NOTE THAT THE MAP/PHOTO APPENDICES HAVE BEEN REMOVED AND WILL BE AVAILABLE SEPARATELY

CAIRNGORMS NATIONAL PARK AUTHORITY

FOR DECISION

Title: **Consultation response to the Scottish Executive on the Proposed Beauly to Denny 400kV Transmission Line.**

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Purpose

The purpose of this paper is to agree the CNPA consultation response to the Scottish Executive, who have consulted us under Section 37 of the Electricity Act (1989) on this proposal.

Recommendations

That the Board agree the Recommendations A) and B) in this report as the CNPA response to the consultation from the Scottish Executive.on the proposed Beauly – Denny 400kV Transmission Line.

Executive Summary

The CNPA has already stated as a matter of principle that its preferred position is for this proposal to be routed outwith the National Park. Having assessed the submission it is concluded that this major intrusive development within the National Park is wrong for a number of reasons, and it is considered that CNPA should object strongly to this proposal. There will be serious impacts on the National Park landscape, including the main gateway at Drumochter on the A9 . There is insufficient information to confirm that there will not be an adverse impact on nature conservation. There is concern that the impact on the Dalwhinnie and Kinloch Laggan/ Laggan communities will be further compounded by the potential adverse impact on tourism, which is the economic driver for the this and the wider area. The first recommendation section of this report sets out the specific grounds for objection in terms of relevant policy and the aims of the National Park.

The CNPA do appreciate, however, that we are being consulted on one section of the proposed overall line, and our remit limits us to assessing approximately 10% of the proposal's route. While it would be our wish that the line does not come through the National Park, we must consider the implications if the whole route gets approval

(in principle) from the Scottish Executive. If this transpires, then we must highlight mitigating measures which will minimise the impacts on the people, landscape, land management, ecology and economy of the National Park, as well as on its visitors.

One such mitigating measure must be under-grounding of the cables, even if this is only possible in sections. Any additional expense and short-term disturbance would be balanced by minimising damage to the integrity and aims of a National Park that has only been in existence for 3 years. The second recommendation section of this report describes the process that it is considered the Scottish Executive should follow in this respect.

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GLOSSARY

CNP	Cairngorms National Park
CNPA	Cairngorms National Park Authority
CRAP	Cairngorms Revolt Against Pylons
EIA	Environmental Impact assessment
ES	Environmental Statement
LOD	Limit of Deviation
NP	National Park
NPF	National Planning Framework
NPPG	National Planning Policy Guidance
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SHETL	Scottish Hydro-Electric Transmission Limited
SPA	Special Protection Area
SPT	SP Transmission Ltd.
SSSI	Site of Special Scientific Interest
EHV	Extra High Voltage
FF	Fluid-filled
OHL	Over-head Line
SEC	Sealing End Compound
UGC	Under-ground Cable
XLPE	Cross-linked polythene Insulated

Consultation Response to the Scottish Executive on the Proposed Beauly-Denny 400kV Transmission Line.

Background

1. The CNPA were consulted by the Scottish Executive in early October 2005 on the application for consent, under Section 37 of the Electricity Act (1989), to install a 400kV overhead transmission line from Beauly to Denny. The application is jointly from Scottish Hydro-Electric Transmission Limited (SHETL) and SP Transmission Limited (SPT). The proposed project comprises 220km of new double-circuit 400kV overhead transmission line on steel lattice towers, from Beauly substation to a new substation near Denny; the route links-up between the substations at Fasnakyle, Fort Augustus, Tummel and Braco. All 220km of the existing 132kV line will be removed. The consultation documents comprise a 6-volume Environmental Statement with an additional Ecology & Nature Conservation Addendum.

2. The CNPA has been part of a 'stakeholder group', established in February 2004 by the applicant and the Scottish Executive, to discuss the proposal's progress and ensure continual dialogue between all the main parties. Members of the group included: the relevant local authorities, the CNPA, SNH, SEPA, Historic Scotland and the applicant's consultants. The CNPA and relevant local authorities received an extension to the consultation period, due to the scale of the work involved to the 28th April 2006.

3. The proposed route will follow the Corrieyairack Pass and enter the Cairngorms National Park (CNP) just to the east of Garva Bridge, before cutting south across upper Speyside and travelling through Glen Shirra to Inver Pattack (just east of Kinloch Laggan). Crossing the A86 and River Pattack, the line traverses the mountains to the A889 and Cathar Mor, before crossing Glen Truim and the A9 just north of Dalwhinnie; from here the line follows the A9 south to the Drumochter Pass.

4. The existing 132kV transmission line follows the same route over the Corrieyairack Pass to Garva Bridge, but continues straight down upper Speyside and passes the northern end of the Spey Dam. From here it continues eastwards, passing south of Laggan and north of Catlodge, meeting the A9 in Glen Truim just north of Etteridge, and down to Dalwhinnie. From Etteridge the transmission line also continues north to Boat of Garten (but carries a much lower voltage).

5. The CNPA has previously submitted 'interim consultations' to the applicant on: the preferred route options, 17th March and 16th August 2004; response to the Scoping Report (to the Scottish Executive) 24 Aug 2004; the potential route option through Glen Shirra, 31st January 2005. Our response to the two route-option consultations was that we were opposed to the line passing through the National Park, but if the overall route was given consent then the impacts on the Park should be mitigated against, including under-grounding. The scoping response listed the information that we considered should be included in the ES.

APPRAISAL OF THE ENVIRONMENTAL STATEMENT

6. This will be addressed by the Section headings in Volume 1: Main Text (shown in bold below). Sections shown in *italics* are information which is included in the ES, other text is CNPA appraisal/comment.

7. **Environmental Impact Assessment:** *An EIA is required for the line and ancillary works (inc. temporary access tracks and junctions with public roads) under the terms of Section 37 of the Electricity Act, and thereby the Electricity Works (EIA) (Scotland) Regs 2000. The findings of the EIA are reported in the Environmental Statement (ES), on which we have been consulted by the Scottish Executive.*

8. *Works to sub-stations, for permanent access tracks, construction compounds and borrow pits will be the subject of normal planning applications to the relevant local planning authorities.*

9. *The ES comprises 6 volumes and an addendum: Volume 1, Main Text; Volume 2, Figures; Volume 3, Appendices; Volume 4, Substation Reports; Volume 5, Technical Annexes; Volume 6, Confidential; Ecology & Nature Conservation Addendum.*

10. **Statutory Context:** *SHETL and SPT must seek consent for this proposal under Section 37 of the Electricity Act 1989 (as amended by the Utilities Act 2000 and the Energy Act 2004). Wayleave agreements are required with landowners (either voluntarily or through the Electricity Act) for the line to cross their land; access agreements may also be required from adjacent landowners. Under Schedule 1 of the Electricity Works (EIA)(Scotland) Regulations 2000, an EIA is required, and the resultant Environmental Statement is what we're consulted on. Works not covered by the Section 37 application (works to sub-stations, for permanent access tracks, construction compounds and borrow pits) will be covered by the Town & Country Planning (Scotland) Act 1997; these will be the subject of normal planning applications to the relevant local planning authorities. Under the Conservation (Natural Habitats, &c.) Regulations 1994, where a proposal will have a significant effect on a European Site (and is not necessary for/linked to its management) then the 'competent authorities' must make an appropriate assessment of the implications.*

11. **The Need for the Project:** *The UK Government has set a target for renewable energy production of 10% by 2010 and 20% by 2020; the Scottish Parliament has set targets of 18 and 40% for the same periods. As license-holders for electricity transmission, SHETL and SPT have a statutory duty to develop and maintain an efficient transmission system; the industry regulator (and funding co-ordinator) Ofgem has concluded that the new line is required and justified. The existing transmission grid has insufficient capacity to accommodate power generated by future renewable energy schemes. Initial studies in 2001 concluded that a Beauly-Denny route was the best option, and that it should link the substations at Fort Augustus, Tummel Bridge and Braco. This generated the 'search corridor' for route options, which ultimately resulted in the current proposal generally following the existing 132kV line.*

12. The need for the upgrading of the transmission network in Scotland is an issue for the Scottish Executive, not the CNPA; the need for it to cross the Cairngorms National Park, is however worthy of much greater scrutiny and debate. The proposal has been prepared within the context of the 7 Holford Rules, a series of guidelines

accepted by the transmission industry for the routeing of new high voltage overhead transmission lines. They are contained in Appendix H to the Environmental Statement. The first five are considered most relevant to this proposal:

Rule 1

Avoid altogether, if possible, the major areas of high amenity value, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence.

Rule 2

Avoid smaller areas of high amenity value or scientific interest, by deviation; provided that this can be done without using too many angle towers (i.e. the more massive structures which are used when lines change direction).

Rule 3

Other things being equal, choose the most direct line, with no sharp changes of direction and thus fewer angle towers.

Rule 4

Choose hill and tree backgrounds in preference to sky background wherever possible and when the line has to cross a ridge, secure this opaque background as long as possible and cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees.

Rule 5

Prefer moderately open valleys with woods, where the apparent height of the towers will be reduced and views of the line will be broken by trees.

13. **Assessment Methodology:** *The ES has been prepared to meet the requirements of the Electricity Works (EIA)(Scotland) Regs 2000. The EIA must be detailed up to a level sufficient to establish that the line is technically feasible and to allow environmental effects to be assessed; limits of deviation are shown, within which final design should be accommodated. Baseline conditions and assessment criteria have been established to determine the nature and significance of effects. Mitigation measures [4.7.1.2] have been based around careful routing to minimise impacts; further on-site surveys will lead to detailed mitigation measures being included in the Construction Procedures Handbook.*

14. **Consultations:** The applicants have been consulting with the CNPA via the Stakeholders Working Group over the past 2 years, and held a public consultation exhibition in Dalwhinnie. As noted in section 5, the CNPA has issued previous consultation responses to the applicants on: the preferred route options, 17th March and 16th August 2004; a response to the Scoping Report (to the Scottish Executive) 24 Aug 2004; and the potential route option through Glen Shirra, 31st January 2005.

15. **Alternatives:** The main alternative to the Beauly-Denny proposal [6.2.1.3], upgrading the east coast lines via Keith, was rejected for the following 3 reasons: it was longer [300km as opposed to 220]; the line would be remote from many renewable energy search areas (thus requiring additional radial lines); and economic grounds. The CNPA have not been convinced that a complete national strategy for upgrading the grid, taking into account all possible options, has been fully considered

16. Under-grounding has also been considered as an alternative to overhead transmission lines, but purely as a desk-top exercise and without site-specific consideration. The overhead transmission line would have a significant impact on the

Cairngorms National Park, as will be discussed in the following sections. The CNPA fully accept that there may be technical and environmental limitations on under-grounding the cables for the full length of the line through the Park, but consider that the ES has not fully considered or assessed this as an alternative. The economic and technical constraints associated with under-grounding are stressed and not balanced with a similar appraisal of the landscape and visual advantages, as demonstrated by the list of 'advantages' of overhead lines in comparison with the list of 'advantages' for under-grounding.

17. The CNPA, along with Highland Council and SNH, commissioned a study into the various options for under-grounding HV cables; this work should now be taken further into serious studies for sections of the line where the principle is viewed as possible, and detailed survey work carried out. This study is summarised in Appendix 9.

18. **Design Statement:** The most basic design rules that are applied to transmission networks are the 'Holford Rules', as noted in 'The Need for the Project' section above; it is considered that this proposal does not comply with the first, and most important, Holford Rule.

19. **Route Selection:** *having chosen the Beauly-Denny corridor, the applicant then applied the Holford Rules (and other guidance + legislation) to determine their preferred route within this corridor. The section from Garva Bridge to Dalwhinnie was one of five which resulted in alternative options which required further consideration. The finalised route was the one which was deemed to have the least impact on local communities, landscape and visual, ecology and cultural heritage; it is also the shortest of the options.*

20. **Substation Site Selection:** *The proposal was designed to link into the existing/re-developed substation sites at Beauly, Fasnakyle, Fort Augustus, Tummel (Errochty), Braco and Denny North (which is new). Renewable energy projects will link into the grid via these substations.*

21. **The Proposed Project:** *The transmission line will be a double-circuit, one of which will carry 400kV and the other 275kV; the proposal largely follows the route of an existing 132kV transmission line, which will be completely removed. Within the Park, the existing line is approximately 36km long and the proposed 28km. The existing pylons are approximately 25m high, the proposed will be between 43 and 65m high, and will be galvanised steel lattice purpose-designed for the terrain and climate (and painted grey); there are 76 new towers on the proposed line, and approximately 128 on the existing line. The spacing between the proposed towers will depend on topograpgy and altitude, but will be in the range of 275-400m. There are three types of towers: line towers; angle towers (for changes in direction); and terminal towers. Each circuit will comprise 3 conductors (cables), each of which will comprise two 37mm diameter bundles of aluminium wire; an earth wire is strung between tower-peaks for lightning protection. Conductors are attached to tower cross-arms by insulators, which are typically coloured porcelain or clear glass; these hang vertically on line towers and are horizontal at angle towers. Access tracks, whether utilising/upgrading existing or specially constructed (either temporary or permanent) will be required to all tower positions.*

22. One anomaly that has come to light in relation to the removal of the existing 132kV line, is the fact that from Glen Truim the pylon transmission line continues north

to Boat of Garten, but only carries a 33kV circuit. This could feasibly be carried on wooden poles (or under-grounded) and allow a long section of redundant pylons to be removed from the National Park landscape. The removal of the pylons to Boat of Garten and elsewhere is referred to in the Recommendations and is a positive measure that should be considered without linkage to this proposal provided that the new line/under-grounding and dismantling can be carried out with minimum impacts on the Park.

23. **Sustainability:** nationally, this proposal will link renewable energy generation in the north and west into the national grid, but it would also have a major impact on a newly designated National Park. The cost, disruption and materials (concrete, steel etc.) involved with this project must feature in any overall sustainability equation. With regard to the National Park, it is not demonstrated that the proposal contributes to the sustainable use of the natural resources of the area.

24. **Construction Traffic and Transport:** Access for construction (and dismantling) purposes is a serious issue within the National Park, generally short-term, but there may be longer-term residual effects from damage/pollution/road up-grading. The A9 is most likely suitable for construction traffic for the section from Drumochter to Dalwhinnie, but all other routes are much narrower, twisty and restrictive; impacts on local communities, visitors and the local economy are likely to be considerable, not to mention road safety implications. Both the A86 and A889 are important as local access and as tourist routes; neither are particularly suitable for a prolonged period of HGV access. Of even more concern, however, is the unclassified single-track road from Laggan to Garva Bridge; this will facilitate access for a large section of the Corrieyairack Pass down to Glen Shirra. Even with helicopter useage, the impact on other users of this road will be considerable, assuming that the construction of the road can take this extra traffic.

25. **Construction:** *Limits of Deviation (LOD) have been allowed for the transmission line (up to 200m) and access tracks (up to 300m); this allows for detailed investigation and siting to take place post-consent, giving flexibility to allow for impact-minimisation. The construction period for the whole project (inc. dismantling) is expected to be up to 4 years, and approximately 4-6months for construction alone in each section. Access tracks, whether permanent or temporary, are required to each tower position for a 100 tonne crane and other heavy plant; sensitive design of these tracks, or careful reinstatement where temporary, will be required in the National Park with special consideration on or near Natura sites. Foundation installations for the towers will be a major part of the process, with various options for different ground conditions; a working area of around 1000m² is required for line towers (2500m² for angle towers) and 6000m² at a winch site (a tower site used for stringing cables). Other requirements will be works compounds, helicopter pads, borrow pits, fuel storage and waste removal.* All of the above will have a significant physical and landscape impact on the National Park.

26. **Dismantling and Reinstatement:** *The existing 132kV line would be completely removed on energisation of the new 400kV line; where the existing and proposed lines run close together, diversion of the existing (possibly on wooden poles) may be required temporarily.* As noted in 'The Proposed Project' above, this would leave a truncated transmission line just north of Etteridge; this line goes to Boat of Garten but only carries 33kV.

27. **Maintenance Operations:** *future access to the line will be required for inspection, general maintenance and repairs; access will be required to all towers.* All access tracks within the National Park must be designed, constructed and maintained to an agreed standard, to minimise the impacts on the landscape and natural heritage.

28. **Planning Policy Context and Committed Development:** Given the nature of the proposal it is considered appropriate to restrict assessment of policy implications to compliance with national planning policy rather than the Highland Structure Plan or Badenoch & Strathspey Local Plan.

29. The National Planning Framework for Scotland (2004) (NPF) notes in section 139 that a key improvement of the electricity transmission system, to access renewable energy resources, is the rebuilding of the grid spine between Denny and Beauly; this does not expand further on the route between those points. The NPF also provides for safeguarding environment , including landscapes. The Recommendations make further reference to the NPF as it is considered that the proposal does not comply with it.

30. National Planning Policy Guideline(NPPG)14: Natural Heritage, notes in section 24 (National Designations) that it is Government policy to safeguard designated sites of national importance (such as NSA's and National Parks). Section 25 however adds that development which would affect an area of national designation should only be permitted where: a) the objectives of designation and overall integrity of the area will not be compromised; or b) any significant adverse effects are clearly outweighed by social or economic benefits of national importance. This proposal does not comply with a) and there is no demonstrated justification in the ES to prove that it complies with b). Further to this, section 42 relates to Natura 2000 areas (River Spey SAC, Drumochter Hills SAC/SPA) noting that a development should only be permitted where: i) there is no alternative solution; and ii) there are imperative reasons of over-riding public interest, inc. those of a social/economic nature. With regard to i) there are certainly alternative solutions and for ii), as above, this ES does not prove the case for over-riding public interest.

31. *The NPPG Test :* It is considered that, in relation to landscape and visual issues, the significant effects of the proposed development on two of the four key aims of the National Park designation leads to the conclusion that the objectives of designation would be compromised. The effects of the proposed development on the 'overall integrity' of the National Park are more difficult to judge. In a physical context, the proposed transmission line would form a 28km feature aligned through the south-western part of the Park; a relatively small part of this large National Park. The Cairngorms National Park currently has existing large scale transmission lines aligned through it although none as large as this proposed 400kV line. While defining what is meant by the 'overall integrity' of the National Park may be addressed in more detail at any possible Inquiry stage, this assessment considers that as NPPG14 does not differentiate national importance on the basis of landscape quality or any other such factor, then it would be reasonable to conclude that the development would affect the overall integrity of the area by introducing a new and particularly large scale built feature into a part of the National Park and diminishing the special qualities of the landscape of the Park which include the present integrity of its 'unspoilt' rural character.

32. The ES concludes that the proposed line, and removal of the existing 132kV line, will overall be considered as beneficial (16.5.3.8) to the Park; the CNPA does not agree with this assessment. There will certainly be benefits to Strathspey and northern Glen Truim, where the existing line is removed, but on every other section the impact will be significantly adverse. The wild grandeur of Garva Bridge to Kinloch Laggan section will be considerably diminished by the line; while the small-scale landscape of Kinloch Laggan/Inver Pattack will be unduly dominated. The crossing of the mountainous sections will pose the pylons and wire-scape against the skyline, while the crossing of forestry on either side will be emphasised by the 80m wide corridor which must be felled. On Cathar Mor and in Glen Truim the wide open vistas will be dominated by the giant towers and wirescape; moving the pylons further from the road on the A9 section is going to have no beneficial effect when the enclosed corridor is already dominated by pylons which are half their size, and this is the principal 'gateway' into the National Park. Within this context it is considered that the proposal does not comply with NPPG 14 and, again, there is reference to this in the recommendations.

33. **Land Use:** The proposed route enters the Park just east of Garva Bridge, in upper Speyside, and for much of its 29km within the Park it is passing through a succession of sporting estates, forestry and agricultural interests. 800m east of this point, at only 120m from Garvabeg House, the line crosses the wide valley passing Garvamore Farm and heading south for 4km through the wide Glen Shirra, over moorland. Above Kinloch Laggan, the route drops into Inver Pattack (close to more houses) 500m south of Inver Pattack Lodge. Inver Pattack is a narrow winding valley whose floor is used for livestock grazing and is traversed by the A86 and the River Pattack. On the south side the route travels eastwards for 10km through dense coniferous plantation, over mountainous terrain and more forestry before crossing the A889 and undulating moorland of Cathar Mor. From here for 2km the route drops to Glen Truim, crossing the railway and A9 3km north of Dalwhinnie. From here, the route follows the A9 to the head of the Drumochter Pass, which signals the National Park boundary. The effects of the proposal on land uses will be covered in following sections.

34. **Forestry:** Significant strips of forestry will need to be felled along the proposed route, as the overhead lines must have a clear corridor approximately 80m in width. It appears that most of this forestry is commercial conifers, but this still provides valuable habitat and makes an important contribution to landscape character. The design of any felling and planting must be done in a way that is compatible with landscape and ecological interests. The ES does not set out any firm commitment to undertake replacement woodland planting either on or off-site or to enhance present forest wayleaves and other areas following the dismantling of the existing 132kV line. Detailed forest design plans prepared in accordance with Forestry Commission Forest Design Guidelines for all woodlands affected by the proposal on whatever final route is proposed. Detailed mitigation and general enhancement measures in the vicinity of Dalwhinnie including extensive native woodland planting between the settlement and the proposed transmission line to aid screening of views from properties.

35. **Agriculture and Sporting Interests:** Impacts on sheep and cattle farming are likely to be short-term disturbance during the construction/dismantling process, for which standard mitigation measures should be implemented. There will be short-term

impacts on sporting interests, which could be mitigated by construction avoiding the sporting seasons. There may be longer-term impacts on estates who rely on clients for shooting and fishing and are likely to find the attraction of their 'highland scenery' blighted by massive pylons and associated wire-scape.

36. **Geology and Soils:** reference should be made to the SNH report sections 2.9 and 2.10 (see Appendix 6). Disruption of the ground during construction and dismantling is inevitable, and method statements will be required as part of the Construction Procedures Handbook. Particular care must be taken over the design, construction and maintenance of access tracks where longer-term erosion is possible. Extra care must also be taken on any site which may effect the River Spey SAC through run-off, sedimentation, pollution, disturbance and erosion.

37. **Hydrology:** There will be significant impacts on hydrological systems from the construction, operation and dismantling phases of this proposal. The construction of tower foundations, as well as access tracks, will significantly alter an areas hydrology structure, especially in areas of deep peat; tree felling will also have an hydrological effect. Of three areas on the entire route which have been identified as requiring special site-specific mitigation, one is within the Park and the other two may impact upon it; the River Spey SAC catchment area is particularly sensitive, while the Corrieyairack and Drumochter Passes have access and watercourse-crossing issues. These three will be further addressed in the Construction Procedures Handbook, which the CNPA and other relevant agencies must be consulted on.

38. In terms of vulnerability to development effects, the predominant semi-natural habitat types in the National Park, across which the pylon line is proposed, are either wet dwarf heath or blanket bog. These habitats are particularly vulnerable to damage as the result of direct habitat loss and disruption of the hydrological conditions underpinning them. We are concerned that ES sections 22.6.3.8-16 do not mention hydrological effects as a potential source of impact upon habitats. The nature of the wet peaty soils, including those under 1m in depth, renders them sensitive to all construction works including incursion from vehicles, the construction of access tracks, whether temporary or permanent, and the construction of towers. We are not convinced that the mitigation measures set out in chapter 27.7.4 E14 are adequate to safeguard these habitats in the long term. We are especially concerned that access tracks across peat habitats, even those less than 1m deep, will cause long term or permanent disruption to hydrological conditions. In certain places, especially on more sloping ground, this may extend well beyond the working corridor. Full restoration of floating tracks may be an aspiration, but it is much more difficult to achieve in practice. Accordingly, we believe that there could be a lot more residual ecological damage than suggested by the ES, and that this would be to habitats with a higher ecological value than that attributed. The ES needs to be revisited to address this potential source of damage more fully.

39. **Ecology and Nature Conservation:** The full CNPA assessment of this aspect of the proposal is contained in **Appendix 8.** There appears to be systematic under-valuation placed on the importance of the ecological and nature conservation interests of the Park, and indeed along much of the proposed transmission line (Chapter 22.4.8). There is a corresponding underassessment of the impacts and effect significance. The approach adopted in the ES to these matters is not properly

justified, and there appears to be too much weight attached to professional judgement rather than the presentation of evidence-based argument. This is a fundamental weakness in the ES. Consequently, we are of the opinion that the values attributed to all habitats and species within the ES, and the significance of the effects upon them, need to be reconsidered with more reasoned justification for each.

40. The one exception to undervaluation appears to be the values accorded to habitats and species along the line of the existing 132kV line which is proposed for dismantling. The relatively high values accorded to interests along this route seem to lead to the conclusion that the benefits derived from the dismantling of this line would more than outweigh the impacts of the construction of the proposed 400kV line. The evidence and justification for this approach have not been adequately presented to allow proper comparisons to be made.

41. As is the case for landscape values, we consider that the ES has not given proper recognition to the status of the Cairngorms National Park as a national designation. This is despite the listing of the National Park as a national designation in Chapter 22.8.2 of the ES. We consider that the proposal to route the proposed transmission line through the National Park, and disrupt the ecological and nature conservation interests therein has not been justified. Consequently, the ES has not demonstrated how the proposal complies with the fundamental mitigation approach presented in section 22.7, namely to avoid sites of ecological importance through careful routeing. Accordingly, the proposed route does not appear to comply with the Holford Rules.

42. CNPA is also concerned about the assessment accorded to the Drumochter Hills SSSI/SPA/SAC. It appears that the habitats in this Natura site have again been under-rated in terms of their value, with none being accorded International or National Value in the Habitat Scoring. The evidence presented does not provide the competent authorities with sufficient information to undertake an appropriate assessment. Accordingly, it is not possible on the basis of the evidence presented to demonstrate that there will not be an adverse impact upon site integrity (22.8.3.44). This is a serious omission in the ES which must be addressed properly before any consent can be given.

43. A similar concern relates to the River Spey SAC/SSSI and the level of assessment given to the potential implications for the qualifying interests. In consequence of the above, we consider that the ES has not justified the proposal to route the new transmission line through the National Park or through part of Drumochter Hills SAC/SPA/SSSI and across the River Spey SAC/SSSI.

44. The location and extent of Phase 1 Habitats shown in the Addendum Figure A1.1 g-k inclusive are largely accurate. We do, however, question the scale of the habitat identified as wet modified bog to the south of the minor road between Sherramore and Garvamore, near Spey Dam. The identification as wet modified bog under rates its value to the Park. We also question the habitat type indicated for the Cathar Mor area to the south east of the A889.

45. In view of the outstanding national importance of the natural heritage of the National Park, the CNPA does not agree with the "Habitat Scoring" attributed to semi-natural habitats along the route of the proposed line. This needs to be amended to more properly reflect the status of the Park, and to provide a more appropriate basis for the consideration of the impacts of the proposed development.

46. The potential for significant damage to semi-natural habitats of high value presented above, re-emphasises our concern that the first approach to mitigation (22.7) has not been adequately followed with respect to the National Park. If the Scottish Executive determine that the route must pass through the National Park, we wish the National Park status to be properly reflected in the ecological sensitivity accorded to its semi-natural habitats and the assessment of the likely impacts that would be caused to them, especially through disruption of hydrological conditions (see previous section). We also wish there to be a more adequate presentation of the route options and their relative impacts so that the "least worst" option is more fully justified.

47. We are concerned about the assessments of potential risk for raptors. We consider that the survey approach may be inadequate for this purpose. In particular the number and frequency of birds crossing the proposed pylon route at the height of the proposed cables are likely to be an underestimate (Ecology Addendum 1.8.5.46 – 1.8.5.53). Consequently, the assessments of collision risk are also likely to be too conservative. We are concerned about this risk throughout the route across the National Park, but consider it is especially critical where the larger pylon line would cross Drumochter Hills SPA .

48. It is noted that an Important Bird Area for waders has been identified to the west of Loch Sherrabeg, but we question why the breeding wader population a little further west, where the proposed new line crosses the land between Sherramore and Garvamore, has not been recognised as part of the same IBA. We would wish the potential impacts of the proposed 400kV line upon these waders to be reassessed in this context.

49. The presence of a lek of 6 male black grouse close to the proposed line in Sherramore/Glenshirra Forests (Ecology Addendum 1.8.5.12) is a cause for concern. Disturbance to this lek could arise from the construction process if carried out during the breeding season. This may be avoided by careful timing, but permanent disruption could be caused by loss of habitat through wayleave felling. There would also be a new risk of collision with the cables. Accordingly the conclusion of a low "Impact Magnitude" and minor "Effect Significance" have not been justified. Similar concerns apply to the IBA for black grouse north of Dalwhinnie at NN640876.

50. The assessment of conservation value presented in the Ecology and Nature Conservation Addendum, Table 1.10 again appears to under state the status of each species. All should be accorded either European or National Importance depending on the species. Their conservation status must be represented properly in the ES and the assessment of impacts reassessed accordingly.

51. We agree that there will be benefits derived from the dismantling of the 132kV line, and that the mitigation measures proposed are likely to be adequate. We are not yet convinced by the evidence that, should the pylon line be routed through the National Park, the impacts upon ecological and nature conservation interests would be less along the new line as compared with a route along the existing line. The ES needs to be much more convincing in its presentation of evidence to assist consultees in their appraisal of route options.

52. **Landscape Effects:** The assessment split the route into the following sections within the area covered by the National Park: Section 8 - Garva Bridge to Inverpattack Lodge; Section 9 - Inverpattack Lodge to A9 at Dalwhinnie; Section 10 - A9 Crossing; Section 11 - A9 north of Dalwhinnie to Dalnacardoch Lodge. The photomontage and wireline visualisations produced in the ES are overly selective and photographs are often of poor quality; none of the visualisations illustrate the landscape and visual effects of forest wayleaves.

53. The landscape and visual assessment did not consider any of the landscapes lying within the Cairngorms National Park to be of high sensitivity. This appears to be principally due to the absence of National Scenic Areas along the route of the line (Volume 1, 23.4.1.2). The ES states in paragraph 23.4.1.14 (Volume 1) that areas out with National Scenic Areas (NSAs) and within the Cairngorms National Park have been assessed on the basis of general sensitivity and capacity to accommodate new development, but with some additional weighting applied to reflect the status of the area as a National Park. This weighting is not transparent and does not appear to have been applied in the assessment, particularly when compared with the conclusions reached on sensitivity and significance of landscape and visual effects on other sections of the line lying outside the Park. This appraisal of sensitivity is contrary to the national importance accorded to National Parks in NPPG14.

54. Access tracks have the potential to emphasise the linearity and accumulation of clutter in combination with the transmission line and thus exacerbate landscape and visual effects of the proposed development as a whole. The design of tree-felling is also likely to have a significant landscape impact.

55. See **Appendix 7** for the full CNPA landscape assessment.

56. **Visual Effects:** These assessments split the route into the following sections within the area covered by the National Park: Section 3 - Fort Augustus to Kinloch Laggan; Section 4 - Kinloch Laggan to the A9 at Dalnacardoch Lodge. Little analysis appears to have been undertaken of the capacity of landscapes to accommodate a development of this scale and nature in relation to its key characteristics. For example, the Pattack Valley is rightly defined in the ES as being a sensitive landscape (Figure 23.3, Volume 5) but this does not appear to have been a factor influencing the conclusions on sensitivity and significance of effects in the main text (23.5.2.60, Volume 1). Similarly, and with reference to previous comments made above, there is no mention made of the experiential qualities associated with some landscapes and how this might affect capacity to accommodate a development of this nature.

57. The description of the key characteristics does not address the experiential qualities associated with landscape character. Some of the landscapes within this western part of the National Park have notable 'wildland' characteristics, where the qualities of remoteness and naturalness provide a particular landscape experience and would be affected by the proposal, for example 'Glen Shirra' (E2 b) and the 'Low Craggy Hills' (F3), an area of open hills and valleys between extensive forestry plantations at Feagour and west of Cathar Mor. Other aspects omitted include consideration of the composition of views and their importance in the experience of landscape character.

58. Dismantling of the Existing 132kV Line: The comparative assessment between the proposed dismantling of the existing 132kV line with the erection of a new, much larger, 400kV line on the alternative route has not been carried out in a rigorous manner. This is evident in the different sensitivity ratings which have been attributed to the Spey valley area (moderate to high sensitivity) and the landscape between Garva Bridge and Inverpattack Lodge (moderate sensitivity) with no clear justification given for the reasons why there should be such a difference. The substantial increase in height of the 400kV line and the effects of aligning a new large scale built feature through landscapes where no such infrastructure presently exists, does not appear to have been taken into account in terms of the sensitivities attributed to particular landscapes and, consequently, the conclusions reached on the significance of effects.

59. **Cumulative Visual Effects:** The problem of combined viewing of the line with other intrusive developments is likely to be minimal within the Park, as long as no wind-farms are proposed close to the boundary. Most likely would be the proximity of telecom masts or other such structures. Of greatest concern would be where a succession of the large pylons can be viewed at the same time, such as travelling on the A9, crossing Cathar Mor or approaching the Corrieyairack Pass.

60. **Cultural Heritage and Archaeology:** The setting of the SAM/ category A-listed Garva Bridge and the A-listed Garvamore Barracks will be considerably affected by the proposal, as will the B-listed Glen Shirra Bridge and C-listed Glenshero Lodge. Of particular concern here is whether Garva Bridge can/should be carrying construction traffic; Historic Scotland should be specifically consulted on this issue as they have not commented on it. In Kinloch Laggan the setting of Ardverikie Gate-Lodge and Bridge (both Cat-A), Old St.Kenneth's Church (C) and the lime-kiln may be affected. In Dalwhinnie, the Distillery (Cat-B) is also a locally important landmark, so the setting of it and the Wade Bridge at the south entrance should not be compromised by this proposal.

61. All construction/dismantling works must take the greatest care not to disturb any known/un-recorded archaeological remains which are discovered; all as advised by Historic Scotland/RCAHMS. A detailed mitigation strategy is to be developed in a section of the Construction Procedures Handbook; we would wish to check that the archaeologists and/or Historic Scotland were happy with the content and monitoring of this.

62. **Tourism and Recreation:** The A9 is one of the principal routes into the Highlands, and Drumochter Pass is the main 'gateway' into the National Park; thereby,

large numbers of travellers (whether walking, cycling, driving or by rail) will be greeted by huge pylons and associated wirescape dominating the landscape. Dalwhinnie, Laggan and Kinloch Laggan are popular areas for tourism and recreation; the Corrieyairack Pass itself is a popular walking route which is either accessed or exited via Garva Bridge. The area is also very popular for hill-walking, with 10 Munros lining the proposed route either in or just outside the Park; this does not include the Ben Alder group, which is accessed via Dalwhinnie. Specialist outdoor centres, like the Laggan Wolftrax mountain-biking centre, may also be affected. Tourism accommodation, of all types, may be particularly affected by the proposed line.

63. The reasoning in section 27.5 'Potential Effects', appears flawed, particularly with regards the conclusions drawn from the VisitScotland study entitled "Investigation into the Potential Impact of Wind Farms on Tourism in Scotland". This section suggests that the economic effects of the powerline are likely to be similar to those of wind farms. However, VisitScotland's study clearly shows that wind farms tend to be viewed more favourably than pylons. 51% of respondents feel that electricity pylons and wires detract from the visitor experience while the figure for wind farms and turbines is 29%. This also provides useful guidance that should be taken into account in considering the location of the route of the pylons, in that *respondents felt that the sensitive siting of wind farms meant that they should be located "outwith designated areas such as National Parks…"* However, as well as 15% of respondents saying they would steer clear of an area with more windfarms, 10% said they would be less likely to return and 6% said it would depend on the area. These figures, taken in conjunction with the fact that people viewed electricity pylons and wires more negatively, would suggest that the economic impact would be significantly higher than 15%. As is explained in paragraph 27.6.3.12, an impact of >15% is regarded as 'major' and is likely to lead to pressure upon the businesses concerned. For an area as reliant on tourism as this, a major impact could be devastating. The impact would also spread beyond those businesses that would class themselves as tourism businesses, hitting, for example, retail and transport firms as well. Of the 12 sub-areas along the proposed route, businesses in Area 6 (Strathmashie to Dalwhinnie) have expressed the greatest level of concern in the business survey that was undertaken, 67% of respondents believing that the overhead transmission line would have some level of negative impact on their business.

64. We would also question the statement in Paragraph 27.6.3.12 that an impact of less than 15% "would be likely to occur with new competition appearing in an area or market" and can "generally be partially or entirely 'clawed back' through marketing and promotion". This may well be true in terms of open competition between businesses but may not be possible where the visual character of an area has been eroded relative to other areas. If the source material upon which this assertion has been based was referenced, then it would have been possible to check its context. On the basis of the proposal as submitted it is anticipated that there would be a major negative impact on the economy of the area which is at odds with the summary conclusions in the ES. Given the likely scale of these negative impacts, there is a case for some form of mitigation to counter them should the proposal be allowed..

65. The overall impression from Section 27 is that the impacts on tourism and recreation have been assessed with a heavily skewed perspective that leans too heavily on a business perspective and insufficiently strongly on visitor's overall perception of the National Park. The Cairngorms National Park Visitor Survey and the information from Tourism Businesses in the Park (gathered as part of the Sustainable Tourism Strategy preparation) would have been useful sources of reference if more information was required about visitors' particular expectations. It would be difficult to conclude that the proposed development would have any beneficial effects on visitors' experience of the special qualities of the Park. The overall effect on the Park will be negative and yet nowhere in the ES is this recognised.

66. The proposal to provide ongoing safe access to key routes for walking and cycling is welcome. However, it should be noted that the Land Reform Act applies to most land in Scotland and not just key routes and so such consideration will require to be given to all paths , tracks and areas with recreational use.

67. **Disruption due to Construction: Construction Noise and Vibration: Construction Air Quality:** As noted in the Construction Traffic section above, this will cause considerable disruption in the Park area due to the nature of the roads. The unclassified road from Laggan to Garva Bridge may not even be suitable to carry construction traffic; if this road is to be upgraded there will be potential environmental impacts, not least on the River Spey SAC. If there are 36-62 HGV movements/day for up to 18 months, the impact on residents, businesses, visitors and the environment could potentially be significant. Likewise, noise and vibration from construction plant and vehicles (and tree-felling) is also likely to be highly disruptive and if the proposal is allowed works should not take place during the main bird breeding season in sensitive areas. Pollution from vehicles and dust from construction are likely to affect air quality to some degree; roadside villages such as Dalwhinnie and Kinloch Laggan are likely to suffer most and for prolonged periods.

68. **Operational Noise:** Given the frequently damp climate of the proposal's route, noise (crackling and humming) is likely from the transmission line, which may cause some disturbance to nearby houses and to people walking in the area.

69. **Electric and Magnetic Fields:** Government policy on EMF's, and in particular their exposure guidelines, will be applied to this proposal by the Scottish Executive. The CNPA has no expertise to comment on such, but, should the proposal be allowed, we would stress that transmission lines should be kept as far away from dwellings and places of work as possible, for general amenity as well as safety concerns. There is some concern regarding proximity to houses in Inver Pattack as well as Garvabeg House and North Drumochter Lodge. Highland and Perth & Kinross Councils have referred to specific research on health issues in their draft reports, and we would support their informed views and wish for a precautionary principle to be applied.

70. **Radio and TV Interference:** In the event of the proposal being allowed any resultant interference from the proposal should be fully compensated by the applicant.

CONSULTATIONS

71. Internally, there has been consultation amongst the various groups in the CNPA, and specialist landscape advice has been contracted in to obtain a professional and independent assessment of a fundamental aspect of the proposal.

72. Externally we have consulted with the Dalwhinnie and Kinloch Laggan communities; the feedback forms from the public meetings are summarised in Appendix 4. We have also received 56 written objections from individuals and organisations, written objections from 9 CNP Community Councils/Associations, and 2022 copied letters from CRAP (Cairngorms Revolt Against Pylons); we also refer to the 1026 e-mail responses on the CRAP website. The vast majority are against the proposal because of the impact on the landscape and National Park, the effects on tourism and the local economy, and feel that it should be under-grounded. See **Appendix 4** for all summaries.

73. This report also considers and summarises the consultation responses from: SNH; Cairngorms Chamber of Commerce; the Ramblers; the Highland Council; Perth and Kinross Council; the National Trust for Scotland; the John Muir Trust; Historic Scotland; and SEPA. See **Appendix 5** for summaries.

74. **Dalwhinnie Community Council:** DCC consider it unfortunate that SSE have been unable to route the proposed line outwith the Cairngorms National Park, and that under-grounding has been discounted as an option; the impact on Drumochter Pass, one of the main 'gateways' into the Park, is of particular concern. Following discussions between DCC and SSE, the proposed line has been moved to the east of the A9 to lessen its impact on the village; this, combined with the removal of the existing 132kV line satisfies two of DCC's four concerns. The remaining issues are the 33kV spur to the village, which should preferably be under-grounded, and the existing sub-station. The latter is something of an eyesore, sitting in the middle of the village on the main road; preferably, this will be moved to a more concealed location, freeing-up a valuable central site for re-location.

75. **Laggan Community Association:** LCA consider the proposed transmission line as being completely inappropriate to the special attributes for which the area was designated as a National Park. Many businesses in the area are highly dependant on tourism, a position which is boosted by 'Monarch of the Glen' association, which relies on the now iconic landscape quality. There is also considerable concern over the health issues associated with living close to the transmission line; a number of local houses will be well within 400m of the line. LCA are concerned that consideration of alternatives will be done by the same company that prepared SSE's ES, and that there seems to be no national energy strategy at government level. Consequently, LCA believe that these issues can only be properly considered by a public inquiry.

76. **Cairngorms Chamber of Commerce:** The CCoC is concerned by the damage this proposal will have on the image of the CNP; a visit to a National Park is accompanied by a visual expectation of an unspoilt landscape. This proposal will have a detrimental impact on tourism which is the main employer of the area and its

economic driver. A branch of the Chamber, the Aviemore Badenoch Strathspey & Cairngorms (ASBC) has been promoting this area as an exemplar destination, bolstered by the promotion given by the Monarch series. The negative impact on the destination area, particularly at the Drumochter access to the Park, is obvious. In addition, years of investment in the area will be lost. The need for renewably energy and the preservation of the National Park landscape, both environmentally friendly issues, are contradicted by this SSE proposal; this could however be balanced by under-grounding, if no other route can be found.

77. **SNH POSITION:** SNH has no objection in principle to the proposal, but is concerned that over some sections of the route the environmental impacts have either not been adequately investigated or have not yet been reduced to the realistically achievable minimum needed to safeguard important natural heritage assets. These include:The development could have adverse impacts on a number of Natura sites. At this stage there is insufficient information to ascertain there will be no adverse effect on the integrity of: Drumochter Hills SPA and SAC. The development could also have serious adverse effects on landscape character and visual amenity over certain sections of the route. At this stage there is insufficient information to ascertain the impacts for sections South of Glen Moriston to the A9 Crossing.

78. SNH objects to the proposed development as submitted and believes the development will adversely affect the first and third primary aims of the National park designation.

79. The SNH objection could be overcome if the development were made subject to conditions and modifications relating to the following matters: there will be no significant effects on the integrity of the River Spey SAC; there will be no significant adverse impact on the natural features of the GCR sites; there will be no significant adverse landscape and visual impacts on certain sections of the route such as (landscape sections) A9 north of Dalwhinnie to Trinafour and (visual sections) Beauly to Kinloch Laggan. Should the application not be made subject to the conditions and modifications to address the above matters then this SNH response should be considered as an objection. **See Appendix 6 for more details of the SNH response, specific to the Park area.**

80. See also Appendix 5 for other organisation responses.

THE IMPLICATIONS FOR THE PARK'S AIMS

81. **To conserve and enhance the natural and cultural heritage of the area:** This proposal will have a net negative impact on the area's natural and cultural heritage, for which the Park achieved its National designation. There will be a localised benefit to upper Strathspey and northern Glen Truim, with the removal of the 132kV line, but the new transmission line will be substantially larger and residual landscape and visual effects are likely to be adverse and significant.

82. There will be significant adverse impacts on the character of the Cairngorms National Park which will adversely affect the key aim of conserving and enhancing the natural heritage of the Park. The line will introduce a new and large scale industrial feature into parts of the Park's landscape where a remote and largely undeveloped character exists, notably Glen Shirra and the landscape of open craggy hills and valleys between Feagour and Dalwhinnie. It will also significantly and adversely affect the key characteristics of the landscape of the Pattack Valley, dominating its intimate scale, disrupting its intricate landscape pattern and affecting its rich diversity. The characteristic openness and expansiveness of the upland plateau of Cathar Mor, lying between the A9 and the A889, will also be diminished by the proposed transmission line.

83. Overall it is considered that the proposal would be contrary to the aim to conserve and enhance the natural and cultural heritage of the Park.

84. **To promote sustainable use of the natural resources of the area**: although it may contribute to transmission of renewable energy in the wider context there will be no sustainable use of the area's natural resources resulting from this proposal and it is consequently contrary to this aim.

85. **To promote understanding and enjoyment (including enjoyment in the form of recreation) of the special qualities of the area by the public:** There will be no positive benefit to the public to help them understand/enjoy the Park's special qualities. The Cairngorms National Park has a great diversity of landscapes, some well-known at the core of the Park and others less frequented and less dramatic, but still enriching the overall scene and contributing to the special qualities of the Park. The juxtaposition of settled valleys and straths with huge tracts of open, largely undeveloped mountainous areas is a key characteristic of the landscape of the Cairngorms National Park. The experiential qualities associated with landscape character and views are not explored in the ES. This development would affect the understanding and enjoyment of the special landscape character and diversity of the National Park. It is also likely to affect the perception of the 'protection' offered by the National Park designation and the perceived quality of landscapes affected by the transmission line. The proposal will not therefore promote understanding and enjoyment of the special qualities and is contrary to this aim.

86. To promote sustainable economic and social development of the area's communities: With tourism as the economic driver for the local (and wider) economy, and in the absence of a convincing case to the contrary, it is considered

that this proposal is likely to have a seriously adverse impact on the area's communities, and is contrary to this aim.

CONCLUSIONS

87. Before proceeding to the recommendation it is opportune to take stock of the proposal following the appraisal that has taken place. The Environmental Statement has been considered with particular regard to those sections that have a close relationship with the aims of the National Park. The proposal has been assessed against national planning policy and also within the context of the Holford Rules used by the industry as a guideline for new routeing proposals. There has been dialogue with the applicant seeking clarification on a number of issues. Local communities have been consulted and responses are contained in this report.

88. The ES does not adequately analyse the sensitivity of the Park's landscapes to a development of this scale and nature and places too much emphasis on the beneficial effects of dismantling the existing 132kV line. While there will be some beneficial landscape and visual effects associated with the dismantling of the existing line in part of the Spey Valley and Glen Truim area, there will be residual adverse and significant impacts associated with the construction of a substantially larger 400kV transmission line on a new route as follows:

- The largely undeveloped and remote landscape character of Glen Shirra and the area of open craggy hills and valleys between forestry at Feagour and the A889.
- The diverse and intimately scaled Pattack Valley, which would be particularly sensitive to a proposed development of this scale and nature.
- The expansive, open moorland of Cathar Mor where the line would impact on views of surrounding hills and would affect its simple uncluttered character.
- The crossing of the A9, where the line would be highly visible in this open location.

89. The environmental statement fails to provide the necessary comprehensive body of information on the level of attributed value and assessment of impact on various species and habitats. It has not therefore been possible to accurately evaluate the potential impact on species.

90. The proposed development would adversely affect two of the four key aims of the National Park designation and the objectives of designation, as stated within NPPG 14. The construction of the transmission line would be contrary to the aim of conserving and enhancing the natural and cultural heritage of the National Park due to the landscape, visual and nature conservation impacts outlined in the report. It would also adversely affect the public understanding and enjoyment of the special qualities of the National Park, principally by diminishing the sense of arrival experienced from key approaches to the Park and affecting the perceived undeveloped character particularly evident in the western extremity of the Park. Additional information is required to aid the assessment of the likely effects of the proposal and this should include the generation of additional visualisations and information on the status of the wider transmission network north of Glen Truim.

91. The route planning of the line has not been able to avoid an area of Highest Visual Amenity (the Cairngorms National Park) in accordance with the guidance

outlined by Rule 1 and Appendix B of the Holford Rules. In addition, the methodology adopted for the landscape and visual assessment does not accord with NPPG 14 or the Holford Rules in that it fails to consider the landscape of the National Park as being of either national importance or the 'Highest Amenity Value'.

92. The inability to safeguard a landscape of national importance conflicts with the stated aim of the National Planning Framework to build environmental capital and pass well-managed, high quality landscapes on to future generations.

93. The assessment of the impact of the proposal on the economy of the National Park and the immediate locale in particular is based on incomplete data and unfounded comparisons with windfarm developments. It is considered that adverse public reaction to pylons is significantly greater than it is to wind farms. There is no real appreciation of the importance of the tourism economy to the National Park and the perceptions that our visitors have of their experiences within the Cairngorms landscape. It is concluded therefore that the proposal does not contribute to public enjoyment of the special qualities of the area or sustainable economic and social development of its communities and as such is contrary to the third and fourth aims of the National Park.

94. When account is also taken of the inability of the proposal to promote sustainable use of the natural resources of the area it is clear that it is in conflict with all four aims of the National Park and, as such, cannot contribute to their individual or collective achievement.

95. It is therefore concluded that the CNPA should object to the proposal on the grounds that it does not comply with the Holford Rules, the four aims of the National Park, NPPG 14 and the National Planning Framework.

POTENTIAL MITIGATION MEASURES

96. It is not recommended that the CNPA suggests mitigation as a means of making this proposal acceptable. It is considered that the CNPA has to object to the proposal for the reasons clearly stated both in the body of the report and in the recommendations. It should also be noted that the CNPA has already stated as a matter of principle that it would prefer the route to be located outside the National Park. However, should the Scottish Executive determine that it is allowed to proceed, then there is a dialogue that needs to take place and this is reflected in the second part of the recommendations and in the comments that follow within this section.

97. The CNPA, along with the Highland Council and Scottish Natural Herritage commissioned Jacobs Babtie to carry out a study into the issue of undergrounding high voltage transmission lines. This study concluded that it is possible to underground such lines in certain types of location, but it is more expensive and there may a new set of potential environmental impacts that would have to be taken into account as part of a further assessment. More information from this study can be found in **Appendix 9**.

98. There are some specific issues that any consideration of mitigation measures should take into account. The list is not exhaustive and would need to be the subject of the dialogue requested under the second recommendation.

99. In view of the significant adverse impacts that would be associated with both the proposed and any alternative routes considered in this area, it is recommended that under-grounding part or all of the line, either on the proposed route or a more technically feasible alternative route, is likely to provide the only effective mitigation of unacceptable impacts. In terms of focussing on major and unacceptable landscape and visual impacts along the proposed route, the Pattack Valley and the open Cathar Mor/A9 crossing area should comprise the key sections of the route where under-grounding is considered to be essential, largely due to the more limited visibility and little frequented nature of the Glen Shirra and open Craggy Hills between forestry at Feagour to A889 along the route.

100. It is considered that, as part of an assessment of mitigation measures, an appraisal should be undertaken to determine constraints and opportunities for under-grounding within a broad area between Garva Bridge and Dalwhinnie. It may be more technically feasible to route an underground transmission line within upper Speyside where more level ground is present, although it is appreciated that there may be ecological constraints associated with this. This would require analysis of technical and ecological constraints as well as potential landscape and visual impacts. While landscape and visual impacts on the Pattack Valley and the Cathar Mor/A9 crossing area are likely to be the most severe on the proposed route, the need to minimise the visual effects of sealing end compounds and terminal towers between under-ground and overhead sections of the line, may determine the route of the transmission line and the extent of under-grounding.

101. If the proposed route between Garva Bridge and Dalwhinnie was considered to be the best option for under-grounding following the appraisal, it is likely that due to the open character of Glen Shirra, sealing end compounds and terminal towers would need to be situated within or close by the conifer plantation at Blar Mor to the north west of Glenshero Lodge (approx GR:538 936) and then within the plantation at Feagour. Under-grounding of the route over the very open Cathar Mor may involve locating sealing end compounds and terminal tower within the existing plantations to the west of the A889 and just to the south of the Alt Cuaich (approx GR:677 865) in order to avoid impacts on views from the A9, and the possible deviation of the line away from the A9 corridor to an alignment within the valley to the east of the hill of Leacainn. While this slight deviation to the route would further mitigate impacts on Dalwhinnie, there may be some adverse impacts on views from the A9 and, possibly also on nature conservation designations in this area.

102. At the moment the only mitigation measures in the ES relate to routeing, timing of works, access and safety considerations, and highlighting the temporary positive effects of construction expenditure and accommodating workers. If the route goes ahead, a case should also be made for funding for area marketing and economic diversification activities, to counter the potential negative impacts on the local (and wider) economy.

RECOMMENDATIONS:

The remit of the Cairngorms National Park Authority is in relation to this National Park. The Beauly – Denny proposal involves a large geographical area, and there is recognition that there may be a wider national picture. It is the role of the CNPA, however, to focus on expressing a view on the proposed development with regard to the section of the route that is within the National Park.

These recommendations are based on a full assessment by CNPA staff of the detailed proposal as contained within the submitted Environmental Statement. They do not take account of possible alternatives as that is not within the scope of the consultation and to do so would be speculative. Any alternatives would have to be the subject of a separate consultation and assessment process. The recommendations also take account of:

- information subsequently made available to clarify limits of deviation and tower positions;
- the contents of a report prepared for CNPA by an independent landscape architect;
- a series of discussions with the applicant;
- the large number of representations that have been received, the views of Dalwhinnie Community Council and Laggan Community Association, and views expressed at community meetings in Dalwhinnie and Kinloch Laggan.

The recommendations are in two sections, A) and B).

Section A) sets out the recommended substantive CNPA position and gives four reasons. Each reason is in **bold** type below the relevant context.

Section B) sets out two processes that it is recommended the CNPA asks the Scottish Executive to instigate.

A) The Cairngorms National Park Authority objects to the section of the proposed Beauly – Denny Transmission Line within the Cairngorms National Park for the following reasons:

1. <u>Context</u>
   The Holford Rules, to which the electricity transmission industry has committed itself, provide clear guidelines for the routeing of new high voltage overhead transmission lines. Holford Rule 1 requires such lines to avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the line in the first place, even if the total mileage is somewhat increased in consequence. Appendix H to the Environmental Statement identifies National Parks as being amongst the areas of highest amenity value. Scotland has only two National Parks so they

are an extremely finite resource. To comply with Holford Rule 1 it has to be demonstrated that it is not possible to take another route.

Reason

It is considered that the Environmental Statement fails to demonstrate that there is no other possible alternative route and consequently the proposal does not comply with Holford Rule 1.

2. Context

Section 9 (1) of the National Parks (Scotland) Act 2000 states that the general purpose of a National Park Authority is to ensure that the National Park aims are collectively achieved in relation to the National Park in a co-ordinated way. Section 9 (6) of the Act requires a National Park Authority, in exercising its functions, to act with a view to accomplishing this purpose. The proposal will have a substantial adverse impact on the natural heritage, landscape in particular, of the National Park, including the introduction of large scale industrial type structures in some areas where none exist at present. The removal of an existing line elsewhere within the National Park cannot and should not compensate for this. The proposal does not promote the sustainable use of the natural resources of the area. It will not promote understanding and enjoyment of the special qualities of the area by the public. It will not promote sustainable economic and social development of the area's communities; indeed, there is concern that the tourism economy of the immediate locale and wider area could suffer.

Reason

It is considered that the proposal conflicts with all four of the statutory aims of the National Park and as such cannot contribute to their collective achievement.

3. Context

The National Planning Policy Guideline on Natural Heritage (NPPG 14) states that it is Government policy to safeguard designated sites of national importance (including National Parks) and ensure that their important natural heritage features are conserved and, where appropriate, enhanced by positive management. Paragraph 25. of NPPG 14 goes on to specify that development which would affect such areas should only be permitted where the objectives of the designation and overall integrity would not be compromised or if significant adverse effects on its qualities are clearly outweighed by social or economic benefits of national importance. Paragraph 30. of NPPG14 states that planning authorities should take particular care to safeguard the landscape, flora and fauna of the Cairngorms.

Reason

It is considered that the proposal will compromise the objectives of the Cairngorms National Park designation and its overall integrity. It has not been demonstrated in the Environmental Statement that the significant adverse effects on the qualities of the Park are clearly outweighed by nationally important social or economic benefits and the proposal is consequently contrary to NPPG 14.

4. Context

The National Planning Framework (NPF) for Scotland is intended to guide the spatial development of the country until 2025. In providing a vision for the development of Scotland it identifies the requirement for a strong commitment to safeguarding and enhancing the natural, built and cultural environment and recognises that, in their rich diversity, Scotland's landscapes are a *"national treasure"*. The NPF accepts that landscapes evolve in response to climatic, economic, social and technological change. It is stated that the effect on landscape character will be an important consideration in decision-making on renewable energy developments. The stated aim of the NPF is to build environmental capital and pass well-managed, high quality landscapes on to future generations. There is also a commitment to facilitate the development of Scotland's renewable energy resources with key improvements to the electricity transmission system including rebuilding of the grid spine between Denny and Beauly, but the NPF is not prescriptive on the precise route. The NPF states that while grid reinforcement will in general take place along existing routes, some new connections and route modifications will be necessary.

Reason

Whilst recognising that rebuilding the Denny – Beauly grid spine is a national priority, it is considered that the current proposal will not safeguard and enhance a landscape that is of acknowledged national importance. The proposal is therefore contrary to the stated aim of the National Planning Framework to build environmental capital and pass well-managed, high quality landscapes on to future generations.

B) The Cairngorms National Park Authority requests the Scottish Executive to consider the following prior to the determination of the Section 37 application:

1. The Scottish Executive should convene early meetings involving the applicant, Cairngorms National Park Authority, affected Local Authorities, , Scottish Natural Heritage, Scottish Environment Protection Agency and Historic Scotland to explore and report on alternative overhead and/or underground routing. These meetings should take place prior to any Public Inquiry with recognition that the reports arising will either contribute to such an Inquiry or lead to a new application for a revised proposal.

2. The Scottish Executive should convene early meetings involving the applicant, Cairngorms National Park Authority, the Highland Council and Scottish Natural Heritage to secure agreement, not linked to the outcome of the application, on the replacement of certain existing 132kV tower lines by wooden pole lines both where the lines are actually carrying a lower voltage than their tower design and to lessen the landscape impact in those areas where there would be paralleling of 132kV and 400kV routes within the National Park.

APPENDIX 1 : MAPS OF THE PROPOSED ROUTE

Index map for detail maps 1-5.
Map 1 : Glen Shirra
Map 2 : Inver Pattack
Map 3 : Cathar Mor
Map 4 : Dalwhinnie
Map 5 : Drumochter

APPENDIX 2 : PHOTOS OF THE PROPOSED ROUTE

APPENDIX 3 : TECHNICAL INFORMATION

APPENDIX 4 : SUMMARY OF PUBLIC CONSULTATION RESPONSES.

Appendix 4a: letters of objection received directly by CNPA (56)

Landscape impact/ within a National Park Issues	number of similar comments
Negative Impact on Landscape	36
Against National Park Aims & Sustainable Development	38
Impression upon Entering National Park	25
Rid National Park of All Pylons	4
Wind Farms Refused in National Park, same for pylons	4
Tourism/Local Economy Issues	
Discourage Vital Tourists	36
Holiday/Sporting Lets	2
Impact on 'Monarch of the Glen' tourism	19
Discourage Film Industry	11
Damaging to Local Economy	23
Recreation	
Negative Impact on Recreation	2
Alternatives	
Underground	31
Underground in Part	6
Sub-Sea, West Coast	21
Worth the Extra Cost	7
Alternative Pylon Route	8
Must be Less intrusive Method	3
Health Issues	
Child Leukaemia	9
Other Health Issues	7
Benefits to Local Economy	
Not Benefiting Local Economy	5
Handling of Project by SSE	
Additional Work required into Costing Alternatives	6
Little justification for project by SSE	3
No Consultation with Kinloch Laggan Community	3
Some Dwellings <400m from Proposed Line	5
Poor/Lack of SEA/EIA	4
Need for Public Inquiry	11
Government Issues	
Lack of Government Energy Strategy	7
Problems with Ofgem Funding	2
Renewable Energy	
Support Renewable as long as no Negative Impacts for NP	10
Environment/Wildlife Issues	
Negative impacts for Environment/Wildlife	6
Project Not Required	
Project not required to meet energy targets	2

Appendix 4b: Analysis of 2022 Letters of Objection from Cairngorms Revolt Against Pylons (C.R.A.P)

From 2022 standard letters, 1787 individuals highlighted their main reasons for objecting.

Total of standard letters	2022	
Letters with added comments	1787	(88%)
ISSUES:	No. of similar comments	% (of 1787)
Landscape impact/amenity Issues within a National Park	1362	76%
Tourism/local economy issues	442	25%
Recreational issues	38	2%
Environmental issues	69	4%
Wildlife issues	58	3%
Alternative Methods (alternative routes and/or under-grounding)	543	30%
Insufficient power	35	2%
Health issues	100	6%
No Direct Power Benefit to Local Area	96	6%

Appendix 4c: Summary of other issues in 1026* objections lodged on Cairngorms Revolt Against Pylons web site *as of 5th April 2006

• Will eliminate chance of Cairngorms National Park achieving World Heritage Site status
• Out of scale
• "industrialisation" of area
• Effect on film and TV usage of area
• Risk to bird life
• Existing pylons should be removed, not bigger pylons put in place
• XLPE could be used instead of fluid-filled; seek an alternative route through the National Park that is amenable to under-grounding; or consider laying cables on the surface and disguising with drystane walling
• Cost should not be an issue in order to protect the beauty of the National Park
• Upgrade to 275 kV rather than 400 kV and so use less tall towers – less capacity then needed on the Beauly-Denny line – 275 kV also easier to put underground than 400 kV
• Damage to overhead pylons in severe winters
• No benefits for the area in terms of jobs
• Case for wind farms questionable on which this is premised
• Premature – wait for outcome of Government's Energy Review
• New power line might operate at less than capacity for time i.e. over-engineered
• Transmission loss of 10%
• Generate electricity closer to areas of demand
• Renewable energy in the Highlands and Islands should either be for meeting its own demand or exported south by new hydrogen technology, not by power lines
• Causes radio interference and noise nuisance
• Impact on property values
• Risk to low flying aircraft – or will warning beacons have to be fitted on top of the pylons?
• Would open the door to new power line from Ullapool to Beauly, also unacceptable
• Photomontages in Environmental Statement understate the predicted visual impact

Appendix 4d: Summary of Feedback Forms from public meetings in Dalwhinnie (26 Oct 2005) and Kinloch Laggan (30 march 2006)

Where do you Live?

Kinloch Laggan	16
Laggan	36
Dalwhinnie	17
Other (Where?) Aviemore/Catlodge/Newtonmore/Glentruim	12

Responding on Behalf of

An Individual	64
A Business	23
Tourism	12
Estate	1
Family	2

Do you think the pylon line should go through the CNP?

Yes	10
No	58

Alternative routes

Undersea down the West Coast	39
Underground would be acceptable	15
Underground essential if through NP	8
Outside the NP	2
Under water E to W	2
Should be off-shore wind or link the preferred wind areas and run the 400kv line between these areas.	2
No land routes should be considered	2
Follow existing line	1
Under sea as suggested by Amec	1
West via Fort William and South of Loch Ericht or take cable offshore	1
Spey Dam, Laggan Strath & Catlodge - A889	1

Should the line be under-grounded?

Yes	52
No	12

In any particular areas?

All Areas Through the CNP	19
At entrance to NP and in sight of the A9.	5
Kinloch Laggan to Drumochter	2
Sensitive landscape/views. Near habitation.	4
It should not be built.	2
Where it would affect tourists	2
Main Road - Blanket	2
Underground Laggan to Dalwhinnie to county boundary	1
To the West	1
Laggan to Drumochter	1
From A9 NP Enterance to Laggan	1
It should not cross the National park	1
Consider 'Overground' laying on the ground	1

Across main Access Points	1
Unspoilt areas on whole route	1
Corryiach to Drumochter	1
Drumochter Pass	1
Avoid Forest of Strathmashie that the LFT and Forestry Commission jointly manage & the Heritage Assests	1

What main issues would be most affected by this transmission line proposal?

Landscape	60
Communities	37
Recreation	26
Tourism	54
Designated Sites	45
Environment	36
Wildlife	35
Local Economy	43
Estates	26
Quality of Life	36
Other – Listed Below:	
Health reasons	4
Safety	2
Will make mockery of NP if routed through it	1
What is the point of a NP?	1
Destruction of Wilderness	1
No Obvious Reason	1
Quality of Life greatly improved by electricity.	1
Neg Impact on Quality of Life	1
People not places	1
Property values	1

Any other comments?

Very important to underground the line through the Nat Park. No acceptable route overground.
Whilst it may go through the Nat Park, most people would not recognise it as part of the Cairngorms and the A9 is there already!
The line taken is excellent in that it avoids both Laggan and Dalwhinnie communities. Possibly should cross A889 1/2 mile south of proposed crossing. What about community gain i.e. financial as in Wind Farms or build paths etc.
The area is designated as a Nat Park in recognition of it's special qualities, local businesses, especially tourism - will be badly affected by spoiling of landscape. Future business will be affected.
Alternative routes proposed more acceptable, Views spoiled, Ruin visitors impression to area, Tree felling required, Wildlife affected, the shortcomings of the submitted Environmental Statement, if allowed will make mockery of NP and CNPA
A NP is official recognition that an area is nationally/internationally important - affect entry points into NP - proximity of proposed pylons to houses (less than SSE's recommended guidelines)
If going to ruin large areas of Scotland don't touch NP - makes mockery of own designation
Line should be underground or sub-sea - these options have not been fully investigated or costed
Why not put pylons on route nearest wind farms. If going to ruin areas with vast numbers of wind farms seems sensible to keep NP free of industrialisation. Produce power where it is needed. Impact on Highlands/Tourism/International Landscape
If pylons allowed to go ahead CNP will be international joke. Overseas visitors will not return High cost of under-grounding and need for 30m wide excavation should be challenged. Newer technology exists - reduce impact and costs. Undersea cable from Isles to England should be investigated
Why should Scotland's scenery be changed into an Industrial Scrapyard!

As the owner of a B&B I am concerned that visitors and potential visitors will choose to visit and stay elsewhere possibly not even Scotland. Tourism is a major industry.
Nuclear Power Stations should be built where the power is required. More research into the safe disposal of nuclear waste.
50 years ago people complained about present pylons - said all things today about new grid - now we do not notice pylons. It will be same with new grid. The erection of the Pylons will give jobs to local contractors and bring extra income to local shops and B&Bs with migrant workers.
The present pylon line does no harm to Laggan or the CNP. The new line on a far lesser scale and in a far less visual area will do no harm at all.
Pylons would be a six day wonder then no one would even notice them.
Will all suffer eventually if line is not up-guarded. The line is only just inside the Park boundary. The same arguments were put forward years ago when original lines were erected and proved to be fruitless. We are seeing the same 'noise' as there was to the Funicular destroying its 'habitat' and it has proved to be a tourist plus.
The whole energy policy of Scotland needs to be rethought and updated. Lets not lake the biggest mistake to Scotland landscape since the deforestation of the Caledonia Pine Forest
Pylons are a scar on the landscape. CNPA should uphold its aims and protect the Park from these industrial proposals. Scotland should have a Park to be proud of, stand by your objectives demand alternative solutions.
The combination of energy conservation, considerably greater energy efficiency, small scale localised generation of electricity from renewable sources for local consumption, and the utilisation of offshore technologies, especially tidal stream and wave, for the generation of larger amounts of electricity for Scotland is the way truly sustainable way forward. Large industrial windfarms and long distance transport of electricity is inappropriate and seriously threatens Scotland's greatest natural asset - the landscapes and scenery.
People up here don't understand why the power we produce in Scotland has to be shipped down to England, and regard it as yet another act of Piracy. I am Very Pro wind farms and would love to see more of them, but the most sensible way to produce renewable energy in the Highlands would be small scale, where far-flung communities could power themselves and any surplus could be taken to the nearest city to power hospitals, public transport etc. There should be a public enquiry on this issue.
I disagree with the new power line being built at all. Why are we desperate to send down our power resources to a PRIVATE contractor in the south of England? What RECEIPTS will be left in Scotland? Why are our domestic bills being almost DOUBLED since that company aquired our local Hydro? Why do we stand back and allow this PIRACY of our power which we need desperately for other purposes in our own country? I suggest that locally made power should be used for local purposes TO make electricity is easy, to distribute it is the most costly part. Once again, local power for local needs. Have we considered the possibility of powering new transport facilities in the main cities? Should our Hospitals be subject to these new massive increases in tariff simply because SE in the south of England has total control of our resources? the name of the game is to tell them to go back and think again. No doubt they will ask and receive help from DTI and no one will ever know the degree of these grants.
If the proposed transmission line proceeds a pylon will be placed directly above my water supply (a spring) and will be in direct view of my house. It is an area of outstanding beauty and Monarch of the Glen was filmed in this area. It is one of thefew areas which remain unspoilet and it would be a travesty to allow the pylons to be placed in this area.
Public Enquiry. Worried that it may affect the health of my family
As with windfarms, the pylons will be an appalling visual intrusion in the National Park. Most local jobs rely on tourism and tourists will not stop/stay in an area blighted by pylons as large as these.
The present line runs through the middle of Laggan, 90% of houses look at it. No mention has been made that this line will be coming down if the proposal is passed. the proposal of the new line cuts across the hill where no one will see it. Yes it will be seen from the A9 but it is my belief that nobody will notice it and within a few weeks even the locals will not notice them. people from all over the world are used to seeing pylons where ever they go and it is my view that tourists will not be put off in the slightest.
We should be considering removing all existing pylons to enhance the environment within the NP
A public Enquiry is needed to properly answer the issues raised.
SSE says local businesses will lose 10-15% of their income. Pylons against ALL Aims of the NP.
Wind should be offshore. Intermitant and not a solution to our energy needs. Produce energy

where it is needed & stop ruining beautiful places. Nuclear power is only solution to this problem.
if this goes ahead the integrity of the park is lost and future developers will forge more lines. Once we have lost our scenery it will be gone forever. Hope that big business doesn't prevail in this case. Great opportunity to take down pylons not put them up
Have they proved they need the extra capacity for electricity, will it be sustained? If not any plans for monster pylons to come down?
Underground or under sea. No acceptable route through or near NP overground.
Do not accept that lines cannot go underground or under sea. Accept the need for upgrading infrastructure and green electricity but must not lose more than we gain. Overhead powerlines is socially too costly
Don't destroy the local area with pylons - inside or outside the Park.
More respect for local people is needed.
Visitors to holiday cottage say pylons spoil the views, enlarging pylon line would affect business.
only in Scotland or Uk would we consider doing such a thing in a new NP
Tourism essential to peoples jobs in the area which will be affected. Consider effects to wildlife.
underground along main road to act as an "electric blanket"
Tourism major part of local economy, people come to the area for the scenery & feeling of being in a wilderness env. Pylons will be seen from the MTB trail. Not very scenic with massive metal towers across glens and mountains.
SSE chairman recently states that no lines like the one proposed should be constructed, an undersea loop around the UK would serve the needs of the country. Effect on tourism industry cannot be measured, come to see scenery not pylons. local economy will suffer. some wildlife may nest on pylons but the wider effect must be considered.
Any form of industrialisation of the Park should be rejected. business will be affected long-term.
Kinloch Laggan never involved in originall consultation. Line should not pass through entrance to NP. Proposed route does not take account of flora, fauna, wildlife filming. Tourism following Monarch of the Glen has boomed - repeat visitors will not come back if pylons through the glen. this is a major development, anywhere else would be called in. not an adequate survey of wildlife done, needs a full report. have had wildlife films made here since 1970's. eagles just above proposed route.
The application pre-empts the current UK National review of Energy Policy and should not be granted in advance of this. Attitudes to wind power are changing, wind power is a rural solution to a rural problem. Community wind generation reduces the need for grid upgrades. use of neclear close to urban areas also reduces the need for power line upgrades. the application is misleading and fails to consider all options. A public enquiry is therefore needed.

APPENDIX 5 : SUMMARY OF OTHER ORGANISATION RESPONSES

Please note that these are abridged summaries, for the purposes of supporting this CNPA report; the complete organisation response should be considered prior to commenting on it.

The Ramblers' Association object to the proposal on the following grounds: the adverse impact on the landscape; detrimental effect on public enjoyment of the countryside and related adverse impact on the tourism industry; an SEA is required under European legislation; the project is incompatible with the National Park aims.

The Highland Council: Recommendations

1. That the Council affirms its support for the principle of a high voltage electricity transmission system between Beauly and Denny as a key infrastructure project to support the objectives of the Highland Structure Plan and the Draft Highland Renewable Energy Strategy.
2. That the Scottish Executive be requested to make no decision on the submitted application until the results of the UK Government's Electric and Magnetic Fields SAGE Group have been considered and that any approval for a high voltage overhead electricity line must adopt the precautionary principle in relation to a minimum separation distance between occupied property and the line along with compliance with international standards.
3. That the Council object to the submitted application because in the four specific lengths identified in the report there are significant adverse amenity impacts.
4. That additional information should be provided at this stage to allow the Council as Roads Authority to assess the likely effects of both construction and dismantling traffic on the local roads network and affected communities.
5. That the Council considers that in the event of the application being approved certain existing 132 kV tower lines should be replaced by wooden pole lines to lessen the environmental impact in areas where there would be paralleling of 132 kV and 400 kV routes or through parts of the National Park adjacent to the A9.
6. That the Council request that the Scottish Executive convene early meetings between the applicant, affected Local Authorities, Cairngorms National Park Authority, Scottish Natural Heritage, Scottish Environment Protection Agency and Historic Scotland to explore and report on alternative overhead or undergrounding routing to the submitted application with a view to avoiding the need for a Public Inquiry and/or reducing the objections to be considered at an Inquiry.

The National Trust for Scotland: The Trust opposes the way in which this proposal is being taken forward, for the following reasons:

- This proposal should not be considered separately from the current major expansion in wind farms, as the two are clearly interlinked
- The generation and transmission of renewable energy in Scotland jointly constitute a major national programme which should be subject to strategic environmental assessment
- This proposal will have a seriously adverse impact on the landscape, and therefore risks damaging Scotland's tourism industry
- Possible alternatives, including subsea cables or upgrading other existing routes, have not been adequately considered
- This application is therefore premature, and the need for this project has not been satisfactorily demonstrated

The John Muir Trust: The John Muir Trust believes the Scottish Executive should urgently produce an energy strategy for Scotland, which includes the electricity distribution network. In this way, all relevant factors - social, environmental and economic – can be weighed up. This would then provide a national framework for planning decisions allowing prioritisation of renewable energy development in less sensitive areas, rather than the localised system of planning which is currently in place.

Specific areas of concern to the John Muir Trust are:

- that the line will pass through land which is wild land. (*details below)
- that the line will have significantly more impact than the current 132kV line
- that undergrounding the line in specific wild land areas and in the Cairngorms National Park does not appear to be an option, according to the developers.
- the precedent this line would set for allowing further encroachment on other wild land

Although there are no "major adverse" effects identified in the ES, there are a considerable number of "moderate adverse" effects. Collectively, this means that the new 400kV line will significantly affect the visual experience of the landscape in some parts of the route.

* Sections in or near Key Areas of Wild Land which are of concern to the John Muir Trust are

- Fort Augustus (NH3706) – Corrieyairack Pass – Garva Bridge (Upper Spey) NN5195)
- Feagour (Strath Mashie) (NN5790) – Dalwhinnie (NN6288)
- Dalwhinnie (NN6484) – Drumochter Pass – Dalnacardoch (Glen Garry) (NN7170)

Historic Scotland: From our statutory historic environment perspective Historic Scotland have no objection to the principle of this development or to the route proposed. We are content that historic environment issues have been given due weight in the route planning and selection processes. Although the construction and operation of this overhead line will have some significant impacts on the historic environment, as outlined in the ES and discussed above, we are content that none is of such magnitude to warrant objection to the application itself on historic environment grounds. At a more detailed level we do have some residual concerns about certain impacts on specific sites. However in terms of the application we are content that impacts are either acceptable or can be appropriately addressed through further dialogue between ourselves and SSE or through specific mitigation commitments set out in the ES, as outlined below.

The Wade Road through the Corrieyairack Pass: Potential impacts on this site raise the most significant concerns (similar for the Battle of Sherrifmuir site). As discussed above SSE have agreed to undertake further work in both areas to better define issues and constraints and consequently give further consideration to effective mitigation options which as far as possible minimise impacts. We will be able to comment further on the outcomes for both these sites when the results of this further work is available.

Perth & Kinross Council: Recommendation: The Council objects to the Scottish Executive's consultation to erect this overhead electricity transmission line due to insufficient information to assess the impacts on the following natural heritage, cultural heritage, landscape and visual amenity interests.

101. This report has avoided commenting in great depth on whether any alternative route is possible and/or preferable, since the role of the Council is to consider whether the application as submitted is or is not acceptable. If not acceptable, reasons for objection must be set out. It is not a requirement on the Council to consider in detail possible sections

for alternative alignments or undergrounding. Nonetheless it can suggest measures which may mitigate the impact of the proposal.

103. I have no particular expertise on health issues associated with high voltage overhead lines. It is recommended that this is not an issue for detailed comment by the Council but rather that the Scottish Executive be requested to adopt the precautionary principle in relation to a minimum separation distance between occupied property and the line along with compliance with international standards.

104. It is clear that the overwhelming thrust of the Development Plan is to direct developments to sites where they will not have a significant adverse impact on the landscape character of the area or the visual amenity of inhabitants. The Development Plan advocates both careful and objective assessment of the landscape and visual characteristics of proposed locations and that the design response ensures the size and scale of the development and its relationship to the characteristics of the locality and landform in which it is to be built are fully considered. While there may be support in terms of the National Planning Framework for this development I do not consider that this outweighs the significant concerns as highlighted by the Development Plan in regard to this development.

106. In light of the above and comments of consultees, I have concerns that over some sections of the route the environmental impacts have either not been adequately investigated or have not yet been reduced to the realistically achievable minimum needed to safeguard important landscape, natural, and cultural heritage assets and the water resource. Accordingly, I suggest that the Council object to parts of the proposal as currently submitted due to either insufficient information or adverse impacts on the following natural heritage, cultural heritage, landscape and visual amenity interests: -*Natural Heritage (in the Park):* Drumochter Hills SPA; Drumochter Hills SAC.

SEPA: SEPA does not object to this application provided that certain matters will be addressed by **planning condition** as set out below. If this cannot be achieved, then this response should be taken as an objection. SEPA considers that the ES tends to underplay the level of environmental impact of demolition and construction activities after mitigation measures are put in place. SEPA's experience is that major construction activities in sensitive environments inevitably lead to residual impact. Sensitive locations, including designated sites, include in the current application remote mountain terrain, wet valley floors, salmonid burns, peatland, semi-
natural woodland and water bodies of pristine ecological status.

The following matters need to be addressed by condition. It is noted that a Construction Procedures Handbook is to be developed and several of the measures identified below could form part of this Handbook or separate work method statements.

A detailed method statement should be required by condition covering **access track construction and drainage**. The ES states that 154 km of temporary track will be installed, with the possibility that 7km could be permanent, and that 124 km of existing track will be upgraded. The detailed proposals for access tracks will need to implement Sustainable Drainage Systems (SuDS) and implement best practice from the Forests and Water Guidelines.

The work method statement needs to take into account measures to avoid pollution associated with **pylon base construction**. The excavations for these foundations will often be in wet ground and silt laden water will have to be pumped out – surprisingly there appears to be little consideration of the impact from this, or of management of silty water.

Concrete use and washout can be highly polluting, and hence concrete management needs to be considered in detail. Concrete is to be delivered to pylon bases by means of ready mix trucks or by helicopter elsewhere. A large quantity of concrete will be required for the footings of the pylons. There is therefore a risk of pollution from the run off of surface water around the fresh concrete and therefore the work method statement needs to address this risk.

SEPA considers that the ES considerably underestimates the scale of waste management that needs to be dealt with within the project. There appears to be an assumption that exemptions to waste management licensing will be easily available, when in practice this nowadays may not be the case. This issue needs to be examined further in a **waste management and waste minimisation plan,** with specific attention to the identification of waste streams and waste management options available on the ground.

A condition is needed requiring submission of a **peat management plan**.

Of some concern is the fact that the ES provides only the first of a three phase ecological assessment. It contains a highly detailed audit of the features of interest for ecology and nature conservation along the transmission line corridor, based on desk study and baseline survey. Phase 2 will follow the present ES submission and provide detail at the 'micro-site' level – for towers, substations and work areas. In turn this will inform the production a Construction Procedures Handbook. This will, among other things, instruct contractors in their operations so as to provide mitigation against or to avoid ecological damage. Phase 3 of the ecological assessment will relate to the delivery of the project in an ecologically acceptable manner, and the necessary audits to demonstrate this. This final phase will involve the activities of an ecology advisor to the project, whose presence on site will be expected.

APPENDIX 6 : SNH RESPONSE SUMMARISED.

THE FOLLOWING IS A SUMMARISED EXCERPT FROM THE FULL SNH RESPONSE, HIGHLIGHTING THOSE SECTIONS WHICH SPECIFICALLY REFER TO THE CAIRNGORMS NATIONAL PARK; THE FULL RESPONSE CAN BE VIEWED ON THE SNH WEBSITE.

1.11 Cairngorms National Park: The National Park is a nationally important designation with its boundaries determined in part by landscape considerations. Two of the four primary aims of the National Park designation are to conserve and enhance the natural and cultural heritage and to promote the understanding and enjoyment (including enjoyment in the form of recreation) of the special qualities of the area by the public. The proposed route passes through the Cairngorms National Park and will impact on landscape, visual, nature conservation and access interests.

1.16 Access and Recreational Interests: The Corrieyairack pass is situated within an Area of Search for Wild Land as set out in the SNH policy *Wildness in Scotland's Countryside*. There are other areas of remote land in the proposed route, such as Feagour to Dalwhinnie, Glen Shirra, or the area south of Trinafour.

2.2 European Sites: The legislative requirements are summarised in Circular 6/1995 as amended June 2000. Appendix A provides further details of the legislative requirements. From the information available it appears to SNH that the proposal is not connected with or necessary for the conservation management of any of the sites, hence further consideration is required.

2.2.2 Drumochter Hills SPA: SNH considers that the development has the potential to affect merlin, one of the species for which the SPA has been designated. Impacts could arise from disturbance from the construction of the towers and dismantling existing line, construction of access tracks, stringing of the conductors, habitat loss and collision with the line. As detailed above at 2.2 insufficient information has been provided to determine that there will be no adverse effect on the integrity of the site from merlin colliding with the power line, therefore;

2.2.7 River Spey SAC: SNH considers that the development has the potential to affect freshwater pearl mussel Atlantic salmon and otter, the three species for which the SAC has been designated. The impacts from the construction of the towers, stringing the conductors, dismantling the existing line and construction of access tracks are likely to be significant and could arise in or adjacent to the site. The effects relate to possible sedimentation, pollution, disturbance and habitat loss.

2.2.8 Drumochter Hills SAC: SNH considers that the development has the potential to affect a number of the habitats for which the SAC has been designated; these are Northern Atlantic wet heaths, European dry heaths, active blanket bog (priority habitat) and species-rich *Nardus* grassland (priority habitat). Impacts could arise from the habitat loss, habitat damage or habitat modification through the construction of the towers, stringing of the conductors, construction of access tracks and dismantling the existing line.

There is a lack of information about the restoration and mitigation plans for the qualifying interests as well as a lack of detail of construction methods to enable SNH to determine that there will be no adverse impact on the integrity of the site.

2.9 Geological Conservation Review Sites: Garva Bridge GCR site. The route of the new 400kV line runs directly through this small site. Partial or full removal of any rock outcrop, or defacement of any rock outcrop or obscuring of any rock outcrop will be damaging.

2.10 Regionally important geological and geomorphological features: Known areas of sufficient geological status to qualify as Regionally Important Geological/Geomorphological Sites: Drumochter area. Areas of hummocky moraine lie along the route of the old 132kV and the new 400kV lines. Any partial or full removal or obscuring of these landforms will be damaging to the interest of the site

2.12 Landscape and Visual Interests
2.12.1 Cairngorms National Park

The ES considers baseline information relating to the Cairngorms National Park in section 23.4.1 and presents an overall assessment of the operational effects of the proposed development on the Park in section 23.6.2. The total length of the proposed transmission line aligned through the Park would be 27.97km. The ES states in paragraph 23.4.1.14 that areas outwith National Scenic Areas (NSAs) and within the Cairngorms National Park have been assessed on the basis of general sensitivity and capacity to accommodate new development, but with some additional weighting applied to reflect the status of the area as a National Park. We consider that this weighting is not transparent and does not appear to have been applied in the assessment when compared with the conclusions reached on sensitivity and significance of landscape and visual effects on other sections of the route lying outwith the Park.

The National Park is a nationally important designation with its boundaries determined in part by landscape considerations. Two of the aims are to conserve and enhance the natural and cultural heritage and to promote the understanding and enjoyment (including enjoyment in the form of recreation) of the special qualities of the area by the public. We believe that this development will adversely affect these primary aims of the National Park designation as follows:

- There will be significant adverse impacts on the character and experience of the landscape of the Cairngorms National Park. This is likely to adversely affect the key aim of conserving and enhancing the natural heritage of the Park. The line will introduce a new and large scale industrial feature into part of Park's landscape where a remote and relatively undeveloped character exists, notably Glen Shirra and the landscape of craggy hills between Feagour and Dalwhinnie, and into the landscape of the Pattack Valley. The latter having a small scale and intimate character, which is an important in enriching the diversity of landscapes present in the western part of the Park., This development would dominate the intimate scale of the Pattack Valley.
- This development would also affect the public's enjoyment of the Park, particularly affecting the southern and western approaches to the Park and diminishing the 'sense of arrival' and experience of landscape character from the well-used A9 and A86. We disagree with the conclusions of the ES with regard to 23.6.2.8 that the new alignment will be of benefit to the overall experience of the landscape of the National Park.

In conclusion, we consider that the assessment of landscape and visual impacts on the Cairngorms National Park outlined in the ES to be flawed in that the sensitivity of the Park's landscapes to this development is not rigorously appraised and too much emphasis is placed on the beneficial effects associated with the dismantling of the existing 132kV line through Strathspey without rigorously balancing this against the impacts associated with a new, much larger 400kV transmission line. We consider that the proposed line would adversely affect the key aims of the National Park designation.

Landscape Impacts

Section 8: Garva Bridge to Inverpattack Lodge

- Despite wholly lying within the Cairngorms National Park, the assessment considers this landscape to be of 'moderate' sensitivity (23.5.2.60) due to the absence of NSA designated landscapes. The National Park is a nationally important designation with its boundaries determined in part by landscape considerations.
- The comparative assessment of dismantling the route within Strathspey with the construction of the new 400kV line on the new route proposed is flawed. There is no justification for a 'moderate to high sensitivity' rating being attributed to the landscape of the Strathspey area, particularly when compared with the 'moderate' sensitivities assessed for the landscape between Garva Bridge to Inverpattack Lodge overall.

Section 9: Inverpattack Lodge to the A9 at Dalwhinnie

- Significant adverse impacts would be associated with routeing the overhead line through the small scale, diverse character of the Pattack valley.
- We believe that there will be significant adverse impacts on the character and the experiential landscape qualities associated with the Cairngorms National Park. This is likely to particularly affect people's experience as the line crosses the A86 west of Kinloch Laggan and the A889. The Pattack Valley provides a 'pinch point' and high quality entrance to the Park for the traveller approaching from the west.
- The transmission line and the associated long track (not clear whether this is temporary or permanent) will incur adverse impacts on the woodland at Feagour where a number of walking routes are promoted.
- The line will adversely affect the expansive scale and openness characteristic of the Cathar Mor between the A889 and the A9 and diminish the simple uncluttered foreground it provides to views of the smooth rounded hills east of the A9. The effects of the line will be accentuated by the proposed access track.
- A number of established and recently planted woodlands will be adversely affected by the line with wide wayleaves of up to 330m proposed.

Section 10: A9 Crossing

- There is no conclusion made as to the significance of landscape effects associated with the A9 crossing in the ES. The text set out in 23.5.2.67 to 23.5.2.77 provides background to the selection of the route alignment rather than an assessment of impacts.
- The A9 crossing should be considered as an integral part of the detailed appraisal of undergrounding between Garva Bridge and Dalwhinnie. Detailed information is also required on the proposed construction method and provision of access tracks.

Section 11: A9 north of Dalwhinnie to Dalnacardoch Lodge

- Significant adverse impacts on the landscape setting of Dalwhinnie, which is particularly important in being the first settlement encountered within the Cairngorms National Park when travelling north. Although the 400kV transmission line is aligned further away from the settlement than the existing 132kV line, we consider that the greatly increased height of towers

will not *…"benefit the amenity and character of the village"* as stated in 23.5.2.81 of the ES.

- The accentuation of the 'infrastructure corridor' character of the Pass of Drumochter south of Dalwhinnie where the construction of a significantly larger transmission line will further erode the sense of vertical scale and dominance of this dramatic upland landscape. and will affect the sense of arrival to the Cairngorms National Park from experienced from the A9.

4. Landscape and Visual Impacts: Under-grounding of the line and other mitigation measures.

2.2 The ES is dismissive in terms of the potential for under-grounding the line. The economic and technical constraints of under-grounding are stressed and not balanced with a similar appraisal of the landscape and visual benefits that could result. Section 6.3.28 of the ES provides no detail as to the likely level of failures that may occur with under-grounded lines and the 'advantages' of overhead lines are overstated in comparison with the list of 'advantages' for under-grounding. The justification set out in the ES is overly selective and the points made are not always relevant to this proposal, for example bullet point 2 refers to the restrictions on future upgrading of lines, which is unlikely to be applicable to this application. A full analysis of the landscape and visual impacts associated with under-grounding should be undertaken for the different sections of the route. Where SNH consider the landscape and visual impacts of the proposal to be unacceptable, we have recommended that the applicant examines alternatives, which may include realignment of the route and/or under-grounding of the line.

APPENDIX 7 : LANDSCAPE + VISUAL IMPACTS ON THE PARK.
Extracts from Report by Carol Anderson Landscape Architect

Garva Beg to A9 Crossing:

Effects on the Garva Beg and Glen Shirra area

While only part of this area is included in a Wildland Search Area, Glen Shirra has wildland characteristics in that a sense of remoteness and naturalness is commonly experienced. This aspect of landscape character is not recognised in the assessment of local landscape character within the ES (Volume 5, 23.2). The proposed line, and associated access tracks, would have significant adverse impacts on the open and simple character of this landscape and on its wildland character.

The promoted Laggan Community path network allows access for walkers and cyclists through Glen Shirra but is not mentioned in the baseline conditions section within Chapter 24, Volume 1. The proposed transmission line would cross this track and intrude on views from this track to the south through Glen Shirra to distinctive hills in the Ardverikie Forest. It would also affect views from the public road within the Spey valley and from properties at Glenshero Lodge and Sherramore, interrupting presently open and striking views down Loch Crunachdan, through Glen Shirra to the Ardverikie hills.

The Pattack Valley

This area has been defined as two local landscape character area sub-areas E4a) and b) (Volume 5, 23.2) in the ES. The description of local landscape character provides no analysis of the scale and special qualities of the Pattack Valley and this is a serious omission in terms of defining the particular sensitivities of this small-scale and particularly diverse landscape to the introduction of a large scale transmission line.

It is stated in Volume 1, 23.5.2.56 that *…."none of the Kinloch Laggan area would appear to contain particularly rare or distinctive landscape features"* . This is an overly simplistic assessment as the importance of the Pattack Valley lies with its intimate and varied character, created by mixed woodlands, small riverside pastures, the river and its occasional pools, falls and rocky crags and the presence of traditional settlement, much of this having a distinctive architectural style associated with the Ardverikie Estate. This settled and small scale landscape character area is an essential feature of the special landscape qualities of the Cairngorms National Park, providing a contrast with the extensive tracts of forest and open uplands adjacent to it.

The ES concludes that moderate adverse landscape impacts would be associated with routeing the overhead line through this landscape. However, the small scale and notably diverse character of the Pattack valley increases the sensitivity of this landscape and its capacity to accommodate such a large scale infrastructural feature. The transmission line would be aligned through diverse mixed woodland fringing the river and coniferous forest and cross the narrow winding A86 and small riverside pastures and, together with its associated woodland wayleaves, would disrupt the pattern and dominate the scale of this landscape. It is considered therefore that the ES under estimates the effects of the development and that landscape impacts would be major and adverse due to the magnitude of the effects of the development on the key characteristics of this landscape.

There would also be significant adverse impacts on the experiential landscape qualities associated with the landscape of the Cairngorms National Park. The Pattack Valley

presently provides a high quality entrance to the Park for the traveller approaching from the west on the well-used tourist route of the A86. The assessment of visual impacts does not reflect the importance of the Pattack Valley in providing an attractive 'gateway' to the Park.

Although views are largely contained by woodland and the incised landform of the valley, the scale of the towers situated on elevated ground either side of the valley will enable them to be glimpsed, albeit briefly, from the A86 further to the west along Loch Laggan and also from the drive to Ardverikie House. There will be significant adverse impacts on views from the settlement of Kinloch Laggan, individual properties and from the A86 within the Pattack Valley.

The proposed felling of Crunachdan wood over a width of 125m would include removal of diverse mixed woodland edge and extensive areas of coniferous forestry and would be highly visible from the A86. This wayleave is not illustrated in the poorly reproduced photograph and wireline visualisation from Viewpoint 38 (Volume 5, Annex 24.1) and it is recommended that an additional photomontage is generated in this area to clearly show the nature of likely impacts of both the wayleave and the transmission line from within the valley.

Feagour to the A889

While there will be some adverse landscape impacts on coniferous forestry at Feagour, the line will largely avoid the more diverse and attractive forest edge of mature conifers and broadleaved trees against the River Pattack and be largely aligned through commercial forest where diversity is limited and felling and stocking operations give a strongly managed character to the landscape. Similar landscape impacts will occur where the line is aligned through younger commercial forestry to the west of the A889; although in both situations, the line and associated wide wayleaves (some of these up to 330m wide) could accentuate geometric forestry margins and rides which are detractive features in the landscape and potentially give rise to cumulative landscape effects.

It is in the open area of craggy hills and valleys between these forested areas where the landscape impacts of the line will be most significant in this section of the route. This medium scale and semi-enclosed landscape has a distinctive character comprising rugged hill tops, lochs, remnant birch and young native pine woodland. The landscape experience gained from walking the Right of Way between Feagour and Dalwhinnie provides a sense of remoteness and naturalness. These wildland characteristics would be significantly and adversely affected by the introduction of a development of this scale and nature into this landscape.

Although this area is not settled there are a number of promoted walking routes, including walks to the former settlement at Druim an Aird within Feagour Forest and the Right of Way between Dalwhinnie and Feagour where close views of the line will be possible. This is recognised in the ES where it is concluded that significant adverse impacts will occur on views from the Right of Way between Dalwhinnie and Feagour (Volume 1, 24.5.3.52), although there is no visualisation in the ES to illustrate potential views from this route. It is however noted that a viewpoint has been selected from Dirc Mhor (Volume 5, 24.1, viewpoint 39) which is neither close to the Right of Way or in a readily accessible location and where it is concluded that there would be no views of the proposed line. It is therefore recommended that an additional photomontage is generated from the vicinity of the Right of Way to clearly show the nature of likely impacts of the transmission line from within the valley.

Views of the transmission line from the A889 will be prominent, particularly as the line crosses the col between the hills of Meall na Ceardaich and Carn na Ceardaich and its route is accentuated by a wide wayleave cut through commercial coniferous forestry.

The Cathar Mor Area

This area comprises an area of upland plateau moorland lying between the A889 and the A9. The assessment of local landscape character makes no analysis of the essential characteristics of this landscape which comprise its openness and expansiveness and compositional role in providing an uncluttered foreground to views of the surrounding hills. The conclusions made in the ES that minor adverse impacts would be likely to occur on this landscape (Volume 5, 23.2 para;2.7.18) are therefore overly optimistic, not having been based on a rigorous examination of landscape character and sensitivities to a development of this nature.

It is considered that the proposed transmission line will have significant adverse effects on the expansive scale and openness which are key landscape characteristics of the Cathar Mor. The linearity of the line will be accentuated by the proposed access track across the moor.

There would be significant adverse impacts on views from the A889 where the line would be highly visible as it crosses the road and is aligned across the open moorland. The transmission line would diminish the simple uncluttered foreground the moor provides to distant views of the smooth rounded hills east of the A9. The line would also intrude on striking views experienced when travelling north on the A889 in the vicinity of Cathar Mor, where large towers and lines would displace the focus provided by the distinctively rugged group of mountains lying to the west of Newtonmore.

The A9 Corridor

Crossing of the A9

The assessment of landscape effects (Volume 1, 23.5.2.67 to 23.5.2.77) provides a discussion of the selection of the detailed route alignment and fails to provide conclusions as to the nature and significance of impacts associated with the proposed A9 crossing of the line.

The line will intrude on distant views to the core of the National Park to the north when travelling north on the A889 and will also be visible from the A9 and railway. It will adversely affect the experience of the landscape character of the Park from these key transport routes and substantially increase the existing clutter of infrastructure within this open valley.

There will be significant adverse impacts on views from the A9 as the transmission line crosses the carriageway and as towers are prominently located on a ridge edging the river valley to the west. The line would intrude on long views to the Monadhliath mountains when travelling northwards and on the hills containing the northern end of the dramatic Pass of Drumochter when travelling southwards. The proposed line in this area will adversely affect key views from the southern part of the Cairngorms National Park.

Dalwhinnie

The settlement and immediate vicinity of Dalwhinnie is defined as local character area F7 (Volume 5, 23.2) in the ES. The character description contains a number of unjustified statements; for example, describing the diversity and condition of this landscape to be

'good'. The assessment of landscape effects concludes that the removal of the existing 132kV line would enhance the local landscape character of this area but makes no specific assessment of what the effects of the substantially larger 400kV line would be on the settlement.

Dalwhinnie is important in being the first settlement approached within the Cairngorms National Park when travelling north. The setting to the settlement is currently adversely affected by the proximity to the highly visible existing 132kV and the A9. Although the 400kV transmission line is aligned further away from the settlement than the existing 132kV line, there will be residual significant adverse effects on the setting of the settlement and on views from roads and some properties due to the greatly increased height of towers and the prominent sky-lining of some towers, as concluded in Volume 1, 24.5.3.5 of the ES.

South of Dalwhinnie to the Drumochter Pass

The proposed line would affect the entrance to the National Park at the Drumochter Pass. The introduction of significantly larger towers within the Pass would diminish the perception of the vertical scale of steep hills which increasingly constrict the valley, particularly to the east of the A9 and would adversely affect the drama of this distinctively upland landscape by accentuating the infrastructure corridor aspects of its character. Hill walkers, cyclists and car drivers would be affected and although the character of the Drumochter Pass to Dalwhinnie section of the A9 route corridor is already cluttered and detractive in places, this proposal will exacerbate this and adversely affect the important initial impressions of visitors to the National Park.

APPENDIX 8 : CNPA ECOLOGY and NATURE CONSERVATION COMMENTS.

General Comment

The more detailed comments presented below all have one concern in common. That is that there appears to be systematic under-valuation placed on the importance of the ecological and nature conservation interests of the Park, and indeed along much of the proposed transmission line (Chapter 22.4.8). There is a corresponding underassessment of the impacts and effect significance. The approach adopted in the ES to these matters is not properly justified, and there appears to be too much weight attached to professional judgement rather than the presentation of evidence-based argument. This is a fundamental weakness in the ES. Consequently, **we are of the opinion that the values attributed to all habitats and species within the ES, and the significance of the effects upon them, need to be reconsidered with more reasoned justification for each**.

The one exception to undervaluation appears to be the values accorded to habitats and species along the line of the existing 132kV line which is proposed for dismantling. The relatively high values accorded to interests along this route seem to lead to the conclusion that the benefits derived from the dismantling of this line would more than outweigh the impacts of the construction of the proposed 400kV line. The evidence and justification for this approach have not been adequately presented to allow proper comparisons to be made.

Designated Sites

As for landscape values, we consider that the ES has not given proper recognition to the status of the Cairngorms National Park as a national designation. This is despite the listing of the National Park as a national designation in Chapter 22.8.2 of the ES. Without any explanation, this section fails to attribute any special weighting to the value of the habitats and species of the Park in line with their contribution to the quality and extent of the special qualities for which it has been designated. Instead, this section indicates that the natural heritage interests have been considered in relation to the effects on the other designations included within it, and on non designated habitats and species in a more general manner. Table 22.1 “Guideline Nature Conservation Evaluation Criteria” also fails to identify the National Park as an entity, and section 22.3 makes no mention of the National park within the Scope of Assessment.

This lack of recognition accorded to the National Park as a designated entity in its own right is a major weakness in the ES. In accordance with statute, the Cairngorms National Park has been designated because it meets the conditions set out in the National Parks (Scotland) Act 2000. Of especial relevance are the first two conditions set out in 2(2):

a) that the area is of outstanding national importance because of its natural heritage or the combination of its natural and cultural heritage;
b) that the area has a distinctive character and a coherent identity.

Compliance with these conditions indicates that the outstanding national importance of the Cairngorms National Park is derived from the ecological and nature conservation interests (along with other natural heritage interests) occurring throughout its area, and not just those found in Natura 2000 sites and Sites of Special Scientific Interest (which are designated on different criteria). The quality, connectivity and extent of all viable semi-natural habitats contribute to this outstanding importance and identity. **We consider that the proposal to route the proposed transmission line through the National Park, and disrupt the ecological and nature conservation interests therein has not been justified. Consequently, the ES has not demonstrated how the proposal complies with**

the fundamental mitigation approach presented in section 22.7, namely to avoid sites of ecological importance through careful routeing. Accordingly, the proposed route does not appear to comply with the Holford Rules.

CNPA is also concerned about the assessment accorded to the Drumochter Hills SSSI/SPA/SAC. It appears that the habitats in this Natura site have again been under-rated in terms of their value, with none being accorded International or National Value in the Habitat Scoring. The highest is a score of 3 "Regional Value". There is no explanation for this approach in chapter 22.8.2. We also consider that the assessment of impacts upon this site, for both its European qualifying habitat and species interests, does not fulfil the requirements of the Conservation (Natural Habitats & c.) Regulations 1994. In particular, the evidence presented does not provide the competent authorities with sufficient information to undertake an appropriate assessment. **Accordingly, it is not possible on the basis of the evidence presented to demonstrate that there will not be an adverse impact upon site integrity (22.8.3.44). This is a serious omission in the ES which must be addressed properly before any consent can be given.**

A similar concern relates to the River Spey SAC/SSSI and the level of assessment given to the potential implications for the qualifying interests. These must be subject to an appropriate assessment to determine whether or not there would be an adverse impact upon site integrity. The evidence presented within the ES is not adequate for this purpose with respect to otter and Atlantic salmon, with it being noted that the nearest record for fresh water pearl mussels appears to be more than 16km downstream of the proposed crossing (Confidential Annex).

In consequence of the above, we consider that the ES has not justified the proposal to route the new transmission line through the National Park or through part of Drumochter Hills SAC/SPA/SSSI and across the River Spey SAC/SSSI.

Habitats

Identification of habitat types

The location and extent of Phase 1 Habitats shown in the Addendum Figure A1.1 g-k inclusive are largely accurate. We agree that the majority of the ground across which it is proposed to construct the pylon line consists of moorland habitats, namely dry and wet dwarf shrub heath, blanket bog and acid grassland, with small areas of native broadleaved woodland and more significant areas of coniferous plantation. We do, however, question the scale of the habitat identified as wet modified bog to the south of the minor road between Sherramore and Garvamore, near Spey Dam. This is an area with a mosaic of wet heath, dry heath and blanket bog. The blanket bog areas have a high *Sphagnum* cover and a number of intact bog pools, both of which indicate that it is largely in good condition, and not significantly modified. Some localised poaching has occurred, probably from red deer which can occur at fairly high densities in this area, and some higher drier ground has been burnt by the land managers. The extent of both these activities is localised and has not detracted from the value of the habitats. The identification as wet modified bog under rates its value to the Park.

We also question the habitat type indicated for the Cathar Mor area to the south east of the A889. This is shown as dry dwarf heath acid. While dry dwarf heath does occur here, there is a mosaic of wet and dry dwarf heath, and significant areas of blanket bog on lower ground. This area has had little burning and has a high lichen and *Sphagnum* cover. It is in good ecological condition.

Impacts upon habitats

In view of the outstanding national importance of the natural heritage of the National Park, the CNPA does not agree with the "Habitat Scoring" attributed to semi-natural habitats along the route of the proposed line. Virtually all have been accorded scores of 5 "Moderate Value" or 6 "Low Local Value". As a consequence of this depression of values, the ES identifies no Important Habitat Areas in the Park outwith Natura/SSSI sites, apart from the semi-natural woodlands along the route of the existing 132kvV line. This needs to be amended to more properly reflect the status of the Park, and to provide a more appropriate basis for the consideration of the impacts of the proposed development. This low rating also has implications with respect to proposals for mitigation where habitats accorded lower values are more likely to be used for access routes, borrow pits and works compounds (Chapter 22.7).

In terms of vulnerability to development effects, the predominant semi-natural habitat types in the National Park, across which the pylon line is proposed, are either wet dwarf heath or blanket bog. These habitats are particularly vulnerable to damage as the result of direct habitat loss and disruption of the hydrological conditions underpinning them. We are concerned that ES sections 22.6.3.8-16 do not mention hydrological effects as a potential source of impact upon habitats. The nature of the wet peaty soils, including those under 1m in depth, renders them sensitive to all construction works including incursion from vehicles, the construction of access tracks, whether temporary or permanent, and the construction of towers. We are not convinced that the mitigation measures set out in chapter 27.7.4 E14 are adequate to safeguard these habitats in the long term. We are especially concerned that access tracks across peat habitats, even those less than 1m deep, will cause long term or permanent disruption to hydrological conditions. In certain places, especially on more sloping ground, this may extend well beyond the working corridor. Full restoration of floating tracks may be an aspiration, but it is much more difficult to achieve in practice.

Accordingly, we believe that there could be a lot more residual ecological damage than suggested by the ES, and that this would be to habitats with a higher ecological value than that attributed. The ES needs to be revisited to address this potential source of damage more fully.

Mitigation

The potential for significant damage to semi-natural habitats of high value presented above, re-emphasises our concern that the first approach to mitigation (22.7) has not been adequately followed with respect to the National Park. Alternative routes within the National Park have apparently been considered (22.7.3) although the detailed bases for comparison have not been presented adequately for assessment by consultees.

Habitat Conclusions

If it is demonstrated that the route must pass through the National Park, we wish the National Park status to be properly reflected in the ecological sensitivity accorded to its semi-natural habitats and the assessment of the likely impacts that would be caused to them, especially through disruption of hydrological conditions. We also wish there to be a more adequate presentation of the route options and their relative impacts so that the "least worst" option is more fully justified. The brief statement in Chapter 22.7.3 about the reasons for avoiding Glen Truim and the Spey Valley are insufficient for an ES. At present we cannot agree with the statement in 1.9.9 of the Ecology Addendum that "there would be few significant long term residual effects upon ecology and nature conservation" of the Park, nor with the statement in 22.8.14 of the ES that no significant effects are predicted given the level of agreed mitigation by SHETL.

Birds:

Raptors

We are concerned about the assessments of potential risk for raptors. We consider that the survey approach may be inadequate for this purpose. Two visits per month adding up to 36 hours per view point is reasonable to provide an overview of birds in the area but is not likely to be adequate to describe more detailed use and flight patterns. In particular the number and frequency of birds crossing the proposed pylon route at the height of the proposed cables are likely to be an underestimate (Ecology Addendum 1.8.5.46 – 1.8.5.53). Consequently, the assessments of collision risk are also likely to be too conservative. This is especially true where the new transmission line would traverse areas not previously crossed by pylon lines, but may also be true of areas where the birds have become habituated to power lines at lower elevations, and may not be so aware of lines at a greater height and span. We are concerned about this risk throughout the route across the National Park, but consider it is especially critical where the larger pylon line would cross Drumochter Hills SPA.

Breeding waders

The Speyside area of the National Park has been found to have the highest breeding densities of waders on the British mainland. All species of wader, with the exception of oystercatchers have shown significant and continuing declines in breeding populations across the UK. The breeding populations in Speyside, including those in the vicinity of the proposed pylon line are of high conservation importance and all are sensitive to various forms of disturbance. It is noted that an Important Bird Area for waders has been identified to the west of Loch Sherrabeg, but we question why the breeding wader population a little further west, where the proposed new line crosses the land between Sherramore and Garvamore, has not been recognised as part of the same IBA. We would wish the potential impacts of the proposed 400kV line upon these waders to be reassessed in this context.

Black grouse

The presence of a lek of 6 males close to the proposed line in Sherramore/Glenshirra Forests (Ecology Addendum 1.8.5.12) is a cause for concern. Disturbance to this lek could arise from the construction process if carried out during the breeding season. This may be avoided by careful timing, but permanent disruption could be caused by loss of habitat through wayleave felling. There would also be a new risk of collision with the cables. Accordingly the conclusion of a low “Impact Magnitude” and minor “Effect Significance” have not been justified. Similar concerns apply to the IBA for black grouse north of Dalwhinnie at NN640876.

Other woodland species

We agree with the Regional valuation placed on the IBA for Scottish and common crossbill and crested tit at Strathmashie Forest. We do not agree with chapter 22.8.5.9 that scrub woodland developing in the wayleave through Strathmashie Forest could provide suitable nesting or feeding sites for Scottish crossbills. While it is probable that crested tits would feed in such new habitat, it would not provide nest sites. The scale of impact upon this IBA would depend upon the width of the wayleave created and the scale of the loss of preferred conifer habitat. Until the detailed wayleaves are identified, this is unclear.

Protected Mammals

The assessment of conservation value presented in the Ecology and Nature Conservation Addendum, Table 1.10 again appears to under state the status of each species. Even those accorded European Protected Species Status appear to have been under valued. Of these, only wild cat has been accorded National Value, while otter and all species of bats have for no obvious reason been given Regional value. None of these values reflect the protection requirements of the Conservation (Natural Habitats & c.) Regulations 1994. All should be

accorded European Importance. Their conservation status must be represented properly in the ES and the assessment of impacts reassessed accordingly. We also consider the status of water vole, red squirrel and pine marten to be inadequate in relation to their inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). All should be accorded National Importance. Concerning likely impacts, we consider that the impacts upon wild cat, otter and bats are likely to be insignificant, provided no breeding sites were disrupted during construction. Detailed surveys would have to be carried out in likely suitable habitat before any construction works took place in compliance with chapter 22.7, and stages 2 and 3 of the mitigation measures. If any signs of breeding or resting sites (all protected by the Habitats Regulations) were found, the developer would need to seek a license from the Scottish Executive.

Impacts upon red squirrel may be underestimated. Impacts may arise from more than the loss or disturbance of dreys. There is the matter of the permanent loss and subdivision of habitat arising from wayleave felling. The significance of this would depend upon the width of the wayleaves which would need to be felled to form a wind firm edge in each forest. The wider the wayleave, the more disruptive to the continuity of the forest. The ES (Chapter 22.8.6.47) needs to be revisited to assess this issue more fully.

The predicted impact upon water voles stated in the Addendum is far too complacent in relation to construction (1.8.6.17-18) and habitat loss or degradation (1.8.6.38-39). Water voles have undergone a catastrophic decline throughout Britain and are in danger of extinction. The conservation and enhancement of the remaining colonies is, therefore, a high priority. The CNPA has recently joined a partnership project with SNH and the University of Aberdeen to take effective conservation action across the Park to safeguard, and hopefully expand remaining colonies as a matter of urgency. We agree with the statement made in 22.8.6.21 that the greatest potential effect is in relation to loss and damage to habitat including burrows. We also agree with the statement in 22.8.6.23 that "loss of any one colony could affect the longer term viability of the water vole population in the area". The discovery of water vole activity in a number of locations along the proposed route is consequently of great concern. It is far from certain, without a much more detailed assessment, that the mitigation measures set out in paragraph 22.7.4 would be effective, with the exception of total avoidance. In line with the above concerns, we can see no justification in the ES for the conclusion that Effect Significance would only be minor. Should existing colonies be disrupted or destroyed the Effect Significance would more likely be "high", or "medium" at best. The ES assessment should be amended accordingly or very clear reasoning presented to justify its original conclusions.

Dismantling of the Existing 132kV line

We agree that there would be benefits derived from the dismantling of the 132kV line, especially for the IBAs along its route (Confidential Annex). We also agree that the mitigation measures associated with the dismantling operations proposed in Chapter 22.7.4 would be adequate. We are not yet convinced by the evidence that, should the pylon line be routed through the National Park in principl, the impacts upon ecological and nature conservation interests would be less along the new line as compared with a route along the existing line. **The ES needs to be much more convincing in its presentation of evidence to assist consultees in their appraisal of route options**.

APPENDIX 9 : Excerpt from the Undergrounding Study by Jacobs Babtie, compiled on behalf of The Highland Council, Scottish Natural Heritage and the Cairngorms National Park Authority.

This represents an abridged version of the Summary and Dalwhinnie Case Study from the original report, which can be viewed on the Highland Council website under Planning Policy.

This study provided information under four main sections:-
• Review of the Technical Issues
• Generic Life Cycle Costs
• Environmental Impacts
• Case Studies

Summary of Findings
Technology
In reviewing EHV cable technology the report shows that fluid-filled (FF) UGC technology is well-established at 400kV and has been used in the UK transmission system for many years. Its main drawbacks are the potential to cause environmental damage from a fluid leak and the complexity of the hydraulic systems required to maintain the insulating fluid under pressure.

In recent years, cross-linked polythene (XLPE) insulation has emerged as a cheaper alternative to FF cables and this is beginning to be used by transmission network operators around the world at increasingly high voltages. Whilst XLPE cable is being specified for a number of current 400kV cable projects in the UK, this is, to date, only for projects where the cables are to be installed in tunnels. There are a number of examples where UGC has been used because it provided the only means of obtaining planning consent for a wider transmission scheme (e.g. Aalborg - Aarhus in Denmark and Newby - Nunthorpe in the UK). UGC does, however, find
widespread application at lower system voltages and it is suggested that this may give the impression that the use of UGC at EHV is more commonplace than it actually is. Direct Current (DC) EHV transmission technology has been reviewed briefly by this study but, as the proposed Beauly - Denny line would provide additional connections between two points on an already interconnected transmission system, it is not a technically appropriate solution.

EHV Cable Installation Techniques
An introduction has been provided in the study to UGC installation techniques which records that installation in trenches is the most widespread method. Installation in precast concrete troughs is an alternative which provides a more compact installation but at additional cost and with the drawback of the route being clearly delineated by the surface mounted concrete trough covers. The trenched installation of EHV cables represents a significant civil engineering project and construction would involve motorway-width disturbance and the movement, possibly off site, of considerable volumes of spoil. In lowland agricultural environments, however, restoration is very effective (and proven) and post-installation, the land retains its use for grazing and arable crop production. No evidence of installation and restoration in upland habitats been identified as part of this project. Installation of EHV cables in tunnels is also a practical solution with low environmental impact aside from the spoil generated by the tunnel boring activity but it is an expensive approach. As a result, the technique has only been used to overcome urban congestion and natural barriers (such as estuaries). No cases were found of tunnelling being used as a solution in environments comparable to that which exists over the proposed Beauly - Denny route.

Cost Issues
Turning to the cost issue, the study found that capital cost ratios (comparing UGC costs with OHL costs) vary significantly dependent upon the length of the cable section under consideration. A key factor in determining comparative costs is the number of joints required to connect drum-delivered lengths of cable together and of the costs of the "Sealing End" equipment, which is required where the OHL and UGC sections of a line join. Actual UGC installation costs also vary widely with terrain. Capital UGC to OHL cost ratios calculated in the study varied from 6:1 to 12:1 based on assumptions generally favourable to UGC. Calculations are included for both FF and XLPE cable systems which show that an XLPE installation could be expected to be around 30% cheaper than FF. SHETL quote a range for installation cost ratios of between 14:1 and 25:1 and it is concluded that these estimates are at the higher end of the possible ranges.

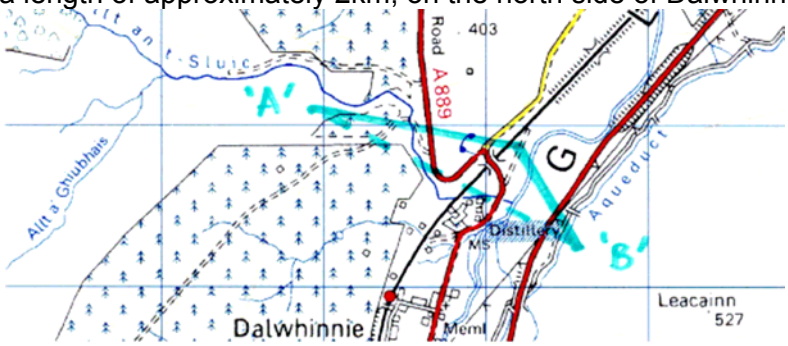
In considering the regulatory perspective on funding for the proposed Beauly – Denny upgrade it is important to note that SHETL would recover the capital cost from their customers through Transmission Use of System Charges. These charges would reflect the capital value of the Beauly - Denny project as agreed with the Regulator. The study also considered whether, when allowing for total costs over a 40 year life cycle, the cost ratio between UGCs and OHLs became lower. In estimating life cycle costs, consideration was given to losses, maintenance and decommissioning costs and circuit reliability/availability. Transmission losses, being proportional to the square of the current flow in the line, are lower with UGC, essentially because of the larger conductor cross-section which is required. This advantage does not, however, convert to a significant lifetime cost saving because, for reasons explained above, the UGCs would not, for the majority of their operating life, be run at anywhere near their maximum rated current due to system planning constraints. Maintenance and decommissioning costs are shown to be insignificant when compared to initial capital costs. Information collected for the study from a variety of sources this study shows that prolonged faults are more frequent in underground cables than overhead lines and they also take, on average, much longer to repair.

Environmental Considerations
Turning to the environmental issues, the study notes that that there are a wide variety of potential environmental impacts which must be considered when undergrounding EHV transmission circuits. Quantification of the environmental issues regarding undergrounding of EHV circuits requires site-specific studies to be undertaken. In general, the construction activities associated with UGC installation have a greater environmental impact than those required for OHL construction as site durations are longer and earthworks volumes greater due to the nature of the cable installation. In the operational phase, UGC cable installations clearly do not create the significant visual intrusion which OHLs do although careful consideration must always be given to the siting of the sealing end compounds which are required where cabled sections of the route connect to OHL sections.

There is much evidence to suggest that reinstatement of habitats to their pre-installation condition for UGCs can be achieved to good effect in lowland, agricultural situations but for upland environments, the position is less secure due to a lack of relevant operational experience. The potential environmental impact of the heat emitted from the cable due to its electrical losses remains unquantified and this raises concerns over the effectiveness of reinstatement, particularly for peat habitats, due to the potential for drying out of the ground above the route.

Dalwhinnie Case Study

This case study covers part of the (pre-ES) 'Indicative Preferred Route' from Spey Dam to Dalwhinnie, over a length of approximately 2km, on the north side of Dalwhinnie.



Proposed Beauly Denny 400kV Transmission Line

Section near Dalwhinnie to consider for undergrounding case study

Technical Advantages and Constraints

If this section were undergrounded the route would need to cross a railway line, several 'A-roads', an aqueduct and a river. A SEC would be required at each end of the cable to change from OHL to UGC and back again. To cross the railway and roads, cables would have to be placed in ducts installed using either directional drilling or through the opening of trenches. Assuming the ground conditions were suitable, it is considered a low probability that these crossings would pose any serious technical problems. They would, however, all add to the cost of undergrounding this section.

Environmental Impact

The Allt an t-Sluic watercourse runs through this valley and the case study route also crosses the water supply to the Distillery at Dalwhinnie. Northwest of Dalwhinnie, near the banks of Allt an t-Sluic, the forested areas consist of uniform plantation (coniferous) forestry. Undergrounding here would require felling of some of these trees and result in segmentation of the existing forest block and the identification of the cable route, delineated by the absence of trees. The tree cover may also provide some benefit of screening of SECs associated with UGC construction. If installing a cable directly in trenches, it is expected that the excavated material would not be suitable for use as a back-fill due to its thermal properties. If the native material were not suitable for use as backfill, then it would be necessary to identify an alternative soil composition which would support the indigenous species. There would thus always be a risk that the match was not exact and that the cable route would, in the longer term, be delineated by the different appearance of the resulting vegetation. When considering a suitable backfill the thermal properties would have to be investigated, followed by an ecological / landscape assessment to investigate whether the backfill is likely to support the required vegetation.

The proposed route would cross both Allt an t-Sluic and the River Truim. If FF UGC were used, it would thus pose a potential pollution risk. The use of directional drilling or similar techniques could curtail potential negative impacts associated with river crossing, however, directional drilling techniques are not always feasible (due to the presence of bedrock) and diversion of the water courses may be required. This area is within the Cairngorms National Park and is adjacent to a number of protected areas of national and international importance. Both OHL and UGC construction in this area could cause a risk to local species relating to the duration and severity of the disturbance caused. However, due to the larger volume of earthworks and longer duration of construction it would be expected that UGC construction would have a greater potential impact during construction than OHL. It is thought, at this stage, that the main environmental impact of an operating UGC system would be confined to ground restoration.

If constructed as an OHL, this section would be visible from Dalwhinnie and impact upon views toward the south along the A9 and from the A889. If cables were used, a SEC would be needed at each end of the underground section. At the western end, such a compound could be sited in the shallow Allt an t-Sluic valley (point 'A' on the map in Appendix 5). This would reduce the impact on the broader landscape because it would be set between the higher forestry covered areas and could be screened with new forestry style planting if necessary. If the eastern SEC were sited on the rising side of Glen Truim below the hilltop of Leacainn (position 'B' on the map in Appendix 5) the compound would be highly conspicuous from the A9. Areas of forestry planting around the compound could be used to reduce its visual impact on the landscape. The Archaeological Unit of THC have indicated during discussions that they may require an evaluation or a watching brief to be carried out prior to or during any groundbreaking operations. If UGC were installed, roads and the main railway line would probably be crossed by boring underneath them and installing ducts or through the opening of trenches. OHL crossings of roads and railway lines are protected by the erection of local scaffolding and, whilst visually intrusive, these are short term structures which provide physical protection, thereby limiting any need for road closures.

Cost issues

Based on these assumptions the capital and lifecycle costs of using UGC and OHL were calculated for comparison purposes. For the UGC option, the cost of SECs at each end was included and it was assumed that 3 cable sections would be required with no stopjoints being necessary for the FF option. It was also assumed that no reactive compensation would be required. When considering the UGC option an allowance of £200,000 was made for the civil costs of cabling underneath the roads, railway and river. The life cycle cost of these options were calculated using a 5% discount rate and incorporating losses , maintenance and decommissioning using the parameters described in section 2 and assuming all capital spend was in 2006. The lifecycle cost incorporating outages was also calculated. The capital and lifecycle costs along with the resulting ratios are presented below in table 8.

UGC – FF	UGC - XLPE	OHL	UGC:OHL Cost Ratios	
Base capital cost (£thousand)			FF/OHL	XLPE/OHL
21,500	15,000	2,100	10.2	7.1
Discounted present cost (2004) including maintenance, decommissioning and losses (£thousand)				
20,200	14,200	2,900	6.9	4.9
Discounted present cost (2004) including maintenance, decommissioning losses and outages (£thousand)				
32,500	26,500	3,400	9.6	7.8

Table 8 capital and lifecycle costs for the Dalwhinnie case study

The civil engineering cost of tunnelling this section was investigated and estimated at £15M based on a face area of 7m2 and 36,032 m3 of spoil. This would increase the capital cost of an XLPE UGC to around £41.5M, thus giving a UGC to OHL capital cost ratio of 12:1.