payment	£	-
Potential Import savings	£	2,425
Total Benefit	**£**	**2,425**

Economics

Full installed COST	£	17,000
Cost per kWp	£	1,000
Basic ROI		14.3%
Simple Payback	**7.0**	**years**

Panel Data

Panel type	Mid Performance
Specific peak output	200 W/m2
Annual output	900 kWh/kWp

CO2e Off-set Scenario

Scenario	T/CO2e	Equiv Elec kWh
Projected 2030 emission factor	1.46	15,064
2019 emission factor	4.76	

Likely Installed Costs (excl. any necessary infrastructure costs)

Solar PV - 25kW+	£	1,000	/kWp
Solar PV - 100Kw+	£	800	/kWp
Solar PV - 250kW+	£	700	/kWp