

# Myth Busting Electric Cars

**Sustainability Live!**

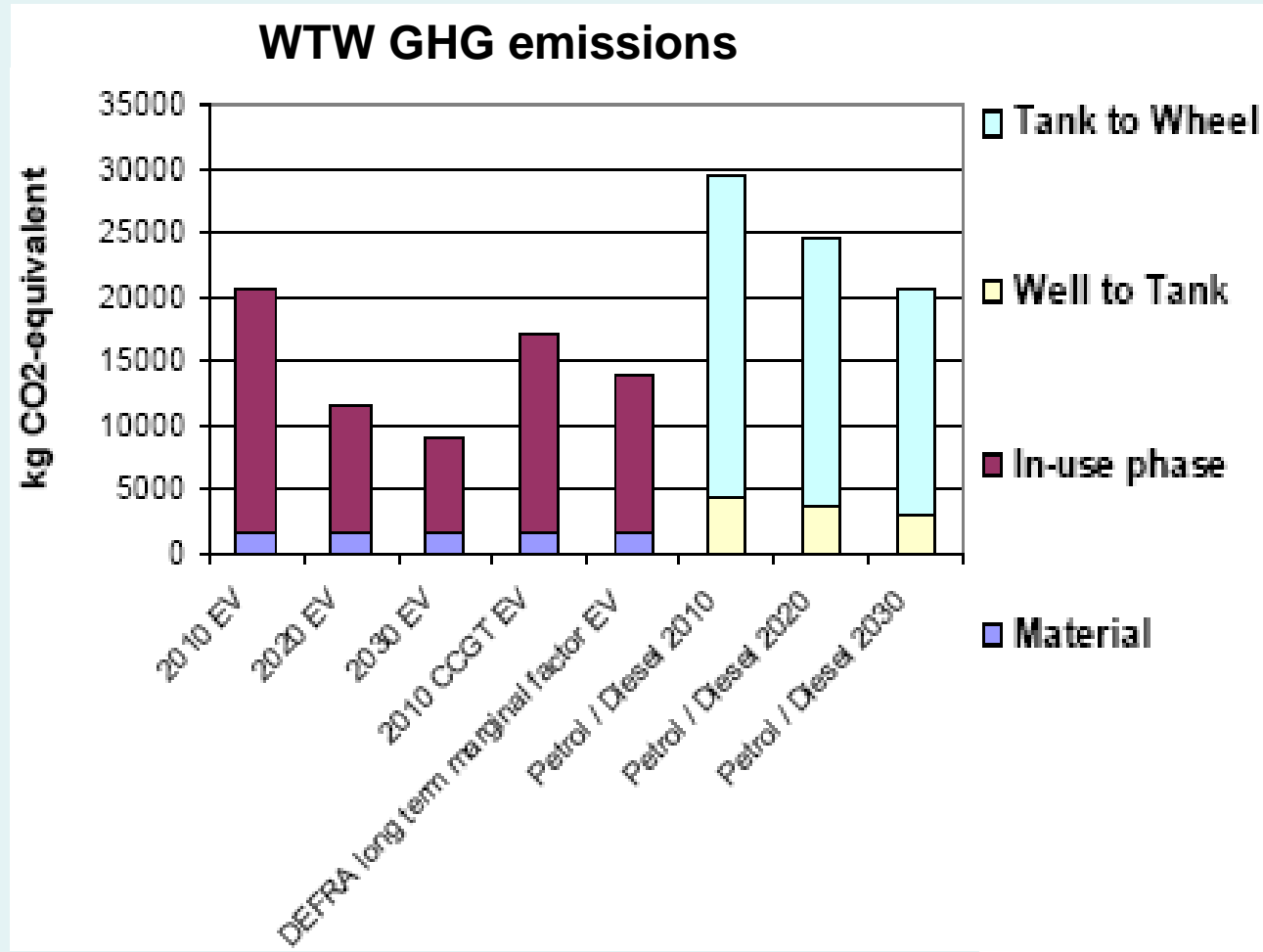
**19<sup>th</sup> April 2010**

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# Myth 1 - EVs won't deliver CO2 benefits unless they are charged using renewable power



*Myth 2 - EVs are the solution to decarbonising transport*



2000



2004



2006



2008+



## *Myth 3 – an EV revolution is imminent*

- ❑ EVs address key geopolitical concerns:
  - Climate
  - Energy security
  - Peak oil
  
- ❑ Early consumer interest as sustainable, cool, high technology products
  
- ❑ Substantial public funding of RD&D
  
- ❑ Investment & commitment from global OEMs

*But ... early visionary vehicles do not create a mass market*



# Myth 4 – EVs won't be available for years



Toyota FT EVII - 2012



Toyota Prius PHEV - 2011



Nissan Leaf – 2010 (not EU)



Mitsubishi MiEV – 2010  
Citroen Evie – 2011

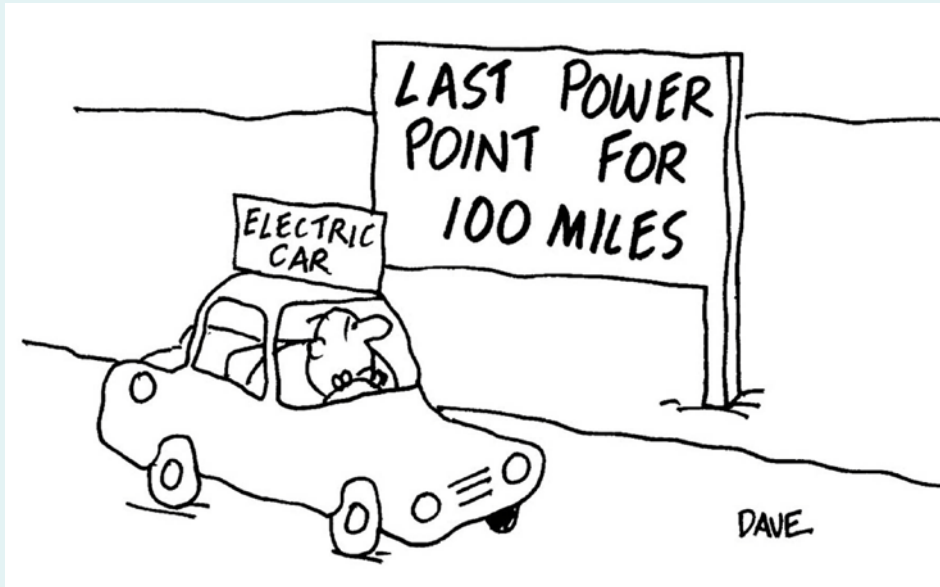


Renault Fluence – 2011  
(not EU) + others



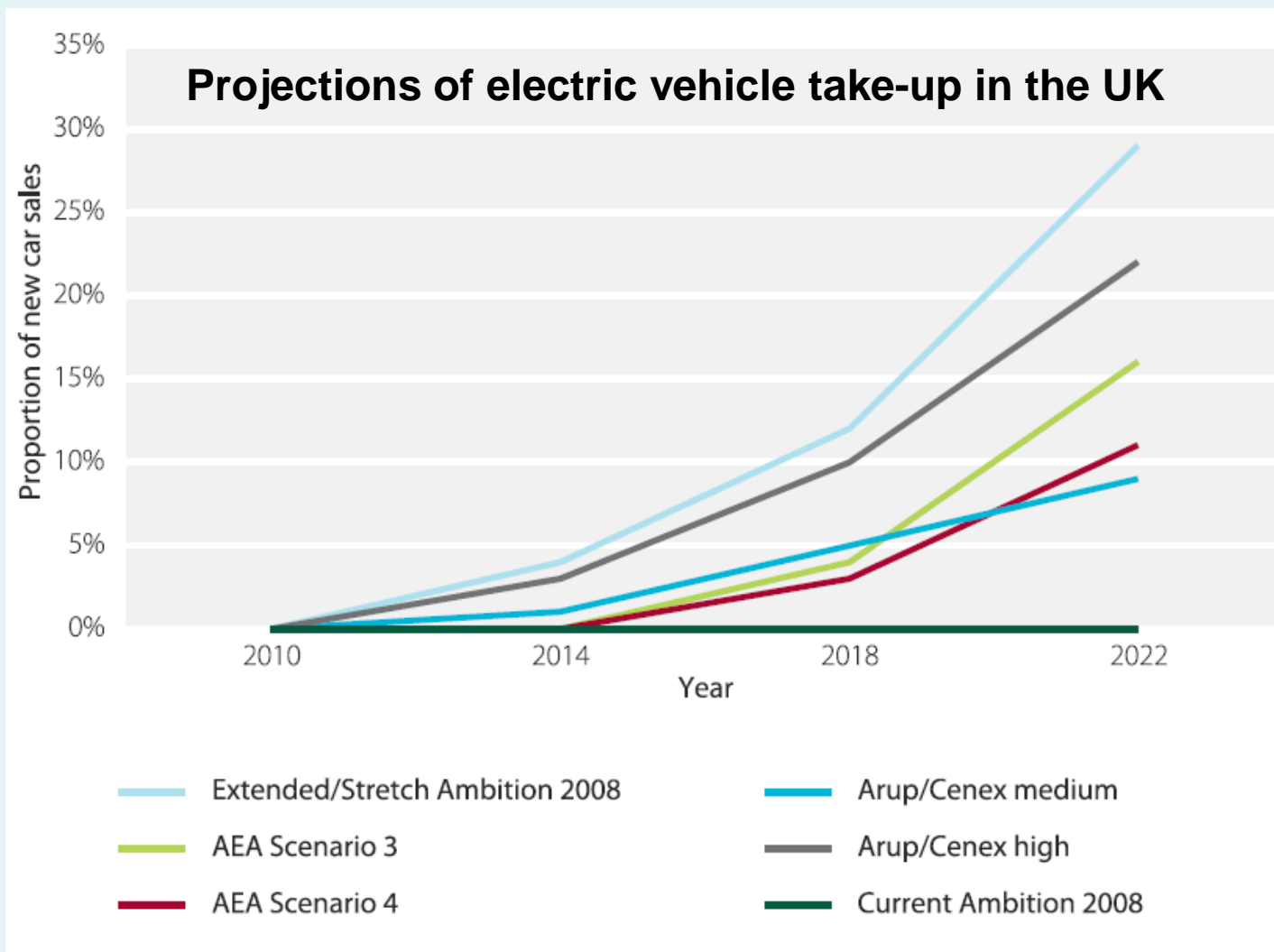
Vauxhall Ampera - 2011

## Myth 5 – there will be rapid consumer uptake of EVs



- ❑ High capital costs – key purchase determinant
  - Leasing options likely
- ❑ Fuel-cost savings heavily discounted
- ❑ Requirement for very high range
- ❑ Range anxiety reduces usage to 33-50% of technical range
  - Fast charging / battery swap builds confidence
- ❑ Low willingness to pay – beyond early adopters
- ❑ Limited availability of recharging infrastructure
- ❑ New technology aversion

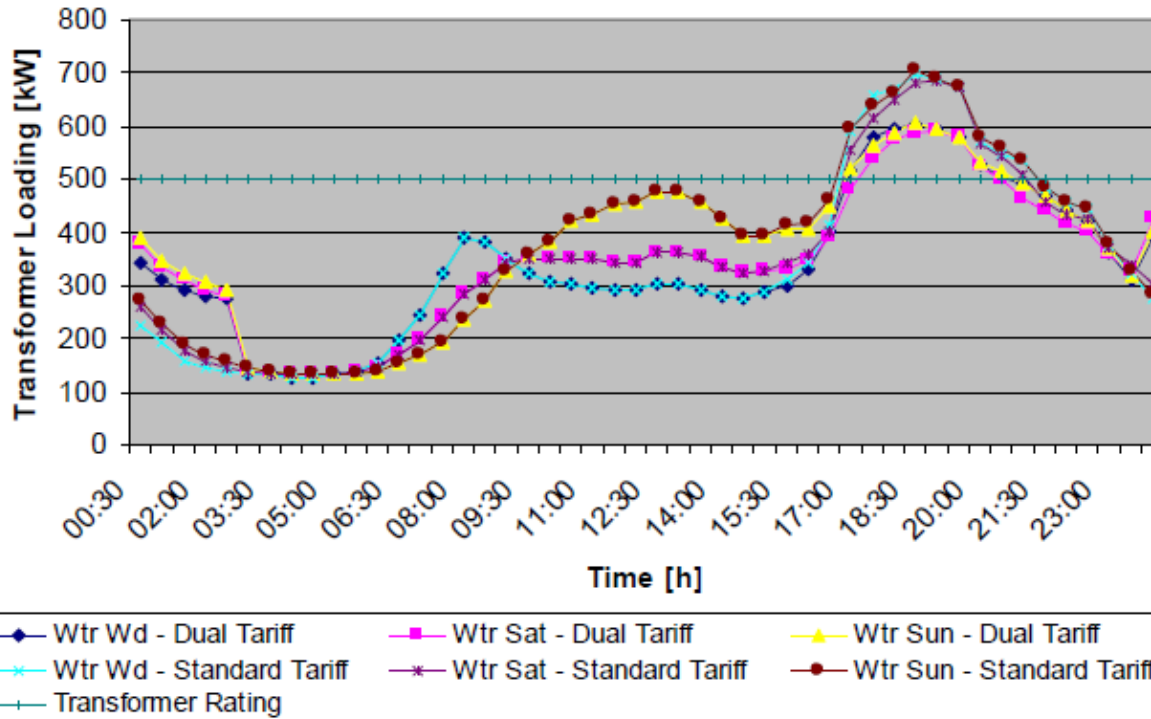
# Myth 6 – Future demand for EVs is easily predictable



# Myth 7 - the electricity grid will be overwhelmed by EVs

## Impact of smart-metering (dual tariffs) on transformer loading

Scenario 1 - Slow Charging @ Home

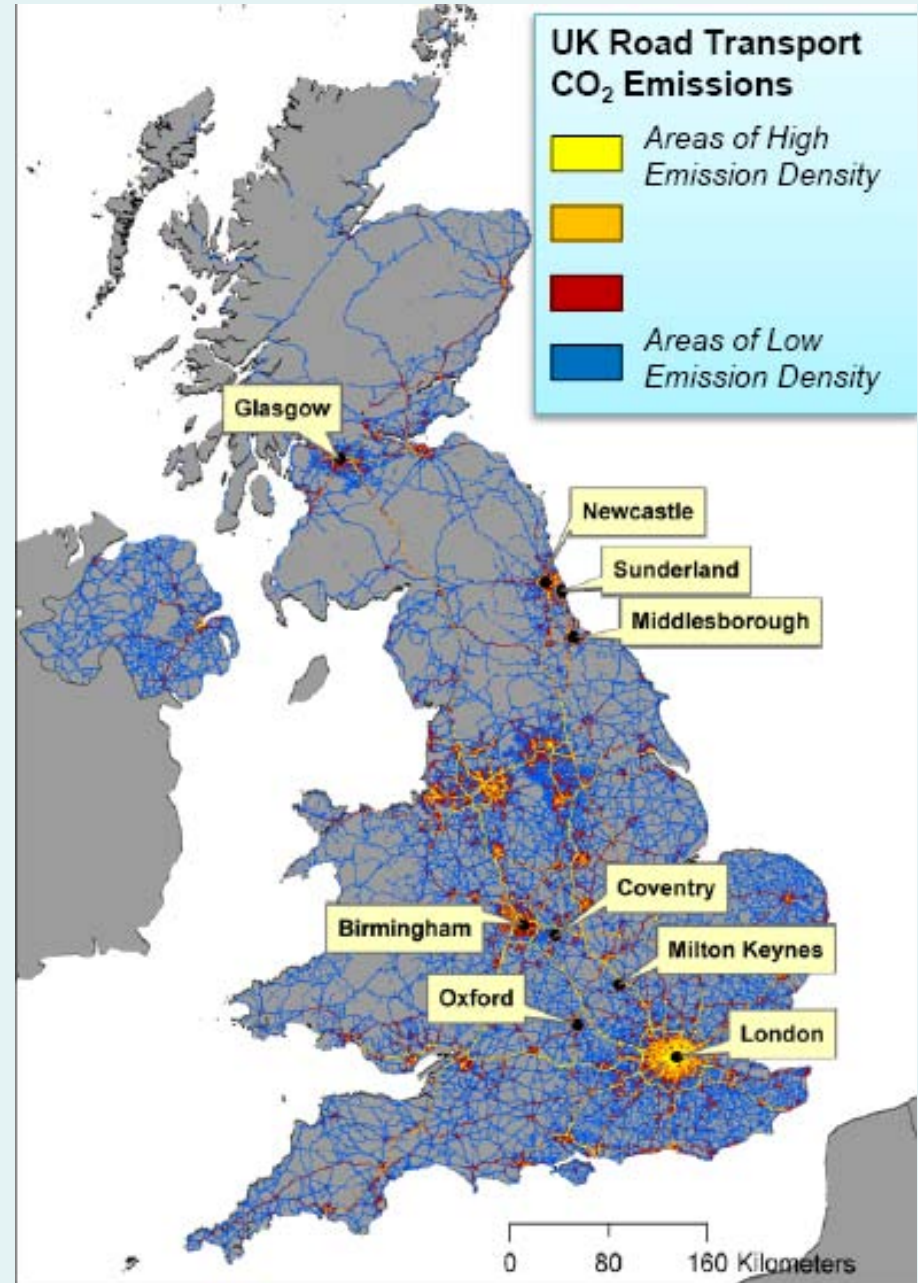


- ❑ EV share of national electricity production
  - 2020 0.1 – 2%
  - 2030 1 – 8%
- ❑ Smart metering with differential pricing can discourage peak demands
- ❑ Could create night-time base load for renewables
  - Flattening of daily demand profile will create efficiencies for generators
- ❑ Some local grid reinforcement may be needed in peak uptake locations



## Myth 8 – the UK is doing little to encourage EVs

- ❑ Creation Office of Low Emission Vehicles
- ❑ £250M purchase support fund for cars
  - 2011-14
  - £5k per vehicle
- ❑ 140M Low Carbon Vehicle Innovation Platform
- ❑ £30M infrastructure support
  - Plugged-in-Places
- ❑ £5M Ultra-low carbon car competition
  - 340 vehicles
  - Joint cities demo programme
- ❑ £20M public procurement support for electric vans



## Key messages

- ❑ EVs will play an important role in reducing transports dependency on oil and reducing GHG-emissions in the longer term
- ❑ EVs are likely to be one of a portfolio of low carbon technology solutions
  - Early visionary vehicles do not make a mass market
- ❑ There are significant barriers to EV market adoption, notably:
  - Battery cost and performance
  - Car buyer acceptability
  - Availability of practical recharging solutions
- ❑ To 2020-5, market penetration is likely to be modest even with generous incentives
  - These are long-term opportunities - don't expect quick returns
- ❑ Grid impacts are generally small and will be alleviated by smart-metering
  - Local distribution network may require reinforcement in some areas
  - EVs provide an important new use for overnight baseload capacity

Thank you for your  
attention

Any Questions?

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