Swansea Council
‘APSE Energy Efficient Transport Fleet’

Mark Barrow – Fleet Manager

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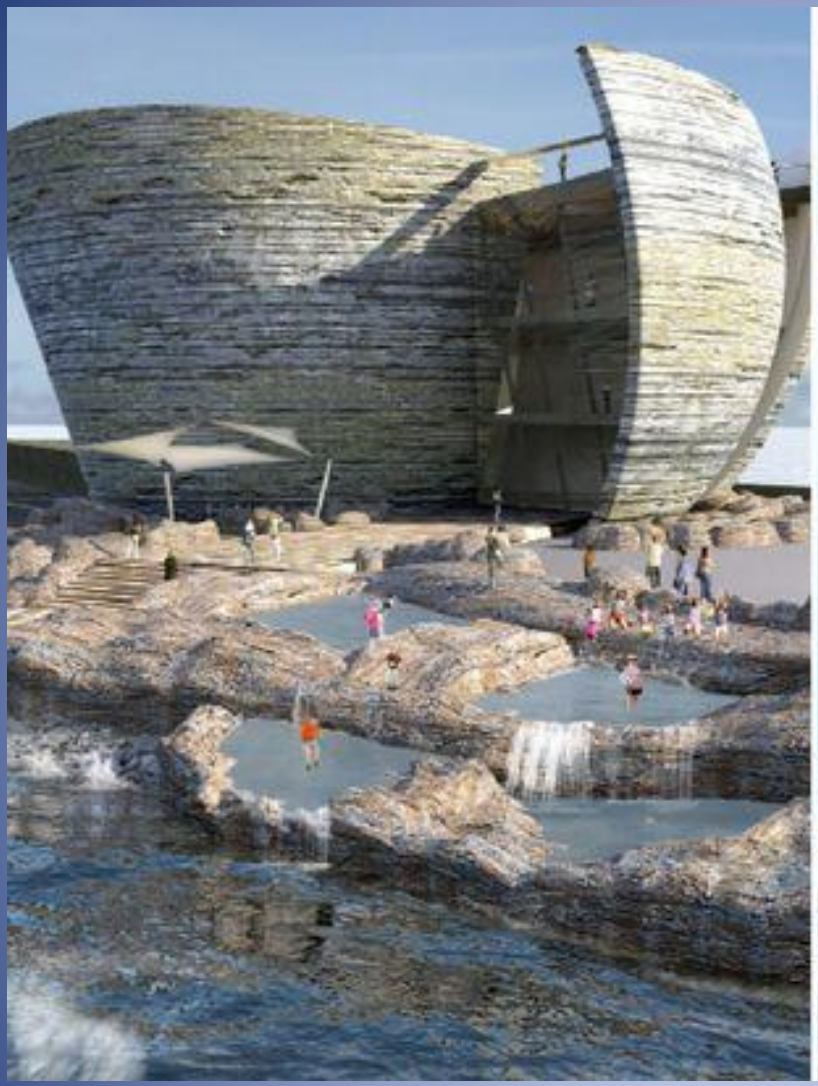

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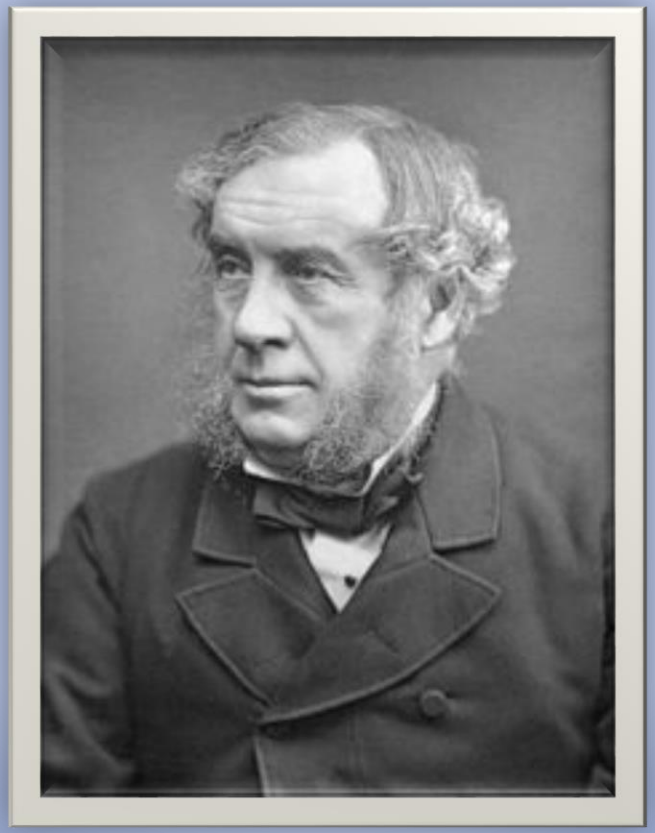

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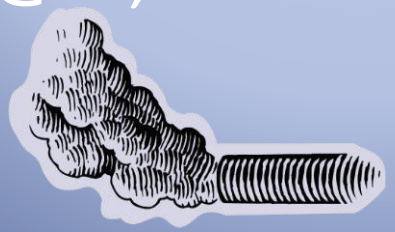
Our Fleet

- 800 vehicles from small pool cars to 32t hookloaders
- Predominantly diesel !
- @ 400 are light commercial vehicles …
- Cover 8 million miles
- Use 1.84 million litres of diesel
- & generate @ 4,900 tonnes of CO_2 p.a.



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‘Green Fleet ’ History

- Early 2000’s @ 125 x LPG Combo vans c/w LPG refuelling station
- After market hybrid conversions on 35 small tippers (through Cenex)
- Telematics, route optimisation and dash mounted driver monitoring technologies
- 10 x fully electric pool cars, with 12 x 3kw charge points at 3 sites, introduced in 2012

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Why the move to EV ?

- UK Govt. plan to end sale of conventional ICE car & van by 2040
- Strong local political expectation to deliver ‘step change’ as soon as practible
- Rapidly maturing market in light commercial ULEVs
- Opportunity in fleet renewal programme & previous relative ‘success’ with EV pool cars

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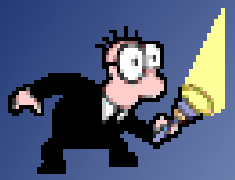

The Initial Work

- Desktop analysis of telematics data revealed average individual journeys were @ 10-20 minutes and @ 5-10 miles
- Most started at, & returned to depots, some taken home by staff.
- Average annual mileage @ 8,000 miles
- Suggested viability for up to 40 EVs … 10 to replace existing & 30 to replace small diesel vans

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Finding the ‘Sweet Spot’

- Understanding context of use was critical to gaining user acceptance
- Get this wrong, & they will be parked up in a corner somewhere …
- Discussions on ‘What’, ‘To & From Where’ and ‘When’, helped affirm the ‘Sweet Spot ‘
- Users were mainly supervisors, couriers, car parks staff, inspectors etc

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Challenging Preconceptions

- Engaged on a Charm & Coerce campaign with drivers & line managers
- Emphasised their personal contribution to air quality in their own city/county
- Demo EV for a month, targeting doubters to come & try for few days
- Most were positively surprised !
- Strong senior management & political support encouraged buy in

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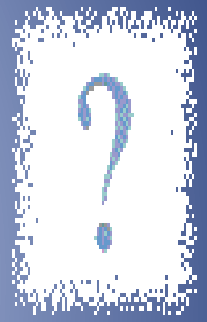
Challenging Operational Norms

- Everyone on standby & travelling to the furthest reaches of the county daily !
- Those taking vans home were concerned about getting there …
- Lots of ‘What if’, ‘How does’ & ‘Why’ had to be addressed
- Telematics data ‘realigned’ the realities
- Ultimately assured users if EV did not work they could give it back …



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Challenging Range Anxiety

- Payload & range not really a barrier ?
- Focussed on how small working pattern changes can make a difference
- 12 existing 3KW ‘Slow’ charge points
- Survey of other sites confirmed sufficient capacity (supply & space) to accommodate
- Control over own sites allowed simple plan to install more at key destinations

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Infrastructure

- Discounted Mode 2 (3 pin plug) as solution on safety grounds
- Discounted Rapid & Fast chargers as most vans parked overnight at depots (& cost)
- Sought dedicated 16A 3kW ‘Slow’ charger bays to build network
- Cautious lowest cost approach to match capacity (financial & resource)

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Procuring

- National tender up to 40 vehicles, aggregated spend of £500k
- Contract Hire on 3 or 5 year options terms, each van @ 8,000 miles p.a.
- Externalised SMR to mitigate ‘risk’ by shifting burden of maintenance onto those better placed
- Used generic specification based on Nissan/Peugeot offerings

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The Tender

- Incorporated Performance management KPI on availability (96% or terminate)
- Contract management included own SMR expectations, fixed labour recharge rate, downtime monitoring, governance etc
- Quantity thresholds (in 10's) to allow for volume discounting
- Plug In Car & Van Grant to be taken off at source by tenderer

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Added Value + ?

- In anticipation of additional infrastructure requirements, sought Added Value through tender process
- Included opportunity for supplier to provide support to develop our network
- Equated to 15% of overall award criteria to incentivise potential supplier
- Match funding to be sought once tender outcome known

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Tender Outcome

- 9 suppliers offering 3 different manufacturers
- Costs of EVs compared with diesel equivalents
- Electricity @ 8ppm (inc 5ppm infrastructure)
- Diesel priced at £1.05ppl (*@ time of tender future price volatility notwithstanding)* & 30 mpg for SWB small van equivalent
- Cost of 40 vans over 5 years bettered diesel equivalent by @ £200 p.a.

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Electric Van Cost p.a.

- Finance £ 2673.00
- RFL £ 0.00
- Insurance £ 650.00
- SMR £ 0.00
- Tyres £ 100.00
- Fuel * £ 640.00
- **Total £ 4063.00**
- * (see next slide)

SWB Diesel Van Cost p.a.

- Finance £ 1531.00
- RFL £ 240.00
- Insurance £ 650.00
- SMR £ 457.00
- Tyres £ 100.00
- Fuel £ 1312.00
- **Total £ 4290.00**

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Energy Costs

- 49kWh battery & Range of @ 108 miles
- 2.20 miles per kWh
- £0.11 pence per kWh
- £0.11 (ppkWh)/2.20(mkWh) = £0.05 ppm
- £0.03ppm infrastructure maintenance contribution
- 8,000 miles x (£0.05 + £0.03 ppm) = £640

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Value Added +++ !!

- Supplier infrastructure support offer varied considerably
- One manufacturer offered significant game changing support levels @ 40 van order threshold
- Funding @ 25 proposed charger installations @ £ 1250 each
- Remaining @ 5, match funded by internal ‘Energy sustainability’ budget

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Implementation

- Clear opportunity to **'Green'** the fleet from a budget neutral position !
- Ordered 40 Electric Peugeot Partner L1 636 SE 67 vans placed with Days Fleet @ Oct 2017
- Engaged with Peugeot EV specialist on implementation & support
- Engaged local Peugeot franchise to ensure SMR expectations known

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Implementation

- Charger install programme by in-house electrical engineering team started @ Nov 2017
- Bespoke driver/user manuals to get straight to the key messages
- Individual driver inductions & familiarisation training undertaken
- Livery emphasised 100% Electric
- All vans delivered by Feb 2018 & all 30 chargers installed by March 2018

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THURSDAY, MAY 17, 2018 SOUTH WALES EVENING POST

Council fleet charging into an electric future

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SWANSEA Council has taken delivery of 40 electric vans, making it the largest electric van fleet in Wales.

Council vans which previously used more conventional fuel such as diesel will now be hooked up to a charging point and charged up to provide a range of services to residents in the city, including corporate building services, waste management, parks and street cleansing.

It means the council can significantly lower its carbon footprint.

The council has teamed up with local Peugeot dealer CEM Day, who have provided the fleet of vans.

Andrea Lewis, council cabinet member for housing, energy and Building Services, said: "Technology has improved significantly in recent years, enabling us to enter into an agreement with a vehicle manufacturer that can provide us with a fleet of 100% electric vehicles. This means we can continue serving residents in the city and be much kinder on the environment.

"We should all be concerned with making Swansea a greener, more sustainable and more environmentally aware city for our children and generations to come. With the Welsh Government having set an 80% greenhouse gas emission target, it's pleasing to see Swansea Council setting the right example."

Mark Thomas, cabinet member for environment services said: "The impact of vehicle emissions on our local communities is something we are more than aware of and are continuing to look at new and innovative transport methods to improve air quality for everyone.

"If we want to encourage residents to be more mindful of the effects their own vehicles have on our local environment, then it's right that we look at our own fleet and do something about it."

The council previously acquired 10 electric pool cars which are available for staff to travel between council buildings to attend meetings.

Helen Lees, head of electric vehicles at PSA Group said: "The duty cycles of many of the Swansea Council van fleet are well suited to electric motoring and suggest that many other local authorities could tap into similar cost-saving and environmental benefits.

"We are delighted to have helped the council bring together the right vehicles and charging infrastructure."

Neil Vaughan of Days Fleet, Mark Barrow, Swansea Council fleet manager, Councillor Mark Thomas, Councillor Andrea Lewis, Councillor Wendy Lewis and John Kendall of Peugeot.

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Outcomes = ?

- Largest EV public sector fleet in Wales
- CO2 reduction of 100 tones p.a.
- 320,000 miles of zero emission based transport p.a.
- Budget neutral position whilst **Greening** fleet
- A clear day to day tangible indicator to citizens of Swansea of our **Green Fleet** commitment
- Network of 40 charge points

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The Drivers' View

- Best reported range is 60-70 miles on full charge … majority ok with range available for daily duties
- Simple changes to working day to accommodate for change
- More careful, gentler, considerate & slower driving styles reported
- Less use of brake but deceleration demands greater awareness of those behind

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Positives ?

Dedicated van parking space

Nothing !

Reduced emissions … improves local air quality

This has to be the direction we go

Easy to use & drive

More considerate style of driving

Surprised how far I could go

Great option

Shows our council is moving forward to better carbon footprint

Good for the environment

Perfect for short trips

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Concerns ??

Nothing !

Lack of road noise a risk … some conflict in public areas

Heaters impacting on range

Tend to watch dash & not road as conscious of battery %'s

Not the answer yet

Broken down 3 times

Should have been a hybrid

Charge point access … need more … upgrade to rapid chargers

Removing wet charging cable

Time it takes to recharge

Range ! Range ! Range !

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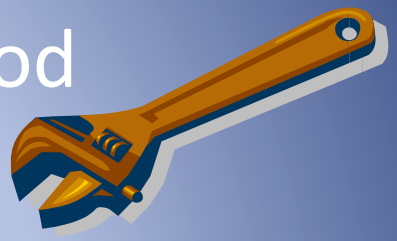
Service Maintain Repair

- So far, overall reliability is very? good
- A few driver related issues …
- Incidences of intermittent starting problems, yet to be fully resolved
- Some struggles with SMR providers
- Roadside attendees less than familiar with EVs
- Need to be highly vigilant on minor issues to maintain user buy in



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Other things to think about

- Fitting ancillaries ??
- Risk assessments for subcontractors (tyres & telematics for example)
- Own staff risk addressed through user manual
- Do not pressure wash, avoid floods & kerbs
- Added costs in RTC repairs
- Do not touch anything under the bonnet

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Recognition

- Green Fleet Public Sector Fleet of the Year (Medium to Large) 2018

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Our Next Steps

- Staff sharing charge points for own EVs ?
- Adoption of Green Fleet Policy to strategize our procurement and fleet choices
- Current tender full electric Lord Mayor's car
- Next round of Green Fleet renewals @ 25 pool cars/vans (Full EV & Hybrid mix)
- Look to uprate some of destination network to Fast charge points
- Pursue Grant funding …

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So ?

- “Easy” for ‘big’ fleet to do ?
- Analyse the data & understand context of use
- Get visible senior management support
- Engage all stages of supply & support chain as early as possible
- Pursue added value to help get you there
- Aggregate our spends ?!?
- Do not hope for business as usual

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So ?

- Personalise outcomes for buy in & change
- Challenge preconceptions & norms
- Be vigilant about ‘small’ issues
- Do not feel pressurised into making the wrong choice if you cannot find the ‘Sweet Spot’
- EVs are not the panacea but can be a viable option to green your fleet
- Be Positive !!
- & Dare to meet the challenge

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