



Totex modelling – part 1

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- All modelling approaches have advantages and disadvantages - totex modelling is no exception

Advantages	Disadvantages
<ul style="list-style-type: none">•Relatively immune to trade-offs between activities and reporting differences•Avoids “cherry picking” between different modelling approaches•Simple to understand and replicate	<ul style="list-style-type: none">•Fewer cost drivers possible than disaggregated approaches, leading to less intuitive relationship between cost drivers and costs•Normalisation for (a) inherited characteristics of network (b) previous spend difficult and (c) performance levels•Difficult to differentiate between efficient delivery of work and non-delivery

- When used in conjunction with other assessment approaches, totex provides useful cross-check
- In order to maximise benefit from totex modelling, must develop approach to minimising the impact of disadvantages

- ▣ Developing cost drivers that can be used in totex models
 - Fewer cost drivers manageable in totex modelling – therefore need cost drivers that reflect wider activities
 - Ideally need comparable outputs as cost drivers to achieve this – but doubt this achievable in the timescale we have available
 - Simple cost drivers based on network scale (eg MEAV) give broad picture as reflect activity driver of large proportion of cost base (but not all) but can make it hard to differentiate between efficient delivery of work and non-delivery
 - Composite scale variables provide further option – but require consideration of (a) what drivers are combined in composite and (b) how components of composite are combined
 - Must reflect variable and fixed elements. Group based totex could be used but can be skewed by outlier companies – leading to fixed costs being wrongly calculated

- ▣ Developing a totex cost construct that is normalised for (a) inherited characteristics of network/ uncontrollable factors (b) previous spend and (c) performance levels is difficult
 - Any factors that are not reflected in cost driver must either be normalised for or must recognise that modelled “efficiency” is actually “efficiency + noise”
 - Truly uncontrollable costs should be excluded
 - Normalisation of year-on-year capex spend is essential if using simple drivers to avoid DNOs being rewarded/ penalised for natural fluctuations in their capital programme – a number of options available
 - Average capex – how many years is necessary to take into account historical investment rates? Consistent with data availability?
 - Capital consumption – on what basis? Based on vesting asset base?
 - Could comparable outputs negate need for capex normalisation – measuring efficiency of outputs delivered for money spent in year?



Serving the Midlands, South West and Wales

TOTAL EXPENDITURE BENCHMARKING

Cost Assessment Working Group

10th May 2012

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TOTAL EXPENDITURE BENCHMARKING

- Overarching principle
- Consideration of costs and drivers
- Selection of cost bases
- Modelling difficulties
- Way forward
- Conclusions

OVERARCHING PRINCIPLE OF TOTAL EXPENDITURE BENCHMARKING

- Objective is to undertake effective cost benchmarking across DNOs
- Total expenditure can be undertaken by:
 - Defining which activities should be included or excluded from the cost base
 - Developing a composite activity driver that reflects those activities included within the definition of total expenditure

CONSIDERATION OF COSTS AND DRIVERS

PRINCIPLES

- Activities that are inherently common to all DNOs should be included within scope of total expenditure benchmarking
- Activities that are unique to a few DNOs should be excluded from total expenditure benchmarking
- Where there are potential trade-offs between two or more activities, then all of the salient activities must be included within scope of total expenditure benchmarking
- If a direct activity impacts on the activity level of an associated indirect activity, then that direct activity must be included within scope of total expenditure benchmarking

CONSIDERATION OF COSTS AND DRIVERS

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	WPD'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
CONNECTIONS WITHIN PRICE CONTROL			Total connections activity influences the activity levels of "Very" Closely Associated Indirects
DPCR4 Connection Projects	Yes	Number of exit points and POCs with an element that is subject to the apportionment rules	
DPCR5 Connection Projects – Element of connection that is subject to the apportionment rules	Yes	Number of exit points and POCs with no element that is subject to the apportionment rules	
CONNECTIONS OUTSIDE SCOPE OF PRICE CONTROL			
DPCR5 Connections Projects – Element of connection that is Sole Use funded	Yes	Available capacity Competitive take up	
DPCR5 Connection Projects – Unmetered	Yes	Number of connections (and POCs) Competitive take up	
Distributed Generation Connection Projects	Yes	Number and voltage of entry/exit points Number and voltage of POCs Competitive take up	

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	WPD'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
CORE NETWORK INVESTMENT			
Diversions – Wayleave Terminations	Yes	Voltage, quantity and work volume	
Diversions - NRSWA	Yes	Voltage, quantity and work volume	
Diversions – Conversion to Easement/Injurious Affection	Yes	Voltage, quantity and easement values	
General Reinforcement	Yes	Current loadings on network Load growth forecasts Network configuration	
Fault level Reinforcement (All Voltages)	Yes	Current fault levels Equipment ratings Forecast growth in fault levels	
DSM Payments (All Voltages)	Yes	Current loadings on network Load growth forecasts Network configuration	
ESQCR	Yes	Number of risks to be resolved Work required to resolve each risk	
Asset Replacement & Refurbishment	Yes	Asset condition Asset population	
Asset Replacement – Civil Works Driven by Asset Replacement	Yes	Asset Replacement activity for salient assets	

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	WPD'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
Asset Replacement – Civil Works Driven by Asset Replacement	Yes	Asset Replacement activity for salient assets	
Asset Replacement – Civil Works Driven by Condition of Civil Items	Yes	Condition of civil items, nature of civil assets and location	
Operational IT & Telecoms	Yes	Age, condition and functionality of existing RTU's, ENMAC Communications strategy (e.g. PMR)	
Legal & Safety – Substation Site security	Yes	Number of substations, degree of risk	
Legal & Safety – Asbestos management - Substations	Yes	Other work programmes	
Legal & Safety – Asbestos management – Meter positions	Yes	Meter operator activity	
Legal & Safety – Safety climbing fixtures	Yes		
Legal & Safety – Fire protection at Substations	Yes		
Legal & Safety – Earthing upgrades	Yes	Substations with inadequate earthing	
Legal & Safety – Metal theft remedial work	Yes	Extent of metal theft	
QoS – IIS	Yes	Current performance Improvement targets	
QoS – Remote Location (Capex)	No		Activity is limited to three DNOs only
High Value Projects	Yes		Embed within actual investment driver

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	WPD'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
NETWORK INVESTMENT – NON CORE (EX ANTE)			
BT 21 st Century	Yes	Number of telecoms circuits affected. Nature of solution Previous divestment strategy	Requires indirect activity to develop and manage projects
Flooding	Yes	Number of substations where mitigation works required	Required indirect activity to develop and manage projects
Environment	Yes	Current and targeted levels of fluid and SF6 leaks. Other mitigation works	Requires indirect activity to develop and manage projects
NETWORK INVESTMENT – NON CORE (REOPENERS & LOGGING UP)			
HILP	Yes	Extent of activity	Requires indirect activity to develop and manage projects
CNI	Yes	Number of sites identified as CNI and nature of works required	Requires indirect activity to develop and manage projects
Black Start	Yes	Number of SCADA and protection batteries. Volume of telecoms infrastructure	Requires indirect activity to develop and manage projects
NETWORK INVESTMENT – STANDALONE FUNDING			
Worst Served Customers	Yes	Quantity of Worst Served Customers Stakeholders' views DNO's objective	Requires indirect activity to develop and manage projects
Undergrounding in AONB	Yes	Extent of OH network within AONB Stakeholders' views DNO's objective	Requires indirect activity to develop and manage projects

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	WPD'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
NETWORK OPERATING COSTS			
Trouble Call	Yes	Volume of unplanned occurrences for each asset type and voltage	
Severe Weather – Atypical	No		Not likely to impact on all DNOs to the same extent at the same time
Inspections & Maintenance	Yes	Asset quantities and policies	
Tree Cutting 43-08	Yes	Spans inspected Spans cut	
Tree Cutting – ETR 132	Yes	ETR 132 activity level	Care needed as length of OH line cleared is not related to tree cutting activity
NOC's Other – Dismantlement	Yes	Not yet identified	
NOC's Other – Substation Electricity	Yes	Number of grid and primary substations, consumption per substation and consumption per asset	
NOC's Other – Remote Location Generation (Opex)	No		Activity is limited to three DNOs only

ACTIVITY	INCLUDE WITH DEFINITION OF TOTEX	WPD'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
CLOSELY ASSOCIATED INDIRECTS			
Network Design & Engineering	Yes	Volume of demand connection enquiries Volume of DG connection enquiries Volume of ES2 and ES3 enquiries Extent of replacement activity Extent of reinforcement activity Extent of other network investment	Gross before allocation to non-price control activities (for consistency with inclusion of non-price control activities with scope)
Project Management	Yes	Extent of connection activity Extent of DG connection activity Extent of ES2 and ES3 activities Extent of replacement activity Extent of reinforcement activity Extent of other network investment	
Engineering Management & Clerical Support	Yes	Network Scale	
System Mapping – Cartographical	Yes	Network Length	
Control Centre	Yes	Actual (or potential) activity on distribution network	
Call Centre	Yes	Number of customers	
Stores	Yes	Stores throughput	
Operational Training	Yes	Volume of classroom training undertaken and Volume of on the job training undertaken	
Vehicles & Transport	Yes	Number of direct employees	

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	WPS'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
BUSINESS SUPPORT INDIRECTS			
Network Policy	Yes	Volume and mix of assets	Gross before allocation to non-price control activities (for consistency with inclusion of non-price control activities with scope)
HR & Non-operational Training	Yes	Quantity of direct and indirect staff	
Finance & Regulation	Yes	Measure of Network/Business Scale	
CEO	Yes	Number of DNOs in group	
IT & Telecoms	Yes	Measure of Network/Business Scale	
Property Management	Yes	Quantity and nature of non-operational property portfolio	
NON OPERATIONAL CAPITAL EXPENDITURE			
Non Op Capex – Vehicles	Yes	Replacement cycle, extent of existing commercial fleet, DNO direct labour	Gross before allocation to non-price control activities (for consistency with inclusion of non-price control activities with scope)
Non Op Capex – Small Tools and Equipment	Yes	Number of direct staff, extent of direct activities	
Non Op Capex – Non Operational Property	Yes	Quantity and nature of non operational property portfolio	
Non Op Capex – IT & Telecoms	Yes	Measure of Network/Business Scale, Business cycle	

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	WPD'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
ATYPICALS			
Atypicals Non Severe Weather	No		Not likely to impact on all DNOs to the same extent at the same time.
Atypicals Non Severe Weather (non RAV)	No		
Atypicals Non Severe Weather (Non Price Control)	No		
IFI & LCNF			
IFI	No		Not likely to impact on all DNOs to the same extent at the same time
LCNF Tier 1	No		
LCNF Tier 2	No		

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	WPD'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
NON PRICE CONTROL ACTIVITIES			
ES2: Diversionary works under an obligation	Yes	Extent of ES2 activity	Required indirect activity to develop and manage projects
ES3: Works required by any alteration of premises	Yes	Extent of ES3 activity	Requires indirect activity to develop and manage projects
ES4: top-up, standby and enhanced system security	Yes		Costs are embedded in other activities
ES5: Revenue protection services	No		
ES6: Metering services (other than legacy meter equipment provision)	No		
ES7: Miscellaneous	No		
Legacy Metering	No		
Out of Area Networks	No		
De Minimis Activities	No		
Other (Consented) Activities	No		

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	WPD'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
NON ACTIVITY BASED COSTS			
Business Rates	No		
Ofgem Licence Fee	No		
Shetland Balancing Costs	No		
GS Compensation Payments (SI 698 of 2010)	Yes	Performance	Potential trade off with other activities
Ex-Gratia Compensation Payments (SI 698 of 2010)	Yes	Performance	
Connections Guaranteed Standards of Performance Compensation Payments (SI 2088 of 2010)	Yes	Performance	
Ex-Gratia Compensation Payments (SI 2088 of 2010)	Yes	Performance	
Distributed Generation Standards Direction issued under paragraph 15A.16 of Standard Condition 15A	Yes	Performance	
Ex-Gratia Compensation Payments (Distributed Generation Standards Direction issued under paragraph 15A.16 of Standard Condition 15A)	Yes	Performance	
Any other Ex-Gratia/Goodwill Compensation Payments	Yes	Performance	
DG Network Unavailability Rebate Payments	Yes	Unplanned network occurrences affecting DG	

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	WPD'S INITIAL VIEW OF DRIVER(S) OF VARIABLE COST ELEMENT	COMMENT
Bad Debt Expense (net of recoveries)	Yes		
Profit/Loss on sale of fixed Assets and scrap	No		Income
Pensions Deficit Repair Payments	No		Income
Contingent Pension Asset Costs	No		Income
Cost of Items Sold – Network Assets	No		Income
Cost of Items Sold – Vehicles	No		Income
Cost of Items Sold – Other	No		Income
Depreciation – Network Assets	No		Income
Depreciation – Vehicles	No		Income
Depreciation – Other	No		Income
Net Sale Proceeds – Network Assets	No		Income
Net Sale Proceeds - Vehicles	No		Income
Net Sale Proceeds – Other	No		Income
Pre2010 Transmission Connection Point Charges	No		
New Transmission Capacity Charges	No		
Post2010 Unincentivised Transmission Connection Point Charges	No		

ACTIVITY	INCLUDE WITHIN DEFINITION OF TOTEX	COMMENT
COST TYPES		
DNO & Related Party Labour	Yes	
DNO & Related Party Pensions (i.e. ongoing pensions costs)	No	DNOs are potentially on different cycles for their triennial valuation. Therefore different assumptions regarding critical variables are likely to be prevalent Could be included but normalisation would be required
Contractors	Yes	
Materials	Yes	
Wayleaves (inc Easements/Servitudes)	No	This cost type is not “equitably” distributed across DNOs
Road Charges	No	Not all DNOs equally affected by permit charges, lane rentals etc
Rent	No	There is likely to be material regional variation in rents. In addition, some DNOs own property whilst others rent property. Standalone assessment required
Subscriptions	Yes	
Related Party Margins	Yes	
Customer Contributions	No	Income
Cost Recoveries	No	Complex area, predominantly income

SELECTION OF COST BASES

- Cost bases after deduction of connection charges, cost recoveries and cost allocations are unduly influenced by size of DNO and cost allocation methodology
- Percentage of indirect activity costs allocated to non-price control activities ranges from 17% to 31% across DNOs
- Cost bases should be at the Gross Cost level, i.e. before :
 - Deduction of connection charges
 - Deduction of cost recoveries
 - Any cost allocations to activities outside the price control

SELECTION OF COST BASES

- Cost base must include :
 - All activities common to all DNOs; and
 - All direct activities that impact on the activity level of associated indirect activity
- But some direct activities are classed as standalone funding (WSC & AONB), re-openers (CNI & Black Start)
- This needs to be addressed in the setting of price control allowances

MODELLING DIFFICULTIES

Total expenditure can be undertaken by:

- Defining which activities should be included or excluded from the cost base
- Developing a composite activity driver that reflects those activities included within the definition of total expenditure
- The correct composite activity driver for each DNO's total expenditure is the weighted average of the drivers of the activities included within the scope of total expenditure

But this raises a dilemma

MODELLING DIFFICULTIES

- A common composite activity driver is needed to undertake meaningful cost benchmarking across DNOs, but:
 - The composite activity driver (i.e. weighted average of the drivers of the activities included within the scope of total expenditure) will be different for each DNO
- Therefore, any definition of total expenditure that works will inherently block any meaningful total expenditure comparison when a composite driver is used at the aggregated level

MODELLING DIFFICULTIES

- Total expenditure benchmarking that uses a composite driver at an aggregated level is descriptive, i.e. the approach can only describe what each DNOs' costs are (i.e. the current level and mix of costs)
- For comparative analysis we need an approach that is prescriptive, i.e. the approach should determine what each DNOs' costs should be (i.e. the predicted level of costs)

WAY FORWARD

- Way forward is to:
 - Undertake benchmarking at a disaggregated level in order to reveal variances and trade-offs between actual costs and “predicted” costs
 - This disaggregated level should include all the activity areas identified in previous slides
 - Sum all the disaggregated analyses to give total expenditure and reveal overall difference between actual and “predicted” costs
- Approach overcomes:
 - The problem of a descriptive composite activity driver
 - Reliably addresses the trade-offs in each DNO’s cost base
- This overall approach has been used very reliably by WPD

CONCLUSIONS

- Definition of total expenditure is complex
- Determination of composite activity driver is complex
- Selection of cost base needs to “see through” cost allocation methodologies
- Total expenditure benchmarking using a composite activity driver is descriptive and therefore unsuitable for comparative analysis
- Structured approach to total expenditure analysis:
 - Undertake benchmarking at a disaggregated level
 - Sum all the disaggregated analyses to give total expenditure and reveal overall difference between actual and “predicted” costs



Totex modelling – part 2

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- └ Electricity North West and WPD broadly agree on principles for determining totex cost and cost driver construct
- └ A few areas where we have alternative view
- └ Costs
 - We believe that it is important that an alternative totex model is constructed that reflects the costs that DUoS customers will pay (the correct basis for setting DUoS funded allowances). This should be used in addition to gross cost model.
 - Therefore an alternative model must be constructed that is limited to DUoS funded activities (remove connections outside price control, excluded services, indirects allocated to non distribution businesses, adjust costs for associated customer contributions).
 - Any differences in modelled efficiency between this model and gross cost model should be investigated to determine whether they reflect distortions associated with cost allocation basis.
 - Should also remove costs that will be subject to logging up mechanisms (WSC, UVA, etc) to avoid potential for customers paying twice
 - We would prefer to seek a method of normalising ongoing pension costs (included in direct costs for outsourced companies so would otherwise create boundary) but if normalisation is not possible agree should exclude
 - We believe that the treatment of cost recoveries should be subject to more detailed review as they comprise a number of very different items

Cost drivers

- Whilst we generally agree with most (but not all) suggested cost drivers there are far too many to be used in a totex model – and a composite comprising all suggested drivers would be impracticable

Alternative model

- Agree that summated 'predicted costs' is much more immune to trade-offs and cherry picking than upper quartile based aggregation and support exploring this approach
- Our analysis demonstrates that there are some further tradeoffs beyond simple addition of 'predicted costs'
- Key to making such an approach work will be developing disaggregated approach to network investment that takes into account efficacy of interventions and efficiency of volumes as well as unit costs