

Response to Deadline 4 Submission – Lifetime Cost Report.

Below are my comments and observations on the Lifetime Cost Report.

3 Description of Underground Cables

Page 9 – Route (and associated reference to Appendix C).

General approach: SPM states that ‘to limit the amount of joints on a cable, long straight stretches on level terrain are preferred, this lends itself to choosing routes along existing transport routes where possible’. The route selected contains numerous sharp bends which is not consistent with SPMs justification for using existing transport routes.

Appendix C

Cable laid in public terrain

SPM give reason for the underground cable route selection which predominantly follows existing road infrastructure. However, the reasons stated are not justified as explained below.

H&S: Installing 132HV cables adjacent to other utilities in highway verges would increase H&S risks as there would be multiple utility companies with their apparatus in close proximity to each other making repairs/maintenance very difficult. In comparison, a cable laid underground at a depth of 1.2m in a field would have minimal H&S risks.

Access rights: The same procedure would apply for the OHL where the compulsory acquisition of rights means that SPM could access the OHL unimpeded at any time. Therefore, there is no difference in procedure if the cable was laid underground as the rights would have been granted to access any repairs at any time. This case for the route selection is therefore flawed.

Section lengths: The route SPM have selected for this project consists of many multiple corners in order to follow existing highways. Had a similar route to the OHL been selected, there would have been far fewer corners and a reduced route length.

Cable laid in third party land

Again the justifications presented in this section for not installing underground cables across third party land is flawed and not justified.

There would be no complications with access to enter third party land since the rights would have been secured as part of the DCO (similar to a OHL).

There is no need to follow predefined land marks such as trackways and field boundaries. The cable would be 1.2m deep therefore any ploughing or drainage would be well above this depth. Gas and water mains to be laid in the most direct route through fields and this is normal practice throughout the country – there is no reason why electricity cables routes can adopt the same philosophy. The potential for short term sterilisation of land during construction would be a minor inconvenience compared to the long term visual impact of the OHL. Temporary access track and haul roads would

also be required for OHL installation so this is not a justifiable reason for the underground route to follow existing highways.

Proposed all underground cable route

The table presented makes it clear that the majority of the route is on highways (65%) and footpaths (20%). This results in an extremely expensive capital cost for the underground option which skews the whole cost analysis that SPM have prepared. The cost of excavation and reinstatement would on highways is substantially higher than in open fields. Temporary traffic management, resulting in major disruptions to the public and local economy, would also be required with the route selected by SPM. Many of the roads along the route selected would need to be closed during the construction stage as they would be too narrow to allow any traffic management to be implemented – again resulting in serious disruption to the locals as well as tourists.

An underground route along the same OHL route would therefore bring substantial capital and maintenance cost savings. The route along the highways is also approximately four miles longer than the OHL route – again this adds substantial additional capital and maintenance costs. The route options are therefore not comparable to each other – SPM have deliberately chosen a route for the underground option that has artificially increased the capital and maintenance costs by a significant amount. This in turn has also affected all the other cost calculations presented.

As part of the route selection process, SPM should have considered an underground route that was on a similar alignment to the OHL – this would have resulted in a substantial saving in capital and future operation and maintenance costs. The cost analysis undertaken by SPM is therefore biased, flawed and is not a true representation of the options that should have been considered.

Page 11 – Maintenance

The photos indicate significant temporary works to enable the cable jointing. However, these are urban locations and on highways. In open fields, there would be no need for temporary shoring works as the excavations could be battered back to allow a safe working environment. The images illustrate the problems and disruptions caused by routing underground cables along highways.

4. Regulated Business and Benchmarking

This section states that SPM has a 'duty to develop and maintain an efficient and economical distribution system'. This has not been demonstrated due to the points referred to above in terms of selecting the most economical route for the underground cable option.

5 Capital Costs

Both example projects noted were for cables installed in carriageways and carriageway verges. As highlighted above this is a very expensive methodology compared with laying cables through open fields.

6. Assessment of Life time costs

Repair for faults – Cable

There is a long section on the difficulties when several transitions between overhead and underground equipment, citing difficulties on locating faults. In this case there would only be two transitions and they would be at the substations which would be easily accessible.

The SPM fault rate of 3.2 per 100km has been assumed for the lifetime cost calculation. This is despite the fact that England and Wales has an average of 2.4 and the National Average being 2.6. Does the SPM rate (33% higher) result from older and more unreliable underground cables compared with the rest of England and Wales?

For the purposes of the assessment SPM have used 50% Damage and 50% non-damage based on their existing underground cables. On the assumption that most of SPMs cables are in urban locations, the %age of damage to cables would be higher given the ongoing development of towns and cities where excavations are commonplace with resulting higher %age of damage to cables. I would argue that the %age of Damage would be far less for an underground cable in open fields and this would have a significant effect on the lifetime costs because the cost of repairs to a damage fault is far greater than a non-damage fault (<£2000 for non-damage compared with £25,000 to £600,000 for limited/extensive damage fault). Again this is another example of SPM increasing the cost of the underground cable damage repairs for a route that follows existing highways. This is exacerbated as the repair costs are based/km therefore the additional length for the proposed underground cable route will be more expensive compared to a more direct route through fields.

Asset Replacement and Decommissioning costs

SPM admit that that data is limited for underground cables but would expect asset replacement to commence at around 60 years. Why is it then that the costs built into the replacement and decommissioning from 40 years? The cables would only need to be replaced once at 60 years and then they can be left in the ground – there would be no need to recover them resulting in negligible decommissioning costs compared to overhead lines where all the structures and cables would need to be removed. I do not agree with SPMs view that the cables would need to be removed from at the landowner's request – they could simply be made safe and abandoned with low costs.

7 Calculations (including appendices)

The cost calculations are based on formulas that use the length of the route, therefore the longer the route the higher the cost. In this case the length of the underground cable is approximately four miles (6.5km) longer than the OHL which is clearly going to affect the overall comparison. In addition, the fault rates are high along with the Damage to Non-Damage fault ratio. These have been based on urban/highway routes where the fault rates would be higher than in open fields.

There is no evidence/back up information given to substantiate the figures presented in the tables. These figures are needed if to properly analyse the results.

9. Conclusions

Overall a clear attempt by SPM to hide the fact that the longer and more tortuous underground cable route was selected with the intention of skewing the costs in favour of the OHL. Had an underground cable route been selected/considered along a similar line as the OHE, the cost results would have been significantly different. In my opinion the OHL is not justified as the costs have not been compared on a like for like basis. Other issues such as the damage factors and damage ratios, as noted above, have also influenced the costs in favour of the OHL.

In addition, this report does not consider the other detrimental cost to the local communities where the OHL passes through. No mention has been made to the environmental costs or loss of income to businesses for the lifetime of the project. The report is short sighted in this respect with no consideration to the local or wider economic impact.

Throughout the process, there has been a complete bias towards an OHL with little if any effort made to even consider the underground cable option. The underground cable option should have been part of the route selection study/consultation process with a proper consideration to all the benefits it would bring compared to the OHL.

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