

Capital Asset Management for long term Decarbonisation



FLEET | FUEL | EAM | GPS | MOTOR POOL | MWM

APSE National Transport & Fleet Advisory Group

Nick Bridle - Senior Industry Consultant, Fleet Technology

January 2021



Agenda

- ⚙️ Capturing and utilising vehicle data to optimise transfer to alternatively fueled vehicles.
- ⚙️ Scenario planning to drive capital investment requirements
- ⚙️ A proactive approach to demonstrate progress during a period of change for fleet
- ⚙️ What else should we be considering ?
- ⚙️ Have I missed any pain points ?

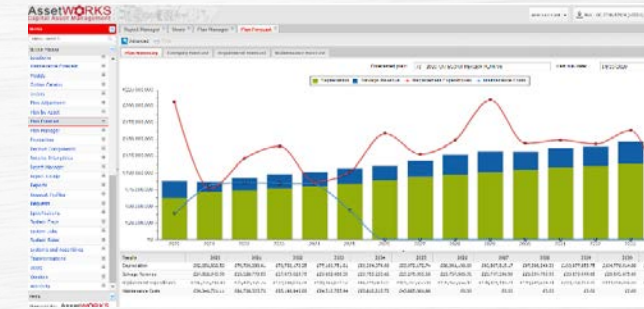
Government Decarbonisation Policies

- ❁ The UK was the first major economy to commit to net zero carbon emissions by 2050 (Paris agreement)
 - The end of the Ice Age (ICE) ! Internal combustion engine ban from 2030 for Cars & LCV's
 - Committee for Climate Change has just published its 6th carbon budget affecting greenhouse emissions from 2033-37
- ❁ Focus on UK Transport as now the largest Greenhouse gas emitting sector at 28% for all UK emissions
- ❁ European legislation is forcing manufacturers to provide greener / cleaner vehicles in 2021 or face significant fines for every gram of CO₂ over 95g/km
- ❁ European Truck Manufacturers must reduce the CO₂ emissions of their products by 15% by 2025 based on a 2015 baseline. All European trucks manufacturers signing up to be carbon neutral by 2040
- ❁ Hydrogen and Fuel Cell Electric Vehicles - Strategy and Infrastructure still being developed
 - Green Hydrogen creation can be achieved and stored through electrolysis, (water is split into Hydrogen and Oxygen)
 - Fast Charging times – 300 miles of range in 5 mins.
 - Scalable across all modes of transport cars/vans/trucks/buses, etc.

Capturing and utilizing vehicle data to optimise transfer to alternatively fueled vehicles

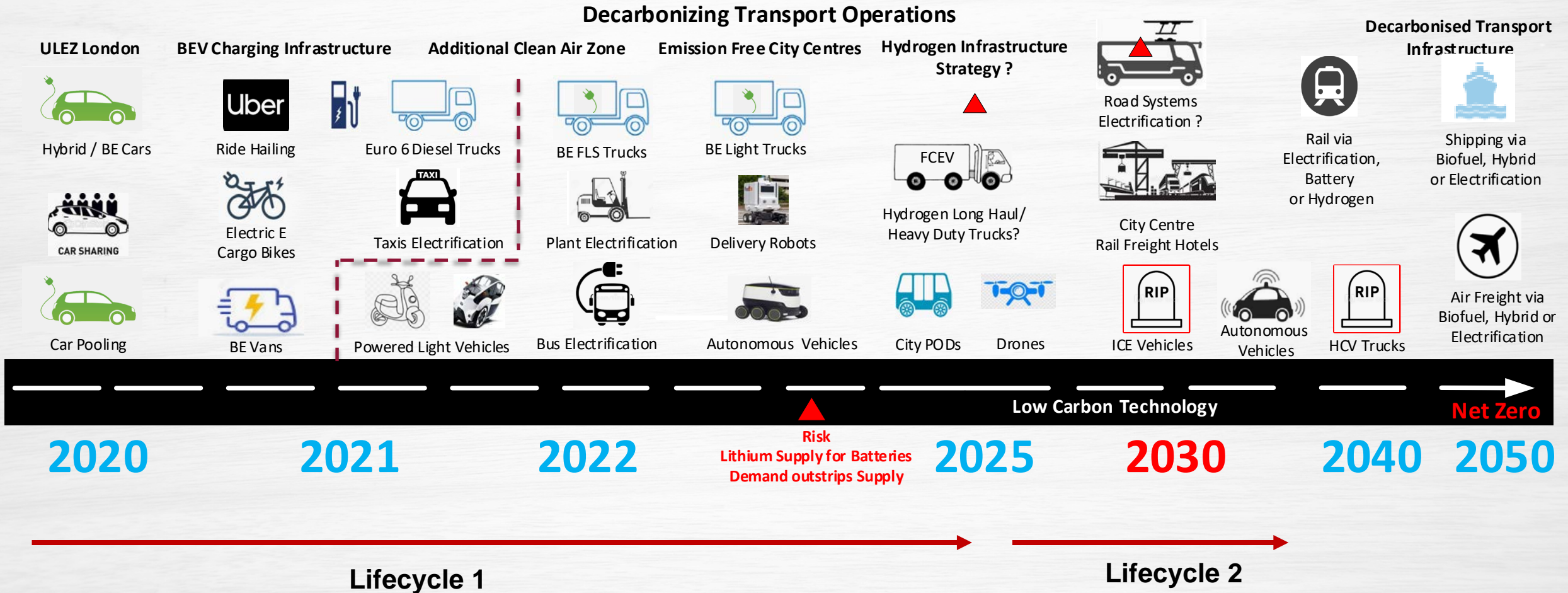
What data should we consider to Decarbonise our Fleets

- ⚙️ Creation of a strategic capital replacement plan out until 2030-35 (with scenarios)
- ⚙️ Identification of how many over age vehicles you have in your fleet?
- ⚙️ Measurement of CO2 & NOx – What is our current baseline ?
- ⚙️ Identification of vehicles by Engine Euro rating ?
- ⚙️ Can I downsize as part of any review?
- ⚙️ What new model types and range options do I need to consider ?
- ⚙️ What can we do to improve emissions with our current fuel types ?
 - Decision on Euro 6 Diesels – Still a good consideration for high mileage operations ?
- ⚙️ Any future insight / impact of future CAZ charging on my fleet



Low Carbon Vehicle Sustainability Considerations – Modes of Transport

New Asset Types and Road Map for Availability



What other operational impacts do we need to consider in support of Decarbonisation of Fleets ?

- ⚙️ Are you tied into long term Asset Procurement contracts ?
- ⚙️ Can I assess the impacts on my fixed revenue budget costs ?
 - BEV's have 60% less moving parts than their ICE equivalents
 - Workshops, Future Budgets for Downtime, Labour & Parts
 - Training for technicians
- ⚙️ Have you considered the impact on residual values for Euro 4&5 vehicles ?
- ⚙️ Don't forget your Plant Operations !
- ⚙️ Assess impact of Travel Management & Grey Fleet
 - Any Demand Response options filtering into Fleet ? (MaaS)

What Planning Assumptions could we make ?

- ⚙️ Car & LCV BEV's are no longer more expensive to operate when considering WLC & TCO
- ⚙️ The tipping point is here ! Around a 200+ mile range is now available to meet operational needs
- ⚙️ Think about what you can manage and control as you plan
 - The jury is still out on an **HCV** strategy for now ? (FM unable to control)
 - Solutions not defined - **HCV's**, plus **Plant** and **4x4's**
- ⚙️ Could we now consider Lease vs Outright purchase ?
 - Minimal impact on downtime for maintenance
- ⚙️ Warranty – Will probably go back to dealer for work (Battery has a 7–10 year life)
- ⚙️ BEV's for Cars and employees - BIK to employees & Ni contributions, corporate saving and tax benefits

ICE vs BEV Comparison – Maintenance Cost Reduction

Analysis based on two-years worth of data

- 100 (67 plate) Peugeot Partner assets in services from May 2018
- 60 (19 plate) assets in service from November 2019

Current analysis BEV benefits are increasing Year on Year

BEV Maintenance Costs & Labour Hours % Reductions
Combined Years 1&2

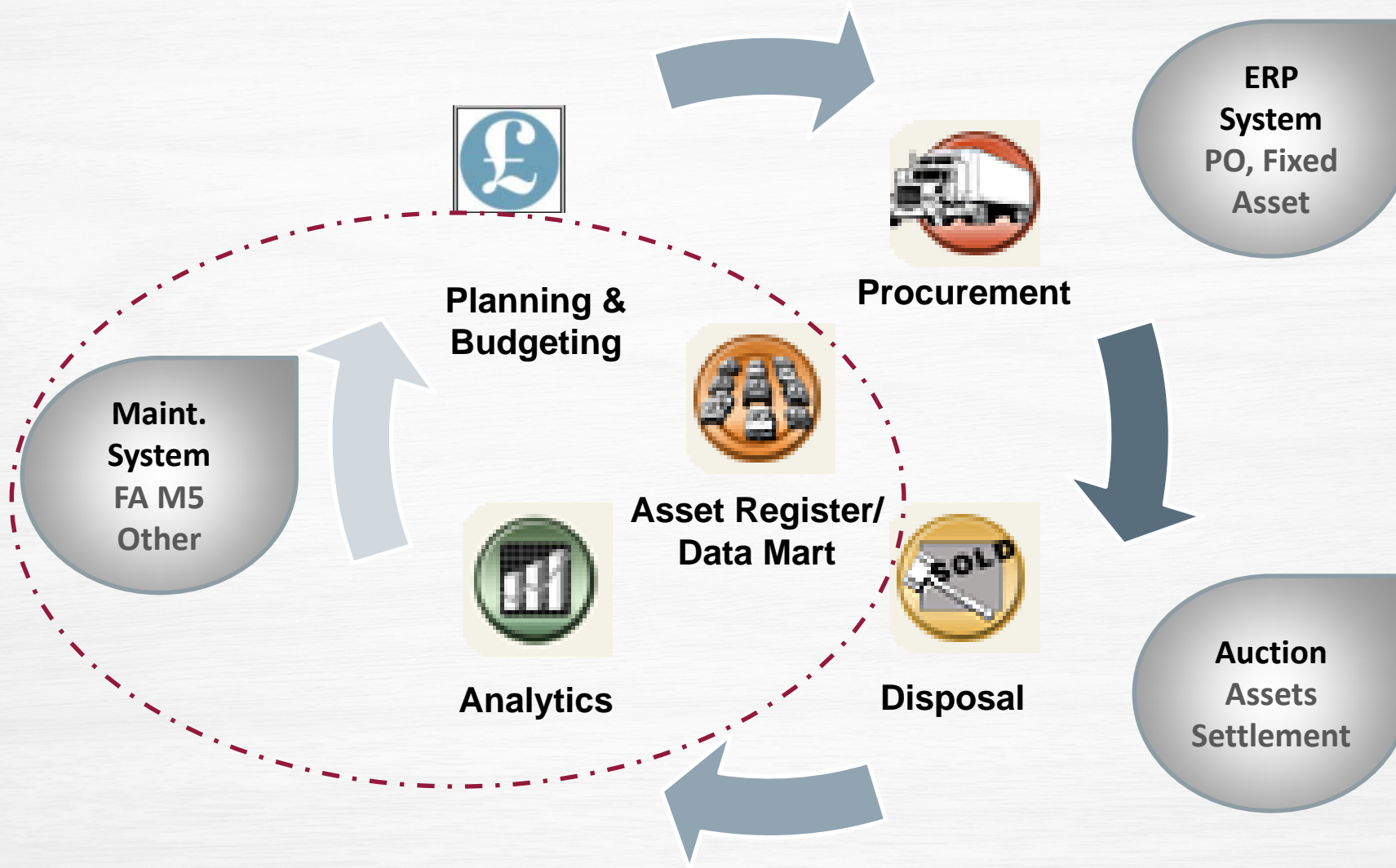


What Infrastructure Planning Assumptions should we make ?

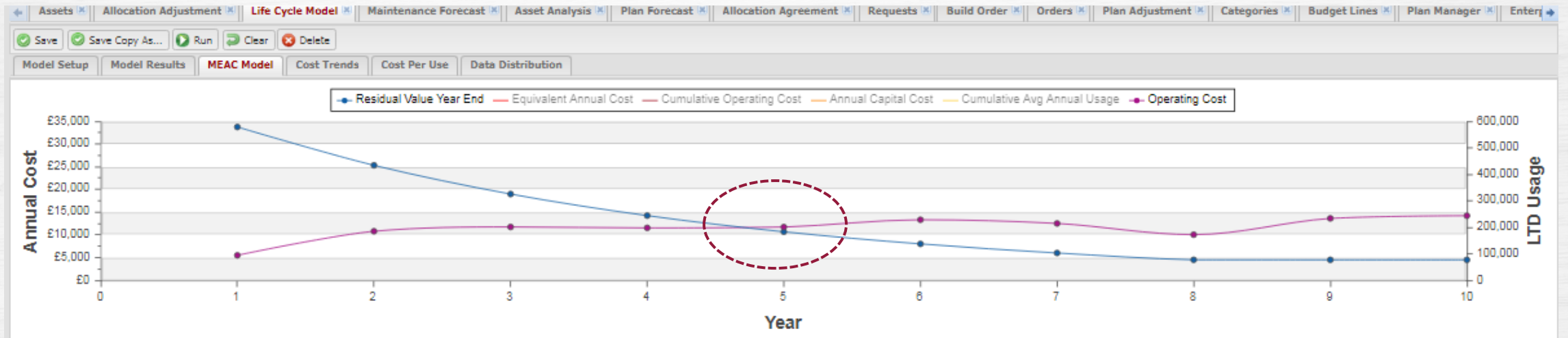
- ⚙️ Need to manage the whole infrastructure, not just fleet, but now energy as well
- ⚙️ Charging points maybe required at home, depots and use of the public charging network
- ⚙️ Every morning your BEV is fully charged when you leave for work!!
- ⚙️ Landlords could cause issue when trying to upgrade their grid capacity
- ⚙️ Its an integrated energy structure. Where the vehicle sleeps is probably where you need the charging infrastructure
- ⚙️ Can we make some business contribution through Vehicle to Grid ?

Scenario planning to drive capital investment requirements

CAM In the Cloud Concept



Life Cycle Analysis – Lowest MEAC by Category



Life-Cycle Calculator

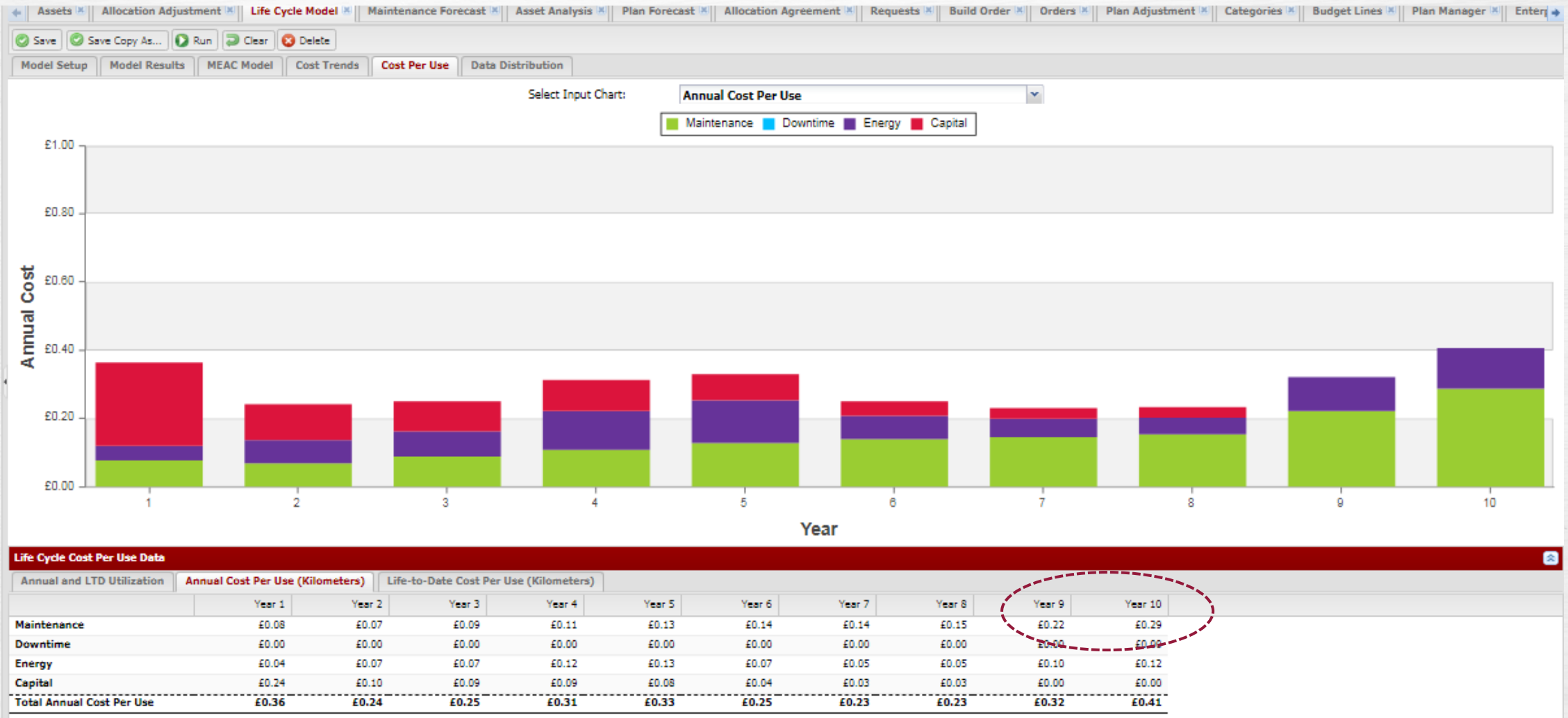
Lowest MEAC:

Lowest MEAC Year: Cumulative Utilization in MEAC Year:

Formula Input

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Cumulative Avg Annual Usage	46,124	126,915	199,903	252,044	298,493	362,727	426,181	475,967	518,536	553,551
Residual Value Year End	£33,750	£25,313	£18,984	£14,238	£10,679	£8,009	£6,007	£4,505	£4,500	£4,500
Annual Capital Cost	£11,250	£8,438	£6,328	£4,746	£3,560	£2,670	£2,002	£1,502	£5	£0
Maintenance Cost	£3,558	£5,394	£6,375	£5,559	£5,917	£8,969	£9,155	£7,609	£9,417	£10,069
Downtime Cost	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0
Energy Cost	£1,943	£5,403	£5,361	£5,982	£5,804	£4,355	£3,355	£2,431	£4,210	£4,138
Total Operating Cost	£5,500	£10,797	£11,736	£11,541	£11,721	£13,323	£12,510	£10,040	£13,627	£14,207
Cumulative Operating Cost	£5,500	£16,297	£28,033	£39,574	£51,294	£64,618	£77,128	£87,167	£100,794	£115,001
Cumulative Discounted Cost	£15,654	£32,455	£47,200	£59,625	£70,520	£81,177	£90,214	£96,931	£104,346	£111,568
Equivalency Factor	1.0700	0.5531	0.3811	0.2952	0.2439	0.2098	0.1856	0.1675	0.1535	0.1424
Equivalent Annual Cost	£16,750	£17,950	£17,986	£17,603	£17,199	£17,031	£16,740	£16,233	£16,016	£15,885

Life Cycle Analysis – PPM by Category



Maintenance Forecasts: Rate Card by Category

Orders | Plan Adjustment | Attribute List | Asset Analysis | Report Group | Budget Lines | **Maintenance Forecast** | Categories | Life Cycle Model | System Jobs | Plan Manager | Approval Maintenance | Inflation Rates

Print | Export | Recalculate

Model Setup

Model type: Rate Card | Category group: FLEET | Measure type: Average | Category type: LCV | Inflation adjusted cost: Yes | Category subtype: CDV | Category: | Submit

Values	1 Years	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years
Sum of Target Labor	£125.57	£212.67	£318.60	£397.24	£425.92	£476.42	£463.40	£429.83	£420.41	£455.00	£448.73	£381.71	£433.68
Sum of Target Parts	£110.56	£305.54	£522.55	£636.25	£619.53	£612.49	£541.57	£491.92	£463.15	£531.04	£489.94	£368.47	£617.72
Sum of Target Commercial	£-13.84	£-67.47	£-146.84	£-24.05	£-5.13	£-4.15	£-2.38	£-2.87	£-2.10	£-3.94	£-2.44	£-0.05	£0.00
Sum of Target	£222.29	£450.74	£694.31	£1,009.44	£1,040.32	£1,084.76	£1,002.59	£918.88	£881.47	£982.10	£936.22	£750.13	£1,051.40
Sum of Non-Target Labor	£31.96	£65.27	£89.22	£81.20	£87.27	£94.67	£86.63	£70.90	£63.37	£61.76	£63.94	£59.48	£42.14
Sum of Non-Target Parts	£229.52	£349.77	£393.10	£407.82	£399.22	£369.75	£322.43	£236.21	£225.03	£238.95	£265.77	£189.00	£30.19
Sum of Non-Target Commercial	£-0.20	£-1.11	£-1.42	£-3.12	£0.42	£0.57	£0.44	£0.45	£0.55	£0.27	£0.50	£0.23	£0.00
Sum of Non-Target	£261.29	£413.93	£480.90	£485.89	£486.91	£464.99	£409.51	£307.56	£288.96	£300.99	£330.20	£248.72	£72.33
Sum of Target and Non-Target	£483.58	£864.68	£1,175.21	£1,495.33	£1,527.23	£1,549.75	£1,412.10	£1,226.43	£1,170.43	£1,283.08	£1,266.43	£998.84	£1,123.73
Sum of Target Labor Hours	5.38	9.11	13.64	17.01	18.24	20.40	19.85	18.41	18.00	19.49	19.22	16.35	18.57
Sum of Non-Target Labor Hours	1.37	2.80	3.82	3.48	3.74	4.05	3.71	3.04	2.71	2.64	2.74	2.55	1.80
Sum of Target and Non-Target Labor Hours	6.75	11.90	17.47	20.49	21.98	24.46	23.56	21.44	20.72	22.13	21.96	18.89	20.38

Instantly model maintenance cost and labor hours for any category of assets

Costs separated into SMR and non-FW&T buckets, broken out for labour, parts and commercial costs

Use to generate operational maintenance budgets, rental or internal lease charge-backs

Baseline Capital Forecast Replacement Plans Decarbonisation Opportunities

Menu

Menu search

- Screen History
- Locations
- Maintenance Forecast
- Models
- Option Catalog
- Orders
- Plan Adjustment
- Plan by Asset
- Plan Forecast**
- Plan Manager
- Production
- Receive Components
- Receive Intangibles
- Reject Manager
- Report Group
- Reports
- Request Profiles
- Requests
- Specifications
- System Flgs
- System Jobs
- System Roles
- Systems and Assemblies
- Transformations
- Users
- Vendors
- Warranty

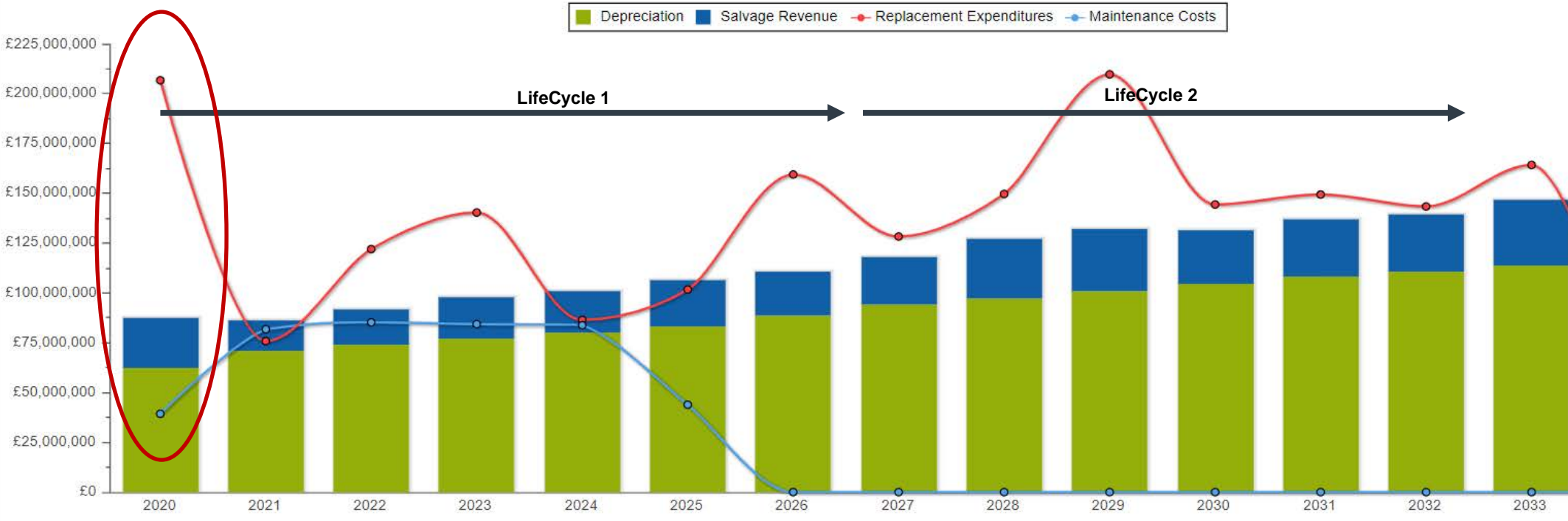
Reject Manager Users Plan Manager Plan Forecast

Advanced Print

Plan Summary Category Forecast Department Forecast Maintenance Forecast

Forecasted plan: 73 - 2020 CATEGORY REVIEW PLAN V5

Last run date: 14/10/2020



Results	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
---------	------	------	------	------	------	------	------	------	------	------	------

Replacement Planning Highest Scoring Options by Category

Short-term tactical ordering plans and long-term strategic plans

Using department	Location	Category	Plan category	Asset age (months)	Make request?	Score (%)	Forecast date	Plan date	Budget year	2016	2017	2018	2019
										£56,280	£48,307	£39,805	£0
ASSETWORKS	ZZZZZZ	CAPVDAB2	CAPVDAB2	3	<input checked="" type="checkbox"/>		Dec 2025	Dec 2025	2025	£0	£0	£0	£0
ZRWCMC	352	CAPVDAB2	CAPVDAB2	123	<input checked="" type="checkbox"/>	100.0	May 2015	Mar 2017	2016	£9,380	£0	£0	£0
F02836	450	CAPVDAB2	CAPVDAB2	123	<input checked="" type="checkbox"/>	99.8	Apr 2015	Mar 2017	2016	£9,380	£0	£0	£0
H30409	919	CAPVDAB2	CAPVDAB2	122	<input checked="" type="checkbox"/>	94.9	May 2015	Mar 2017	2016	£9,380	£0	£0	£0
A09101	471	CAPVDAB2	CAPVDAB2	117	<input checked="" type="checkbox"/>	76.0	Oct 2015	Mar 2017	2016	£9,380	£0	£0	£0
A29212	928	CAPVDAB2	CAPVDAB2	123	<input checked="" type="checkbox"/>	67.1	Apr 2015	Mar 2017	2016	£9,380	£0	£0	£0
F24401	328	CAPVDAB2	CAPVDAB2	123	<input checked="" type="checkbox"/>	61.1	Apr 2015	Mar 2017	2016	£9,380	£0	£0	£0
A17028	378	CAPVDAB2	CAPVDAB2	118	<input checked="" type="checkbox"/>	57.3	Oct 2015	Mar 2018	2017	£0	£9,661	£0	£0
669019	471	CAPVDAB2	CAPVDAB2	117	<input checked="" type="checkbox"/>	54.3	Oct 2015	Mar 2018	2017	£0	£9,661	£0	£0
A35202	475	CAPVDAB2	CAPVDAB2	118	<input checked="" type="checkbox"/>	54.3	Oct 2015	Mar 2018	2017	£0	£9,661	£0	£0
F26607	481	CAPVDAB2	CAPVDAB2	123	<input checked="" type="checkbox"/>	52.9	Apr 2015	Mar 2018	2017	£0	£9,661	£0	£0
F17510	352	CAPVDAB2	CAPVDAB2	117	<input checked="" type="checkbox"/>	40.0	Nov 2015	Mar 2018	2017	£0	£9,661	£0	£0
A27454	920	CAPVDAB2	CAPVDAB2	123	<input checked="" type="checkbox"/>	35.1	Apr 2015	Dec 2018	2018	£0	£0	£9,951	£0
D26376	980	CAPVDAB2	CAPVDAB2	104	<input checked="" type="checkbox"/>	30.1	Nov 2016	Dec 2018	2018	£0	£0	£9,951	£0
F07410	328	CAPVDAB2	CAPVDAB2	92	<input checked="" type="checkbox"/>	6.7	Dec 2017	Dec 2018	2018	£0	£0	£9,951	£0
SC3280	328	CAPVDAB2	CAPVDAB2	92	<input checked="" type="checkbox"/>	0.0	Dec 2017	Dec 2018	2018	£0	£0	£9,951	£0

Hosted DB with Industry Standard Coding Set

M5 Fleet Database Hierarchy

- Based on the APSE Transport codes
- Has a Fleet hierarchy for reporting upwards
- Category / Specs benchmark to HaynesPro Industry standard data
- Jobs and standard repair times available
- Future Api for external vehicles
- Easy to benchmark across LA's

Deploying across 7 LA's

CATEGORY CODE	Category Description	User Class 1	User Class 1 Description	User Class 2	User Class 2 Description	User Class 3	User Class 3 Description (HaynesPro Categories)
G0101	MINI CAR	Cars	Cars	Cars	Cars	AA	Cars (excluding Off Road)
G0102	HATCHBACK CAR	Cars	Cars	Cars	Cars	AA	Cars (excluding Off Road)
G0103	EXECUTIVE CAR	Cars	Cars	Cars	Cars	AA	Cars (excluding Off Road)
G0104	LIMOUSINE CAR	Cars	Cars	Cars	Cars	AA	Cars (excluding Off Road)
G0105	ESTATE CAR	Cars	Cars	Cars	Cars	AA	Cars (excluding Off Road)
G0106	PEOPLE CARRIER	Cars	Cars	Cars	Cars	AA	Cars (excluding Off Road)
G0107	SPECIALISED CAR	Cars	Cars	Cars	Cars	AA	Cars (excluding Off Road)
G0108	SALOON CAR (FAMILY)	Cars	Cars	Cars	Cars	AA	Cars (excluding Off Road)
G0109	SPORT UTILITY VEHICLE	Cars	Cars	Cars	Cars	AB	Cars (off road)
G0110	MICRO VAN	LCV	Light Commercial Vehicles	CDV	Car Derived Van	CB	LCVs (Car-Derived/Integral <2000 Kgs)
G0111	CAR DERIVED VAN UP TO 1700 KG	LCV	Light Commercial Vehicles	CDV	Car Derived Van	CB	LCVs (Car-Derived/Integral <2000 Kgs)
G0112	PICKUP 2WD UP TO 1700 KG	LCV	Light Commercial Vehicles	PIK	Pick Up	BB	LCVs (Pickups)
G0113	PICKUP 4WD UP TO 1700KG	LCV	Light Commercial Vehicles	PIK	Pick Up	BB	LCVs (Pickups)
G0201	PANEL VAN UP TO 2800 KG	LCV	Light Commercial Vehicles	SPV	Small Panel Van	DB	LCVs (Medium Vans 2001-2600 Kgs)
G0202	PANEL VAN UP TO 3500 KG	LCV	Light Commercial Vehicles	MPV	Medium Panel Van	DC	LCVs (Heavy Vans 2601-3500 Kgs)
G0203	BOX VAN UP TO 3500 KG	LCV	Light Commercial Vehicles	MPV	Medium Panel Van	DC	LCVs (Heavy Vans 2601-3500 Kgs)
G0204	BOX VAN/TAIL LIFT 3500 KG	LCV	Light Commercial Vehicles	MPV	Medium Panel Van	DC	LCVs (Heavy Vans 2601-3500 Kgs)
G0205	PICKUP 2WD UP TO 3500 KG	LCV	Light Commercial Vehicles	PIK	Pick Up	DA	LCVs (Car-Type Pick-Up 2001-2600 Kgs)
G0206	PICKUP 4WD UP TO 3500 KG	LCV	Light Commercial Vehicles	PIK	Pick Up	DA	LCVs (Car-Type Pick-Up 2001-2600 Kgs)
G0207	TOWER VAN UP TO 3500 KG	LCV	Light Commercial Vehicles	MPV	Medium Panel Van	DC	LCVs (Heavy Vans 2601-3500 Kgs)
G0208	Pickup Crewcab 1701 to 3500 KG	LCV	Light Commercial Vehicles	PIK	Pick Up	BB	LCVs (Pickups)
G0301	TIPPER UP TO 1800 KG	LCV	Light Commercial Vehicles	SPV	Small Panel Van	CB	LCVs (Car-Derived/Integral <2000 Kgs)

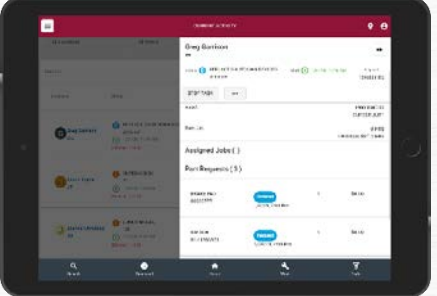
**A proactive approach to demonstrate progress
during a period of change for fleet**

Future Fleet Development Insights

Digital Automated / Contactless

Operational Workflows

Workshop “Digitalised Contactless” Workflow



DRIVER

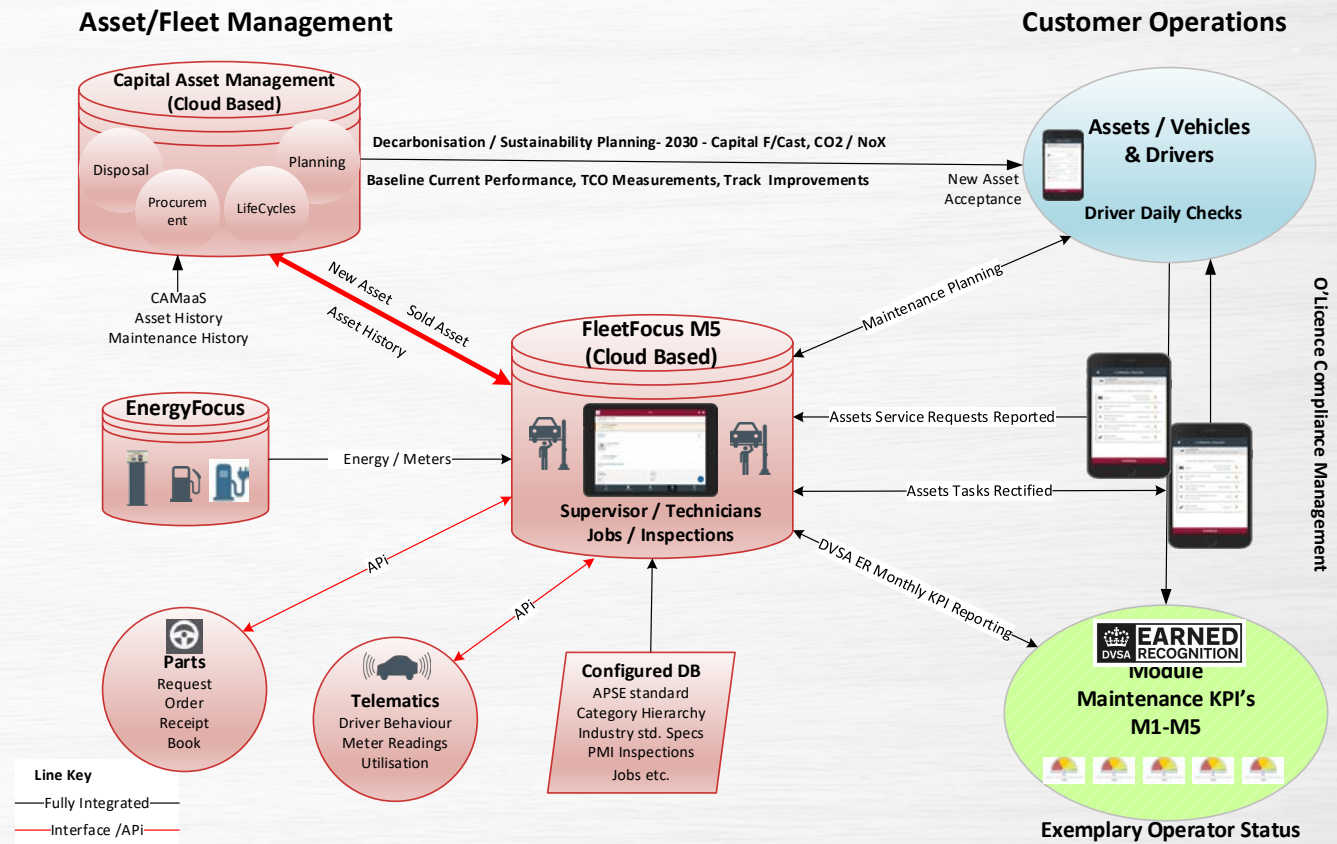
SUPERVISOR

TECHNICIAN

Fully Integrated Fleet Digitalisation & Paperless Operation

With FleetFocus Smart Apps & EDGE Customer teams can:

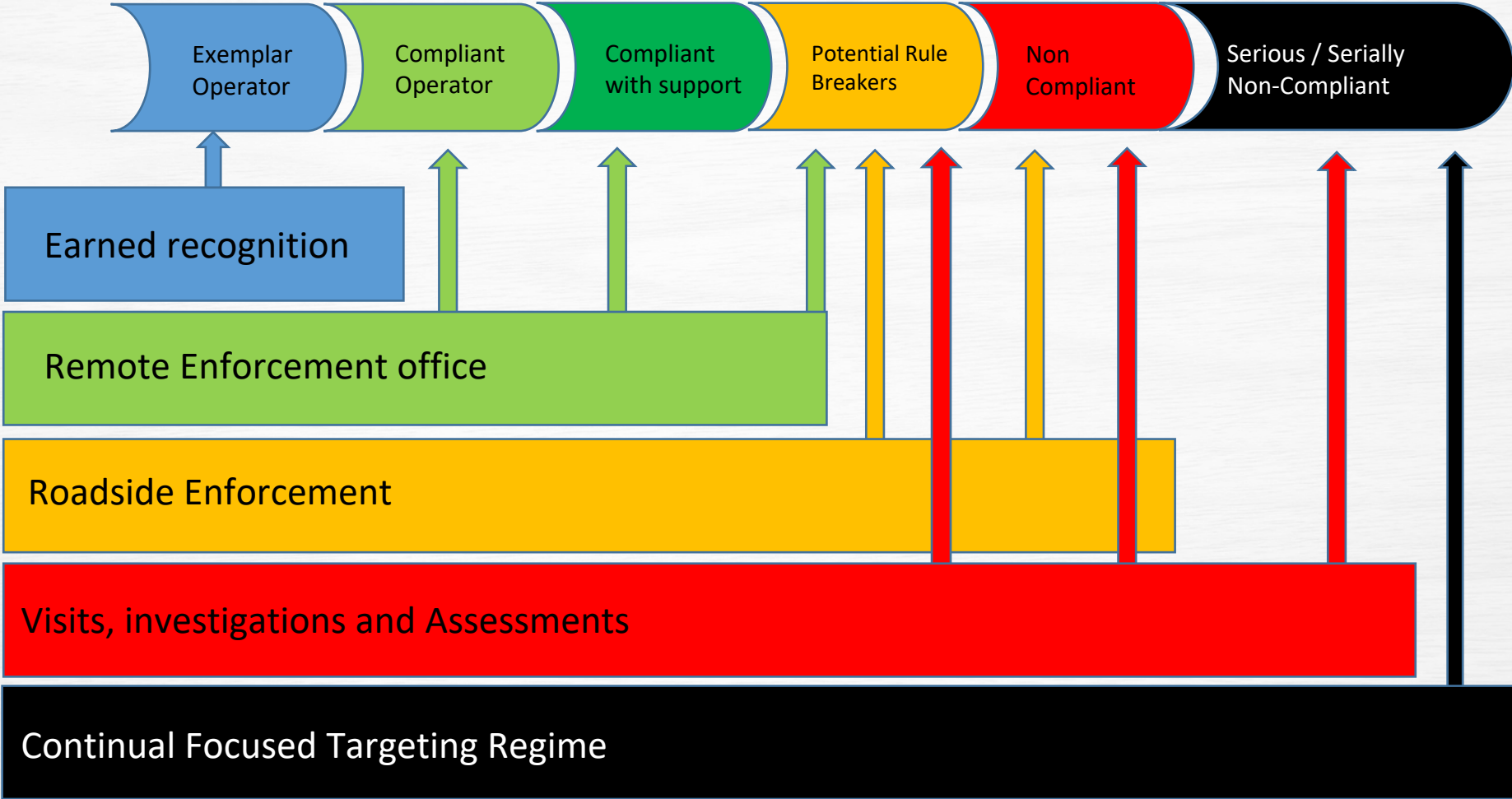
- ⚙️ Accept new assets at point of delivery
- ⚙️ Carry out Driver Daily check and report failures in real time
- ⚙️ Understand the % of Assets that has a DDC every day
- ⚙️ Check that those failures have been updated the following day
- ⚙️ Measure workshop demand by feeding the planner
- ⚙️ Allow Supervisors to get away from their desks and engage with techs on the floor
- ⚙️ Allow Techs to record jobs, capture labour & parts at their workstation
- ⚙️ Feed a defined set of Compliance KPI's and analyse performance
- ⚙️ Comply with DVSA ER accreditation rules
- ⚙️ COVID Safe



**A proactive approach to demonstrate progress
during a period of change for fleet**

DVSA ER Scheme

DVSA Focus



DVSA Earned Recognition Scheme Benefits

- ⚙️ Government and Industry recognised as an “exemplary operator”
- ⚙️ 12-month exemption for both Vehicle & Trailer MOT’s
- ⚙️ Efficiency savings by using a digital monitoring system
- ⚙️ Be less likely to have your vehicles stopped at the roadside for inspections
- ⚙️ Be less likely to have DVSA enforcement staff visit your premises
- ⚙️ Being a DVSA Accredited operator. Be able to use the DVSA earned recognition marque on your website and other publicity materials (but not on your vehicles)
- ⚙️ Direct access to the DVSA earned recognition business team



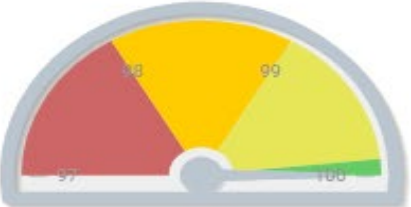
DVSA ER Maintenance KPI's

DVSA ER Dashboard

Select Period

Select Period:

Retrieve



M1
Safety Inspections Completed
100%



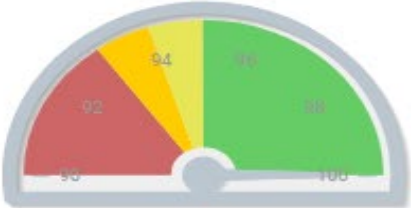
M2
Inspection sheets signed off as vehicle roadworthy
100%



M3
Safety Inspections are within the stated frequency
100%



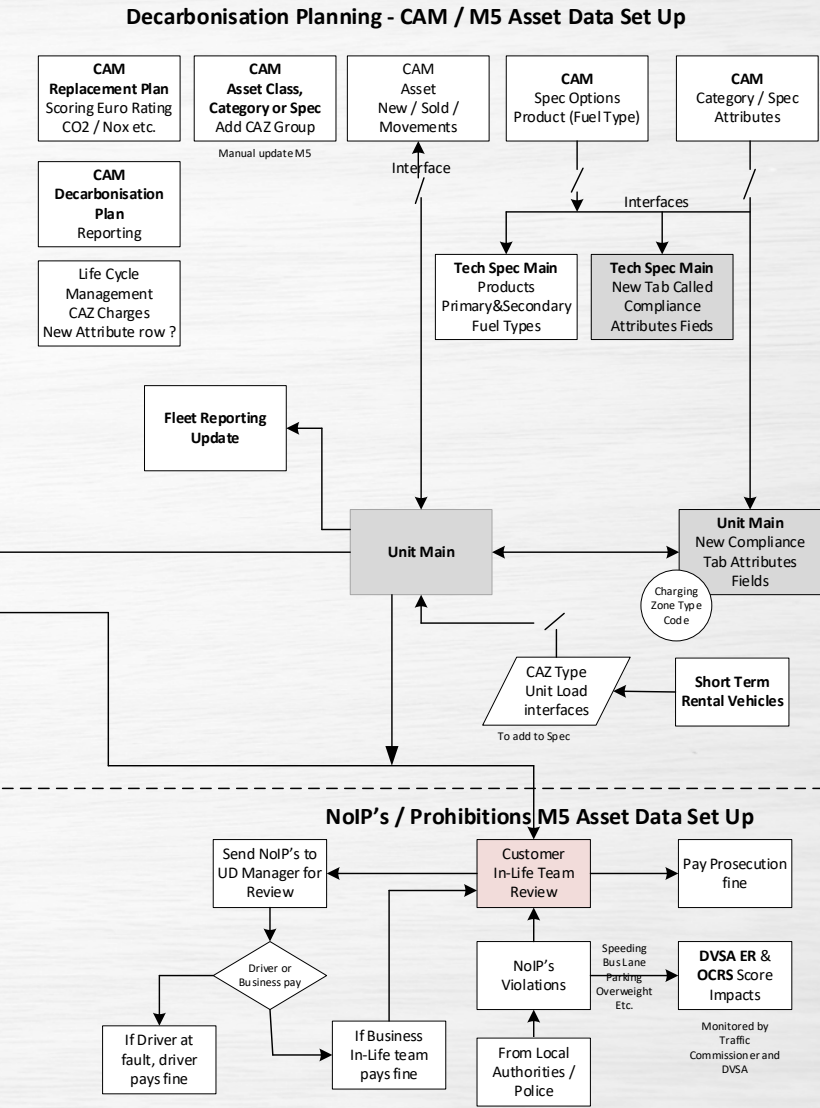
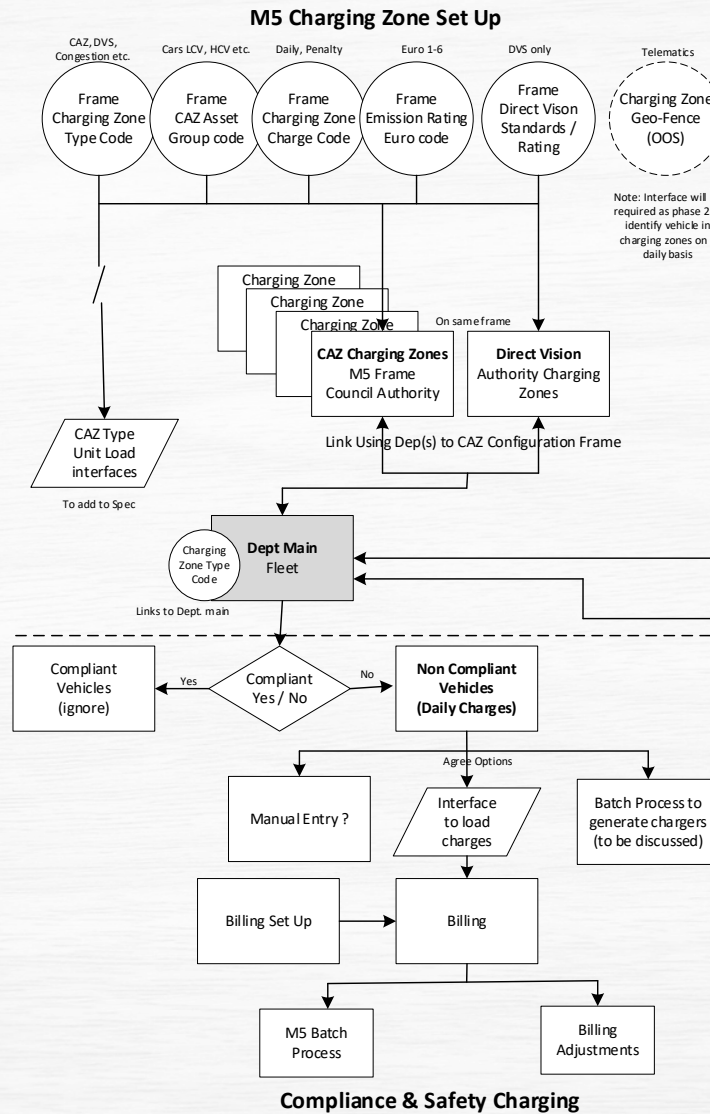
M4
Driver Defects for safety related items actioned on time
100%



M5
MOT Initial Pass Rates
100%

Compliance & Legislation Development

- ⚙️ Data capture & Whole Life History
- ⚙️ Clean Air Zone Impact
- ⚙️ NoIP's Management
- ⚙️ OCRS & reporting to the Traffic commissioner



A proactive approach to demonstrate progress during a period of change for fleet

Next Steps

- ⚙️ AssetWorks would like to offer of a demo of the CAM system to interested LA's
- ⚙️ To work with the APSE Performance Network teams to developing CAM in the Cloud
 - Use APSE Transport Category & Industry standard codes to load data
 - Add some LA fleet data for a capital forecast analysis
 - Review the current fleet and identify any early quick wins
 - Produce a Capital replacement plan with scenarios based on carbon reduction opportunities
- ⚙️ To support any LA looking to deploy DVSA ER and/or electronic data capture tools

Thank You

Questions?



FLEET | FUEL | EAM | GPS | MOTOR POOL | MWM

nick.bridle@assetworks.com

AssetWorks.com/uk

