Choosing Sustainable Power Seminar

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Electrification: Supply Side and Skills Issues

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Scope

Electrification

Not addressing - sustainability (as such)
- the business case (MRD)
- technology (in any detail)

Am addressing - timing
- costs
- people
- procurement

with particular reference to skills required to **deliver** an OLE programme. Much is Work in Progress.

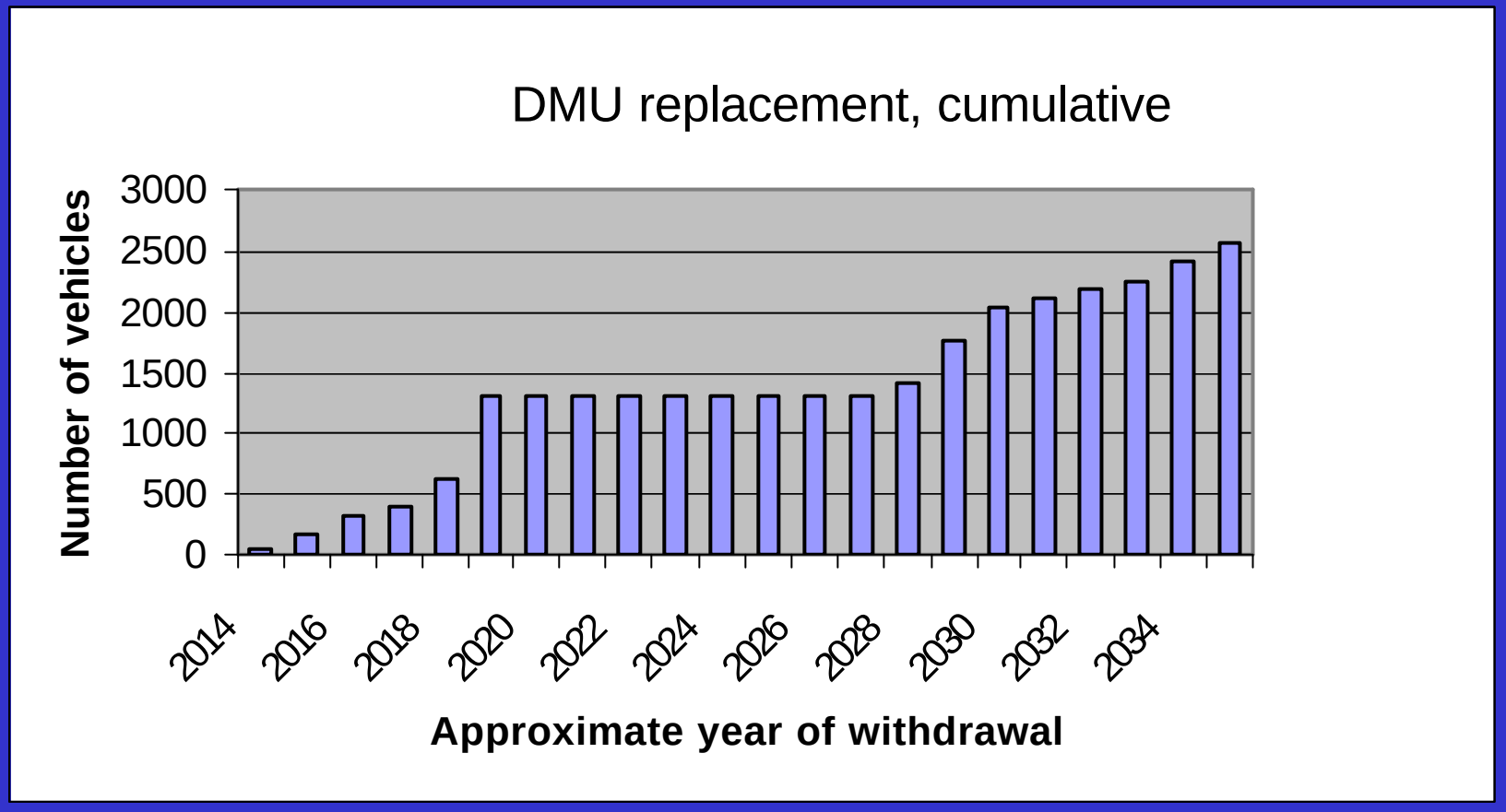
Central Theme

- Looking ahead: there are some key issues that, if addressed now, or very soon, will much facilitate efficient and effective deployment.

Timing

- Timing likely to be driven by the business case
- Decisions on traction choice for new rolling stock will be crucial
- IEP in-service introduction from 2015
- DMU replacement dates:

DMU withdrawal



Source: Network RUS baseline paper

Timing - 2

- DMU dates approximate
- But clear substantial number due for replacement in CP5
- So, unless we commit to diesel for another 30 years, electrification has to be in place by then
- Business case could drive an earlier mainline programme with IEP, or earlier infill. So this may be a **latest** programme
- DMUs partly serve lower usage areas around cities, so cost is an issue

Electrification Cost Challenge

- Problem: urban fringe and other lesser-used parts of routes are less likely to justify inclusion in electrification schemes
- This results in significant ‘under the wires’ running by diesel trains and reduces value of schemes
- Therefore “challenge” issued by Network Rail to supply industry to develop radical new approach to electrification of lightly-used route sections
- Innovative approaches sought from range of suppliers covering all aspects of work

Electrification Cost Challenge - 2

- Only limitations are that system must be safe and robust
- Means could include
  - reducing component count
  - minimising installation time
  - avoiding “complications” not needed for lightly-used lines
- Success could produce considerable increase in amount of affordable electrification

Electrification Cost Challenge - 3

- Work in progress
- Series of RIA/NR workshops held
  - power supply
  - mechanical
  - immunisation of signalling
  - plenaries

Electrification Cost Challenge - 4

- Challenge very welcome
- Outcomes looking in particular at technical process, specifications, differentiation, innovation, simplification
- To reduce cost and disruption to the railway
- Much = “doing it a better way”
- Looks promising; detail being discussed with NR in April
- May well warrant a demonstration project first
- Some aspects could benefit major schemes also

People + Procurement

- RIA Review of the SBP for CP4, Jan 2008:
  - www.riagb.org.uk
- Summarises the responses of member groups
- Concluded overall NR-proposed volumes deliverable; efficiency savings also but at top end, all provided fundamental changes made to:
  - process
  - technology
  - culture

People + Procurement - 2

Review called for proactive management of the supply chain

Key to fostering supplier confidence in the UK market

Why does that matter?

Much else going on that is demanding resources:

Domestic Perspective

- Major programmes on London Underground/Crossrail
- BT major telecoms upgrade
- National Grid refurbishment of power distribution network
- Others: Olympics, Commonwealth Games, nuclear?

Source: RIA Review of the Strategic Business Plan January 2008

An International Perspective: Some Examples

Asia

- China – Expanding mainline network by 30,000km by 2020, 20+ city metro systems
- India – Indian railways $70-80bn investment by 2012, 15+ metro lines by 2020
- Taiwan – Taipei area metro 270km extensions, Circle Line ($1bn), mainline renewals
- Singapore – Doubling network by 2020, new lines/extensions $30bn
- Hong Kong – MTR new lines/extensions $10bn+

Plus: Malaysia, Thailand, Vietnam

Australia

An International Perspective - 2

Middle East

- Saudi – 2500km N-S railway, 1000km Landbridge, 600km Makkah-Medhina link, Urban systems in Riyadh & Jeddah
- Dubai – Metro in construction, extensions & feeder systems $20bn by 2020

  Plus: UAE, GCC

Europe

- Central/Eastern Europe – rehabilitation of TENS railway corridors in Poland, Romania, Hungary etc
- Ireland - $16bn investment in public transport including metro, LUAS etc

And much more…

An International Perspective - 3

So:

- Access to supply-side resources vital in a strongly growing market
- Eg delegations coming from Dubai, Taiwan, Hong Kong (inv), Singapore
- Much will be sourced locally/regionally, but
- There is already a truly international market for scarce skills, especially for designers and project managers
- English is widely spoken in most growth areas
- Diversification of customers is good for both customers and suppliers in a mature market

Growing NR's Supply Base

- Important Network Rail gets the supply resources it needs in CP4 and CP5
- Means expanding the skilled labour market by investing in recruiting and training rather than poaching, excessive use of agency staff and the wages spiral
- It is much cheaper, and leads to a better product

Growing NR's Supply Base - 2

NR and RIA looking at a qualifications structure for electrification to encourage training

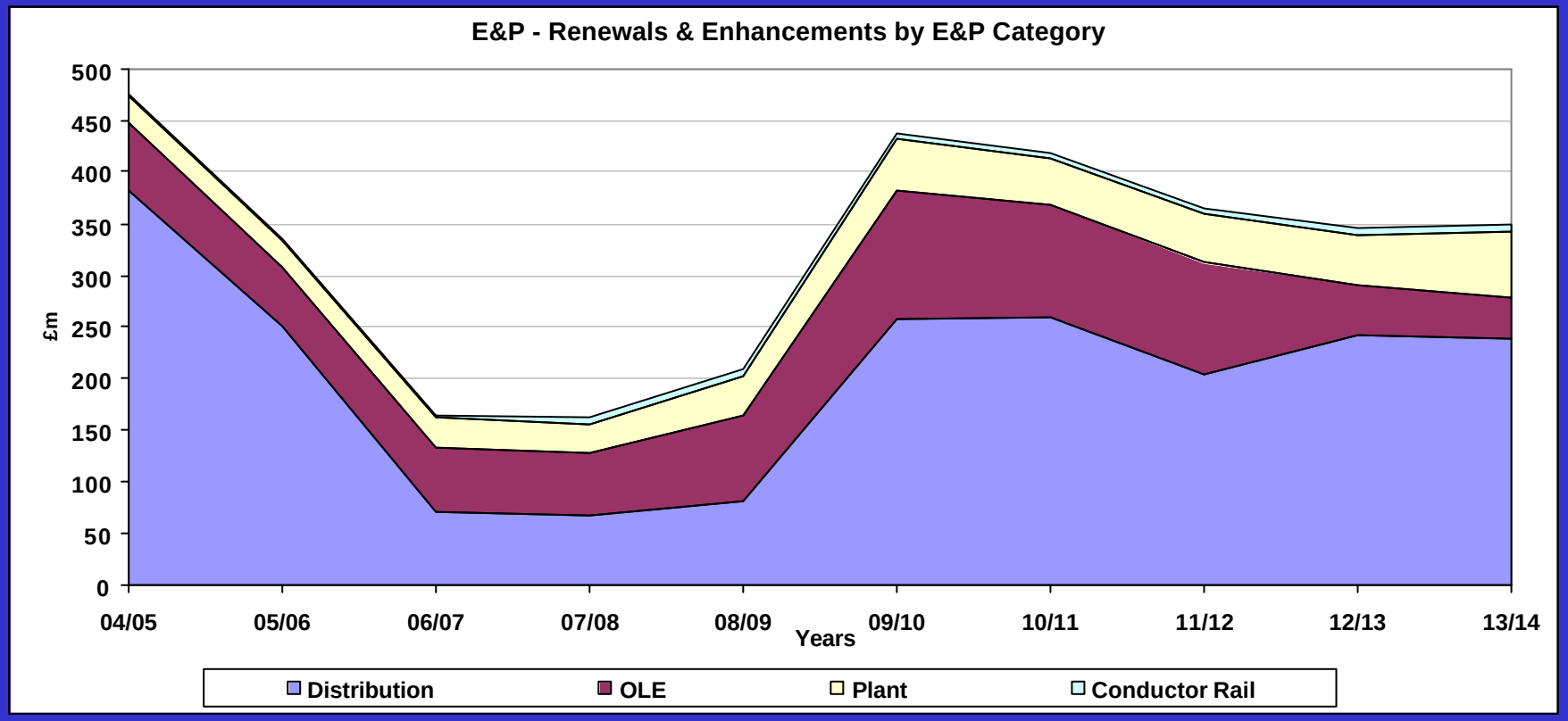
But building supplier confidence key to investment in recruitment and training -

- Given background of risk and volatility, some greater predictability of the market essential
- Including reasonable level of baseload, with fluctuations above that
- Bundling small projects into larger tenders
- Other Review recommendations

Growing NR's Supply Base - 3

- Efficient delivery of a new OLE programme in CP5 requires an expanded skills base
- Which requires a steady increase in workload before that
- To build up the momentum for CP5 delivery

NR E+P Profile in CP4



Source: Network Rail

NR E+P Profile in CP4 - 2

- Substantial increase in OLE spend from a low base
- Then reduces prior to CP5
- Mostly renewals rather than new work, though skills do overlap

Key Issue

- Not clear whether SBP provision for OLE sufficient
- Will need (NR/RIA) to assess final settlement, business case and programme

- **But marker now, already in RIA's SBP review, that an electrification programme in CP5 may need a revisit to CP4 to achieve the most efficient outcome**

Summary

Switching from DMUs to EMUs in CP5

needs	a new and efficient electrification programme in CP5 latest
needs	skilled people
needs	supplier confidence to invest
needs	reasonable advance spend profile
may need	revisit to CP4 programme

Thank You

Railway Industry Association