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RIIO T1 Business Plan Update

Risk Management and Uncertainty Mechanisms

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SP Transmission Limited

Risk Management and Uncertainty Mechanisms

This paper brings together and expands upon the sections of SPT's Business Plan which address risk management and uncertainty mechanisms.

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1. Risk Management

Progressive companies use enterprise risk management frameworks as a tool to help manage and improve business delivery. SP Energy Networks is striving towards best practice risk management processes that improve the effectiveness of the business. It operates an enterprise risk management framework across its business and has done so for more than ten years. This framework is designed to capture all key risks to the delivery of the businesses strategic goal, its yearly objectives and its effective day to day operations of the network. Strong risk management is imperative to ensure that the strategic and operational objectives underlying all transactions are realised, and that sound internal control is in operation.

The risk reporting framework itself includes a risk report for each directorate, 9 in total, which feed into the report for the entire SP Energy Networks business. Each risk report is reviewed monthly and each risk has actions to mitigate the risk position. To ensure consistent assessment across all directorates there is transparent assessment criteria for each risk capturing impact on stakeholders, business operations, finances, health and safety, and customers. The likelihood of each risk is also assessed. The most significant risks are filtered off for attention of the Executive team on a monthly basis, where risk, impact and actions are challenged. All risks in the suite of risk reports receive monthly scrutiny from management teams, our Business Assurance team and our Executive Team. This risk identification and assessment process underpins our assurance activities.

The framework also includes Key Risk Indicators which are monitored quarterly and give oversight of risk in the business and any areas of developing concern. Some of our risk management activities are noted below:

- Internal certification over financial reporting controls, including entity level control assessment
- Audit programmes to review effectiveness of our processes and controls to satisfy ourselves that we are effective
- An Internal Audit programme to independently check our controls over our key risk areas

All decision making in SP Energy Networks is managed through its established risk forums providing effective and transparent governance. These governing committees operate within risk management frameworks and approved tolerances ensuring all decision making is controlled within these limits. Some of our key forums include our:

- Systems Review Group for assessment of technical options
- Investment Review Group for financial approval of capital projects
- Operational Risk Group for all asset related risks
- Integrated Management Systems Group to provide oversight of all independent process assessments and certifications

The business has an overarching governance forum by way of its Executive Team, to run the operations and therefore ensure oversight of all key decision making and risk reporting.

1.1 Risks and Uncertainties

SPT's review of risks has identified a number of major uncertainties. These are:

- Patterns of generation and demand
- Planning requirements
- Real price effects
- Design and security standards
- Legislation
- Protection of critical infrastructure

SPT's assessment of the range for the impact of these on its expenditure, over the RIIO-T1 price control period, is set out in the table below:

Uncertainty	**Range of expenditure over RIIO-T1 ***
Patterns of generation and demand	£255m
Planning requirements	£755m
Real price effects	£83m
Non-Load Related Investment	£185m
Design and security standards	£489m
Legislation	£333m
Protection of critical infrastructure	£37m

** Many of these ranges are derived from the difference between Upper and Lower capex views from our Business Plan*

Management Action

There are a range of management actions which can be taken to manage these risks by:

- Reducing the probability of their occurrence;
- Mitigating their impact;
- Insuring against adverse events; and
- Hedging risk exposure

We have assessed a range of management responses to the risks which we have identified and these are summarised in the table below:

Risk	Management Action
Patterns of generation and demand	Stakeholder Engagement Network planning Close liaison with the System Operator
Planning requirements	Early stakeholder engagement Comprehensive planning applications Mitigate impact on visual amenity
Real price effects	Hedging Forward Purchase Cost effective procurement
Non-Load Related Investment	Manage through Asset Risk Management policies Including asset health monitoring
Design and security standards	Address non-compliance through capex or opex intervention Seek derogation
Legislation	Engage with sponsoring Departments Respond to consultations Encourage industry response through ENA Legal guidance on interpretation of legislation
Protection of critical infrastructure	Engage with DECC and SEPA

Risk Allocation

The primary purpose of the uncertainty mechanisms is to mitigate the impact of developments outside of SPT's control, which would otherwise require a significant increase in allowed revenue. The underlying principles are that:

- Risks should fall on those parties which are best able to manage them;
- Cost efficiency should be appropriately incentivised;
- Timely delivery should be encouraged;
- The return required by investors is commensurate with the risks that they bear;
- Unintended consequences and unnecessary complexity should be avoided; and
- Mechanisms should be transparent.

It is in the interest of consumers for parties other than SPT to bear risk where this:

- Facilitates timely investment to avoid rising constraint costs;
- Facilitates transition to a low carbon economy, including timely connection of renewable generation;
- Minimises risk of disruption to critical national infrastructure;
- Facilitates implementation of Government energy and climate change policies;
- Avoids an increase in the return required by investors;
- Avoids higher insurance costs and hedging premiums;
- Avoids higher costs of forecasting, monitoring, risk management and mitigation;
- Avoids a credit grade down-rating, with
    - Commensurate increases in the cost of debt;
    - Potentially limited access to capital markets, especially during periods of financial turmoil;
    - Increased probability of falling below investment grade;
- Resolves financeability issues, which would otherwise require lower gearing and resulting higher WACC; and/or
    - advancement of additional revenue into RIIO-T1;
- Promotes inter-generational equity.

In developing a holistic and balanced price control package we have undertaken a comprehensive analysis of Return on Equity (RoRE), which quantifies the major risks that SPT is exposed to and their impact on return on equity. Further increasing the risk to which SPT is exposed would result in investors requiring a return which would be above Ofgem's proposed range for the cost of equity for RIIO-T1.

Similarly, Standard & Poor's has warned[1] that "the potential inflexibility of a longer price control period, in the absence of appropriate reopening mechanisms" is one of the RIIO proposals which "may have the potential to increase business or financial risk for the regulated utility companies".

[1] Standard & Poor's, "How The Proposed RIIO Regulatory Framework Could Affect Ratings On U.K. Energy Utilities", September 13th, 2011

2. Uncertainty Mechanisms

We have sought to take full account of Ofgem's March 2011 policy decisions for RIIO-T1 and build on the existing uncertainty mechanisms which have been applied during TPCR4, which are well understood. We have considered Ofgem's initial assessment of our proposed treatment of uncertainty and risk. In our view, it would be counter-productive to attempt to develop novel and untried mechanisms, where existing mechanisms have been demonstrated to work satisfactorily. We are especially mindful of the risk of unintended consequences arising from regulatory mechanisms, which can distort incentives and divert resources from activities and outputs, which customers and other stakeholders consider to be more desirable.

We are also aware of the challenge of communicating complex mechanisms to non-specialists, the risk that they result in unanticipated behaviours by affected parties and unintended outcomes and the difficulties they present for codifying in licence conditions, which Ofgem are seeking to simplify. In this regard, we have taken account of the RIIO handbook's requirement to:

> *"avoid undue complexity and provide greater transparency on the rationale for proposed changes to the regime, consistent with better regulation principles"* (page 96).

We propose a limited number of uncertainty mechanisms for RIIO-T1, which will mitigate the impact of developments outside of SPT's control. These are summarised in the table below:

Uncertainty	Mechanism
Economy wide inflation	RPI indexation of revenue
Licence fee and business rates	Pass through
Cost of debt	Indexation
Pension deficit	Repair
Tax rates and legislation	Tax trigger
Protection of national infrastructure	Re-openers
Connections expenditure	Volume driver To accommodate generation beyond 3516 MWh
Wider reinforcement works	Trigger mechanism Within period revenue adjustment on submission of independently verified projects, followed by end of period cost review.
Non-Load Investment	Trigger mechanism To accommodate additional OHL refurbishment / replacement.
Financial Distress	Disapplication of the price control

Economy wide inflation - RPI indexation of revenue during RIIO-T1 will be applied as set out in Ofgem's decision letter of 1 July 2011. This provides essential protection for SPT from economy-wide inflation, as measured by the RPI, and protection to consumers from potential over-pricing of inflation risk by the network companies.

Licence fee and business rates - We agree that there should be no change to the policy for pass through of licence fees and business rates. Licence fees are determined by Ofgem and business rates cannot be accurately forecast for the duration of RIIO-T1.

Cost of debt, pension deficit repair and tax trigger - Cost of debt indexation, pension deficit repair and tax trigger were addressed in the financial issues section of SPT's Business Plan submission.

Protection of national infrastructure - There should be re-openers to provide protection against additional costs that may arise from requirements of the Centre for Protection of National Infrastructure to enhance security. We accept that there will be two re-opener windows, one in 2015 and the other 2018. We also accept that the materiality threshold will be 1% of allowed expenditure in year one of the RIIO-T1 price control (i.e. regulatory year commencing 1 April 2013), once the efficiency incentive rate (from the Information Quality Incentive) has been applied. However, this amount should be expressed as a percentage of allowed revenue, as this would be more transparent.

Connections expenditure - Revenue drivers protect customers from being charged for investment which may be delayed, for example, if the planning process delays consents, or may not turn out to be required during RIIO-T1, such as particular reinforcement projects, if use of the network develops differently from currently anticipated. By avoiding the inclusion such projects in the baseline, we have sought to protect customers from unnecessary charges.

In addition, the *ex ante* unit cost allowance incorporated into volume related revenue drivers and trigger mechanisms, provides a continuing incentive to deliver specified outputs efficiently.

We propose a volume driver for connections projects which flexes revenue as the cumulative amount of generation connection capacity (including that connected prior to RIIO-T1) falls below or above 4237MW (i.e. TPCR4 target of 1734MWh plus a further 2503MW). This revenue driver would take the value of £42,000 (in 2009/10 prices) per megawatt, which is derived from the average H1 cost per kilowatt for all projects. This is below the value used in TPCR4.

This would be very similar to the mechanism set out in Part 2 of Special Condition J5 (Restriction of transmission charges: Total incentive revenue adjustment) of SPT's Transmission Licence, although the rate of return values would need to be adjusted for cost of debt indexation, year by year. However, provision need no longer be made for high cost projects. As for TPCR4, an annual operating cost allowance of 1% of the cumulative gross value of the revenue driver RAV should be included in the revenue adjustment.

Wider reinforcement works - The mechanisms for wider reinforcement works is designed to incorporate flexibility, as it is not yet clear what increases may be required at particular boundaries. These are set out in Appendix 1.

Non-Load Investment - We propose the following mechanisms for non-load works which are dependent on load works:

- Trigger mechanisms for additional over head line (OHL) rebuilding and re-conductoring
- Within period revenue adjustment on submission of projects which have been independently verified by mutually agreed assessors, followed by an end of period cost review.

These works are set out in Appendix 1.

Again, an annual operating cost allowance of 1% of the cumulative gross value of the revenue driver RAV should be included in the revenue adjustment.

Project Risk

There are number of potential, albeit unlikely, events the occurrence of which could have a significant impact on the overall cost of the project. Our strategy in developing the optimum price will be to ensure that all tasks are allocated to the appropriate parties and that risk was being carried by the party who could best manage that risk.

The approach of including all risk in the agreed target price may not necessarily be in the best interest of the customer as it would result in costs being incurred, irrespective of the risk occurring. There are potentially a limited number of risks, such as extreme bad weather, unforeseen ground conditions and uncertain planning consents, where it may be in the best interest of the consumer if there were a limited number of Asset Value Event Adjustment Reopeners that are defined ex-ante and which, if a specified event occurred, would trigger an adjustment to the target cost.

While we recognise the importance of having a strong incentive to manage relevant risks prior to the contract being finalised, if it is agreed that it is in the best interest of the customer not to include all risk in the target cost, then we will need to agree these events prior to agreeing the total cost of the project to ensure the appropriate risk allocations are reflected in the agreements with our contractor(s) and Ofgem and to ensure that no double accounting takes place. We propose that provision for within period determination should be adopted for projects similar to those which currently are classified as TIRG or TII and where there are considerable uncertainty surrounding relatively large projects. We envisage that, for RIIO-T1, they would be treated in a similar way to Strategic Wider Works. As set out in Appendix 1, we currently propose that the following projects would be included:

- East Coast (Kincardine-Harburn) 400kV Upgrade
- Dumfries and Galloway Strategic Reinforcement

During RIIO-T1 we shall submit independently verified reports, from mutually agreed assessors, which set out the proposed works and necessary expenditure. However, it is essential that provision is made for changes to the scope of works for such projects, to allow for an asset value adjusting event arising from:

- The need to comply with the terms or conditions of any statutory consent, approval, or permission (including but not limited to planning consent),
- The need to adapt to unforeseen ground or sea-bed conditions, and
- Extreme adverse weather conditions (which could impact on cable laying weather windows)

In addition, for projects where tenders are outstanding, for example for series compensation, provision should be made for insertion of the costs, at a later stage.

This approach would facilitate a reduction in the number of consultations while providing for protection for customers by avoiding possibly unnecessary or excessive allowances and through the initial direction of the Authority and, subsequently, the end of period review.

We support the continuation of the current policy for disapplication of the price control. With an 8 year price control period there is a greater risk that an efficient and economic network company could find itself in financial distress, which would need to be relieved before the end of the price control period.

2.1 Implementation in Licence

Generation Volume Drivers

We suggest that the Licence drafting for generation revenue drivers mirrors the drafting set out in our current licence. Our Best View ex-ante allowance is based on 2503MW being connected over the period of RIIO-T1. Funding would be flexed (up or down) based on a symmetric revenue driver of £42k/MW, at 2009/10 prices. There would be no requirement for a logging up mechanism for high cost projects.

Wider System Trigger Mechanisms

These are required for two projects:

1) Dumfries and Galloway, and
2) East Coast 400kV.

It is important that there is some mechanism available to address significant material changes in terms of cost, scope and timing, particularly identified prior to the construction, that are outwith the direct control of SPT. Further detail on these projects is set out in Appendix 1.

The licence drafting should allow for an asset value adjusting event which includes such material changes.

Non-Load Trigger Mechanisms

Our strategy for OHL refurbishment is to replace and refurbish almost 2000 circuit km of 132kV, 275kV and 400kV conductor over two price review periods. Central to the delivery of this strategy is to have the flexibility to undertake additional OHL works when the opportunity permits, for example if wider system works are delayed due to planning consents then we should take the opportunity to undertake additional OHL refurbishment if system access permits.

The OHL major refurbishment projects to be funded through within period mechanisms are XD and XN routes, XK and XM routes, and U & AT routes. These are set out in Appendix 1.

Any projects that have not been identified in SP's business plan but which may arise during RIIO T1 may be eligible for a within period determination funding mechanism, subject to Ofgem's assessment on customer benefit.

Adjustment to Wider System Reinforcements Funded Through the Ex-Ante Allowance

Following discussion with Ofgem we have agreed to add the following five wider system works projects to the ex ante allowance:

1) Western HVDC
2) SPT-NGET Series Compensation
3) East-West Upgrade
4) Hunterston-Kintyre link
5) Pre-construction for non-baseline wider system projects

For both the Western HVDC Project and the SPT-NGET Series Compensation project, where tenders are outstanding, provision should be made for insertion of the costs in 2012.

The threshold for triggering an Asset Value Adjusting Event on the Western HVDC project will be 10% of the total project cost, and this would be subject to a 50:50 sharing. The threshold for triggering an Asset Value Adjusting Event on other projects will be 20% of the project costs, and this would be subject to 50:50 sharing.

Any projects that have not been identified in SP's business plan but which may arise during RIIO T1 must have a project cost over £100m to be eligible for a within period determination funding mechanism. Project costs below £100m may also be eligible, subject to Ofgem's assessment on customer benefit.

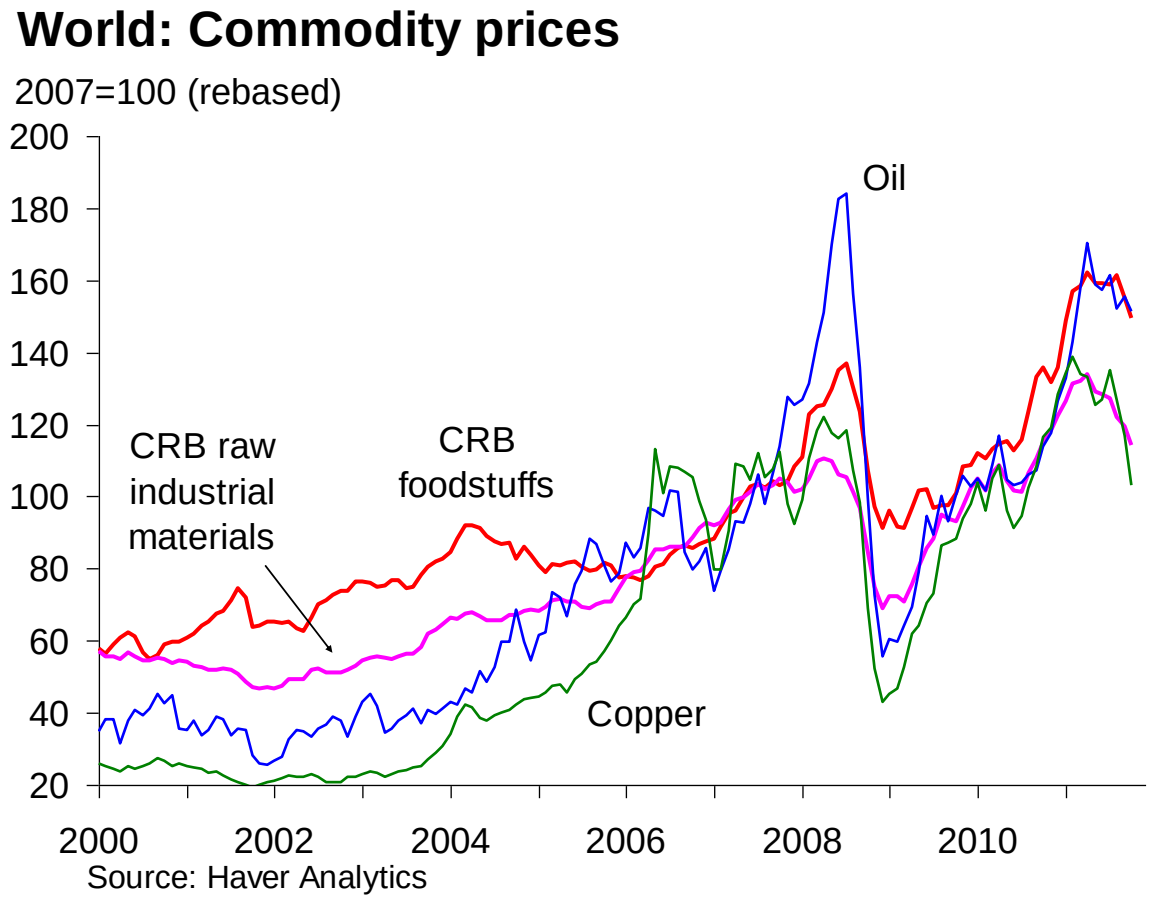
The licence drafting would follow that proposed for strategic wider works (ETC40) but would have a wider definition of the relevant change to the scope of works than is currently proposed, so as to include the events listed above.

3. Real Price Effects

SPT is exposed to the risk of real price increases above the RPI. Commodity prices are notoriously volatile and cannot be predicted with confidence. However, recovery from the recession and rapid growth in emerging economies, including China and India, are forecast to lead to commodity prices continuing to increase above the Retail Prices Index (RPI).

The World Bank in its latest Global Economic Prospects notes[2]:

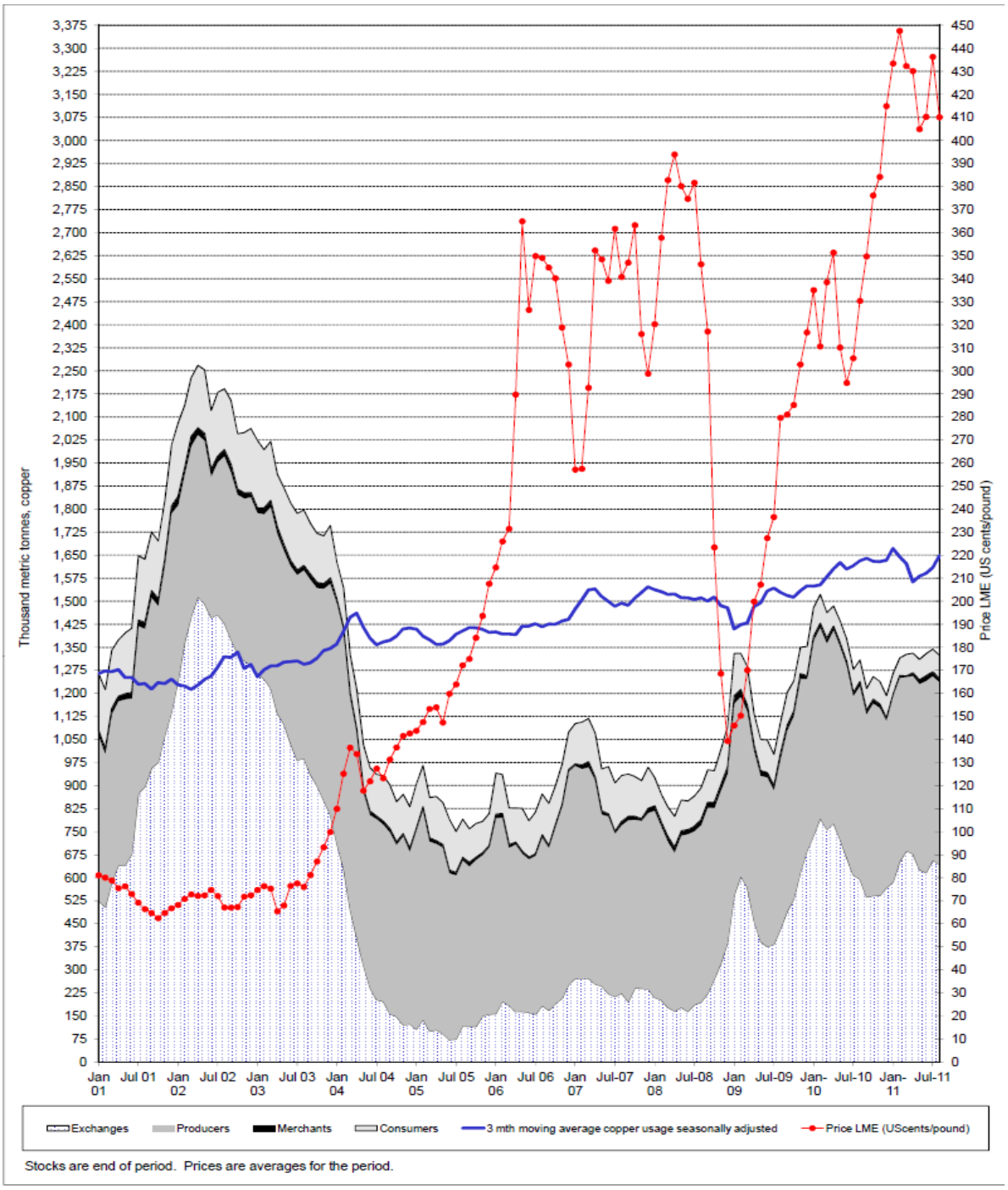
"The spread of political unrest in the Middle East and North Africa could push crude oil prices much higher in the shorter term, especially if there is disruption to a major oil producer. Stronger demand from China could boost metals prices by more than currently expected, and continued supply constraints could further aggravate markets. Given low stock levels, agricultural (and especially food) prices will remain sensitive to adverse weather conditions and energy prices. Moreover, at current or higher oil prices, biofuels production becomes an increasingly attractive use of land and produce, likely increasing the sensitivity of food to oil prices."



The chart above highlights the extreme volatility of commodity prices, especially copper and oil. The chart below shows the movements in the copper price.

[2] World Bank, Global Economic Prospects, June 2011

World Refined Copper Stocks and Prices



Source: International Copper Study Group

We have carried out analysis in conjunction with other network operators using external advice from First Economics[3]. Whilst this has enabled us to include our best view of labour and material price increases, there inevitably remains considerable uncertainty in this area, particularly over an eight year price control period and at a time of great international economic and geo-political uncertainty.

[3] First Economics, Real Price Effects, 30 June 2011

First Economics' RPE estimates

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17 to 2020/21
Labour – general	(3.2)	(0.9)	0.6	0.8	0.7	1.05
Labour – specialist	(1.95)	0.35	1.85	2.05	1.95	2.3
Materials – general/civils	(0.7)	1.1	1.0	0.9	0.7	1.3
Materials – electrical	(0.2)	1.6	1.5	1.4	1.2	1.8
Materials – steel for pipelines	14.8	1.6	1.5	1.4	1.2	1.8
Plant and equipment	(1.2)	0.6	0.5	0.4	0.2	0.8

We note that, for RIIO-GD1, gas distributors have submitted RPE estimates provided by other advisers, including Oxford Economics and EC Harris. These support the case for significant increases above RPI inflation.

We have ranked (with 1 as highest) the main input cost categories by volatility, materiality and the degree to which these are controllable by SPT. This assessment indicates:

Cost category	Volatility	Materiality	Controllability
Direct Labour	4	2	1
Contractor Labour	2	1	3
Civils	3	4	2
Metals	1	3	4

This highlights the main areas of risk are:

- Metals – especially copper, which are highly volatile and outside our control
- Contract labour – due to the materiality of impact on the plan

This cannot be mitigated further by conducting any further predictive analysis and instead is reflected in a proposed financeability package that delivers comfortable investment grade credit ratios.

Nevertheless, SPT would be exposed to real price effects above those incorporated into the expenditure allowances. In the absence of an agreed approach to extreme cumulative real price increases, there would be significantly increased likelihood of SPT seeking disapplication of the price

control during RIIO-T1, in the event that such real price increases occurred. In our view, such an eventuality would not be in the interests of stakeholders and would cast doubt on the future of RIIO, greatly increasing uncertainty for all affected parties.

In our view, further consideration should be given to the development of an uncertainty mechanism for, at least, the most volatile component(s) of real price effects, namely metals, especially copper.

Given the degree of uncertainty surrounding real price effects, we believe it would be appropriate to have the opportunity to seek a re-opener as part of the mid-period review, which would adjust cost allowances to take into account movements in real price effects (to be considered in isolation from performance in other areas of the price control).

Appendix 1 **SPT Updated Business Plan - January 2012** **Non-Load and Load Uncertainty Mechanisms**

Works Description					Trigger	Outputs	Comments
Dumfries & Galloway Strategic Reinforcement	Load Wider System Works	Best View	£333M	Trigger	Following detailed engineering assessment, provide submission to Ofgem, covering need, scope, design, cost, consents and timing, recommending that this upgrade goes ahead.. Clearly demonstrate that SPT has a stakeholder engagement process underway.	Provide additional 1800MW capacity in D&G (based on 275kV double circuit solution, and assuming maximum infeed loss under SQSS of 1800MW). Complete reinforcement 4 years after planning consents in place.	The ability to connect further generation in Dumfries and Galloway is limited by the existing single circuit 132kV line between Coylton and Dumfries. Theses limitations in the existing 132kV system have led to non-optimal connection solutions to date, and we have now reached a point where further generation cannot be accommodated. We therefore intend to proceed with pre-construction works to undertake detailed design, routing and environmental assessment, and in parallel undertake full stakeholder engagement.
East Coast (Kincardine - Harburn) 400kV Upgrade	Load Wider System Works	Best View	£120M	Trigger	Following detailed engineering assessment provide a submission to Ofgem, covering need, scope, design, cost, consents and timing, recommending that the upgrade goes ahead. This assessment will consider the network impact of any decision to proceed with the Eastern HVDC link, and the future of Longannet. Clearly demonstrate that SPT has a stakeholder engagement process underway.	Increase in Boundary B5 Capacity of 600MW to 4050MW. Complete reinforcement 4 years after planning consents in place.	The need case, design and timing of this reinforcement is linked to life of Longannet Power Station, and the decision to go-ahead with an offshore Eastern HVDC link. There are two potential design solutions are set out in our original business plan submission: (1) If we decide to proceed with upgrading existing circuits from Kincardine to a new site near Livingston, called Harburn, then we will undertake refurbishment to the following routes: - XD (Kincardine to XD) and XN (XD to XK) 29 circuit kilometres - XK (XN to XM) and XM (XK to Currie) 83 circuit kilometres. If we do not decide to proceed with this design solution then the above refurbishment routes will be undertaken in RIIO T2.. (2) If we decide to create two new circuits Denny / Coatbridge / Wishaw 275kV and Denny / Wishaw 400kV which involves building a new 17km section of 400kV construction OHL from Bonnybridge to Gartcosh then we will need to advance the refurbishment of XR and XX routes from RIIO T2. - XR (Newarthill to Wishaw) 32 circuit kilometres - XX (Easterhouse to Newarthill (part) 15 circuit kilometres
XD and XN routes (29 circuit km)	Non-Load	Best View	£10.2M	Trigger		Increase in Boundary B5 Capacity of 600MW to 4050MW. Complete works 3 years after planning consents in place..	See comments for option (1) in the East Coast 400kV Upgrade above. Our Business Plan sets out these works are in Best View to be undertaken in RIIO T1.
XK and XM routes (83 circuit km)	Non-Load	Best View	£36.4m	Trigger			
U and AT Routes - Galashiels to Eccles (61 circuit km)	Non-Load	Best View	£13.7M	Trigger		Complete works 3 years after consents in place.	These Non-Load works involve the replacement of the two separate 132kV circuits from Galashiels to Eccles with either a new double circuit line on U route, or a new 132kV double circuit interconnecting the 400kV line from Cockenzie to Eccles . Note major planning consents required for these works.