

STIRLING BEFORE PYLONS

acting with

FRIENDS OF THE OCHILS

as a Relevant Person Group

for the purposes of the

STIRLING SESSION

**of the Public Inquiry into
Scottish & Southern Energy's proposals for the
Beauly to Denny 400 KV Steel Tower Double Circuit
Overhead Electricity Transmission Line**

**PRECOGNITION
of
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Landscape and Visual Impacts

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1 Introduction

- 1.1 I am Geoffrey Sinclair, principal of *Environment Information Services* since 1971. My relevant UK and Scottish experience is outlined in **Document StBP/4/60** which I have evolved through a varied consultancy career spanning four decades, despite having no formal qualifications in landscape or planning. I do not seek to hide this somewhat unusual provenance, and would point out that this should not of itself reduce the weight that might reasonably be attached to my evidence.
- 1.2 Much of my work has been related to wind power proposals, which have indisputably created a substantial amount of public controversy over the last decade, essentially because of the need for them to be sited in high quality and cherished rural landscapes. While both wind turbines and pylons are individually large vertical engineering structures, there are important differences affecting the way they are laid out in the landscape, though much of the methodology used to appraise their effects is similar.
- 1.3 Wind turbines need high or relatively exposed ground, and while attempts are made to design groupings that are balanced and relatively incongruous, it is clear that this remains a problem for designers. Their size (now typically up to 125m with 80m hub and 45m blades sweeping 6,361 m²) is greater than pylons (typically 50m as now proposed). Wind turbines, have been described by some professional landscape architects as intrinsically elegant, sculptural, simple and aesthetically pleasing, However, their movement can be seen in good light for at least 30km, and the presence of a large grouping can be visually conspicuous and incongruous from many directions, as the 36 x 100m Braes o'Doune power station demonstrates (seen in **StBP/4/62/13 & 15** at a distance of c13km).

- 1.3 While transmission lines are to some extent able to seek lower ground and routes can flex around hills and locally sensitive areas, they are essentially linear and lengthy additions to the landscape, with the obvious characteristic of pylons being seen in multiple combination, overlap and ‘stacking’ – giving rise to the oft-expressed comment that they ‘march’ through the landscape. Pylons depend for their function on a complex lattice of support girders, which in combination produce an intricate, potentially overbearing complexity of engineered features. Short of the additional cost of an undergrounding option, there are circumstances where despite the efforts of route planners, pylon routes cross skylines, traverse small-scale intricate landscapes, run close to vulnerable features, or impede sensitive and important views. Such is the case here.
- 1.4 My precognition concerns itself with the overground 400kV line proposal’s visual and perceived impacts on both the landscape and on ‘visual receptors’ within the final section of the Beauly to Denny route as it leaves Perthshire and crosses the western end of the Ochils at the point where they form part of the landscape frame for the unique and historic location of Stirling. After crossing the A9 the replacement route first passes over the historically sensitive Sheriffmuir and then follows the existing smaller pylon line through an intricate transitional landscape to descend the south face of the Ochils above Logie, the Wallace Monument, the Airthrey Castle grounds, and the eastward prospects of the city of Stirling, before threading its way between the ‘eastern villages’ to reach its destination at the Denny sub-station. This section of the route is acknowledged to pose particular design problems because of the character of the landscape, its historical and cultural provenance, and the number and sensitivity of a wide range of receptors. However, while the problem arises primarily because of the lack of flexibility as the route terminous is neared, it persists because of the decision not to elect for an underground route south of Braco – a matter which lies at the heart of the evidence from Stirling Before Pylons, but beyond the scope of this precognition.

2 The proposal and its analysis in the Environmental Statement

2.1 The differences between the existing and the proposed pylons are more profound than their vertical dimensions might suggest. In Figures 10.2 and 10.3 the ES shows various 400kV pylons, but contains no diagram by which even the mean 50m 400kV pylon may be compared to the existing 26m 132kV ones. Apart from being about half the height pylons are also narrower from base to tip, being four-sided are volumetrically smaller, and have shorter outriders. Comments within the ES that the presence of the existing pylon line makes the substitution of the proposed one relatively easy for receptors to accept are thus unhelpful and ill-founded. Despite an overall reduction in numbers the proposed pylons move into a new league of visual significance because of their volumetric visual escalation and proportionate increase in visibility above any intervening trees or houses. The comparison can be seen more clearly from drawing StBP/4/63.

2.2 The Environmental Statement (ES) text describes the landscape baseline and the impact of the proposal upon it in a series of geographic sections, of which the most southerly runs from the proposed Braco substation to the terminus at Denny and co-incides broadly with the subject of this evidence. This section is further divided for descriptive and analytical purposes into six sub-sections (ES 23.5.2.170 - 218) which form a useful structure to summarise effects and appraise the material presented, which for convenience here are referred to as A - F:

A	Braco substation to Upper Whiteston	7km
B	Upper Whiteston to Bridge of Allan	6km
C	Bridge of Allan and Airthrey Castle	2km
D	Logie Villa to Steuarthall	3.5km
E	Steuarthall to Plean	9km
F	Plean to Denny North substation	2.5km

2.3 A range of visual impacts is illustrated in the ES by photographs and ‘wireframes’ from representative viewpoints – numbered 84 (Greenloaning, north of the A9) to 112 (Falkirk Wheel) in Technical Annex 24.1. Although the ES adopts a north-south sequence in numbering – reflecting the direction of ‘flow’ along the proposed route to outward distribution from Denny, this account reverses the sequence and describes effects from south to north because this is the direction from which the area is most readily seen, and viewed by most receptors.

2.4 The relevant viewpoints are as follows, grouped A-F for each route subsection:

VP	Location	Distance (km)	Comments
Subsection F - Plean to Denny North substation			
112	Falkirk Wheel	5.4	Distracting vertical poles and reflections
111	Dunipace	1.4	
110	W of Denny	1.1	
109	Tapoch Broch	0.7	
108	Gartincaber	0.3	
107	Carbrook	0.5	
106	Torwood	0.9	Ochils not visible
Subsection E - Steuarthall to Plean			
105	Plean	0.8	Ochils not visible
104	Plean Castle	0.3	Ochils not visible
103	Cowie	0.8	
102	Bannockburn	2.0	
101	Throsk	0.9	Distracting gate, sign etc
100A	Fallin north	0.3	Wrong side of road emphasises fence poles
100B	Fallin south	0.4	Wrong side of road emphasises fence poles
Subsection D - Logie Villa to Steuarthall			
99	A905 Stirling	0.9	Curved fence top emphasised, but shows need to curve [all] photos
98	Stirling Castle	3.4	View should focus more on Ochils
97	Tuillibody	2.1	Unsympathetic collection of road signs etc
96	West Gogar	1.5	
95	Wallace Monument	1.1	Existing line seems more prominent
93	Blair Mains	0.9	Fence posts
92	Menstrie	2.5	
Subsection C - Bridge of Allan and Airthrey Castle			
94	Airthrey Castle	0.7	
91A	Dumyat north	2.4	Existing line in dark background
91B	Dumyat south	1.8	Existing line in hazy background
Subsection B - Upper Whiteston to Bridge of Allan			
90	Glentye Cottage	0.7	
89	Sheriffmuir	3.2	
Subsection A - Braco substation to Upper Whiteston			
88	A9 Dunblane	2.2	
87	N of Cromlix Lodge	2.2	Rather dull and hazy photo
86	W Cambushinnie	0.2	Car roof should not be in the photo
85	A9 Greenloaning	3.7	
84	Greenloaning	4.1	

- 2.5 The presentation and visual techniques used in the ES are conventional, though this does not mean that the process or the results are devoid of defects. Many viewpoints reveal an accumulation of presentational, compositional and locational faults that serve to distort and diminish the predicted effects. They are often hazy; they introduce masking or distracting features. The field of view (apparently 90°) is not stated, nor is there an instruction that to perceive the central subject in its correct perspective, the merged-frame photograph should be curved towards the viewer to replicate the camera swivel used and the captured field of view.
- 2.6 A simple demonstration of this fault may be made in respect of viewpoint 99. The existing pylons, which are noticeable and in some cases prominent, are often difficult to detect on the photographs. In part this is because all the photographs are shown too small – having a stated viewing distance at A3 of 21.8cm and a height of 8.5cm. This is way below SNH advisory practice, which recommends 30cm minimum and preferably 40-50cm with a preferred image height of 20cm. [SNH 2006 Good Practice Guidance para 242 onwards]. The ES material requires the viewer to squint at uncomfortably close quarters or use a more natural distance of 35cm, thus causing landscapes and pylons to appear small and apparently distant.
- 2.7 A sequence of 15 photographs is presented in **StBP/4/62** and analysed below (at section 3.10). These are not professionally taken, but readily show the existing pylons as sometimes prominent, even dominant. The Reporters are asked to consider the differences, and to use the ES photos as the most general of guides to the landscapes affected, and more importantly, to the depiction of the proposed pylons within them.
- 2.8 The ES illustrations are analysed in terms of the sensitivity of visual receptors only, (chapter 24) and not in terms of landscape effects, which are left to broad descriptions of the effects on the relevant character areas themselves (chapter 23). Given the centrality of this evidence it is surprising that there is no collation of the effects predicted, other than a series of fairly terse though sometimes well-written comments within the frame of each viewpoint in the Technical Annex.

3 Visual effects experienced by receptors

- 3.1 Even allowing for differences in approach and definition some of the assessments made in the ES are difficult to understand. The individual findings for each viewpoint reveal a lack of flexibility and fine tuning. The following table summarises ES conclusions for each of the route sub-sections indicated above.

VP	Location	Distance (km)	Incremental Magnitude	Receptor sensitivity	Significance
Subsection F - Plean to Denny North substation					
112	Falkirk Wheel	5.4	Low	Moderate	Minor
111	Dunipace	1.4	Low	Moderate	Minor
110	W of Denny	1.1	Low	Moderate	Minor
109	Tapoch Broch	0.7	Low	Moderate	Minor
108	Gartincaber	0.3	Low	Moderate	Minor
107	Carbrook	0.5	Low	Moderate	Minor
106	Torwood	0.9	Low	Moderate	Minor
Subsection E - Steuarthall to Plean					
105	Plean	0.8	Low	Moderate	Minor
104	Plean Castle	0.3	Medium	High	Moderate
103	Cowie	0.8	Low	High	Minor
102	Bannockburn	2.0	Low	Moderate	Minor
101	Throsk	0.9	Medium	High	Moderate
100A	Fallin north	0.3	Medium	Moderate	Moderate
100B	Fallin south	0.4	Medium	Moderate	Moderate
Subsection D - Logie Villa to Steuarthall					
99	A905 Stirling	0.9	Medium	Moderate	Moderate
98	Stirling Castle	3.4	Low	High	Minor
97	Tuilibody	2.1	Low	Moderate	Minor
96	West Gogar	1.5	Low	Moderate	Minor
95	Wallace Monument	1.1	Low	High	Minor
93	Blair Mains	0.9	Low	Moderate	Minor
92	Menstrie	2.5	Low	High	Minor
Subsection C - Bridge of Allan and Airthrey Castle					
94	Airthrey Castle	0.7	Low	High	Minor
91A	Dumyat north	2.4	Low	High	Minor
91B	Dumyat south	1.8	Low	High	Minor
Subsection B - Upper Whiteston to Bridge of Allan					
90	Glentye Cottage	0.7	Low	High	Minor
89	Sheriffmuir	3.2	Low	Moderate	Minor
Subsection A - Braco substation to Upper Whiteston					
88	A9 Dunblane	2.2	Low	Moderate	Minor
87	N of Cromlix Lodge	2.2	Low	Moderate	Minor
86	W Cambushinnie	0.2	High	Moderate	Moderate
85	A9 Greenloaning	3.7	Low	Moderate	Minor
84	Greenloaning	4.1	Low	Moderate	Minor

- 3.2 Where relevant the ES assessments for each viewpoint account for the difference between the impacts made by the existing line and that predicted for the proposed one. Nevertheless **magnitude** seems to be assessed on a very conservative basis, bearing in mind that for close views the thicker cables will themselves contribute to the effect, and that the line does not necessarily just end with the extremities of the photograph but continues to left or to right.
- 3.3 One can appreciate why VP 86 Wester Cambushinnie is High – there is no existing line at this close view of 0.2km and the classification has no higher ranking. Clearly this would be at the top end of High, with pylons and wires dominating the view - and more so if the viewer were to turn round through 90° - as can readily be seen from the inset map. But then why is VP 101 Throsk (new line at 0.9km) only Medium, when one would expect it to be at the least Medium/High? The answer is that the threefold system is needlessly crude for the task in hand, and that where half-way stages might be justified, the ranking remains anchored at the full point below. It is also inflexible, as shown in VP87 at Cromlix. Here the view is at over 2km, but in an open landscape with new pylons running away in both directions yet the verdict is Low, just the same as VPs 84 & 85 at Greenloaning (c4km and with existing pylons close by in the front of the view). Yet from Dumyat (VP91A & B), where there are views to north and south, each is recorded Low, while the High sensitivity receptors to this important mountain top could not fail to perceive these two impacts together as they took in the view. Returning to the car park they would progressively see even more.
- 3.4 The ES assessments of magnitude are offered on the basis of wireframes, supported in a small number of cases by separate photomontages, which suffer from the same criticisms made in respect of the basic set of photographs. This point may be appreciated by comparing the photograph illustrating the view from the Wallace Monument (VP95 in the ES - Figure 24.1 – 095) with that since produced in the ‘Concept design for Beauly to Denny transmission line through Yellowcraig Wood’ (APL/STG-34). This appears to be an enlargement of the same photograph and shows the proposed pylons very clearly ascending the escarpment and continuing along the skyline towards Sheriffmuir.

- 3.5 One can see a broad gradation in the ranking of **receptor sensitivity**, but again there are inconsistencies deriving from the lack of a mechanism to refine the High category or to introduce transitional categories. It is unreal to recognise the inhabitants at the edge of Menstrie and Cowie (VPs 92 & 103) with the same High sensitivity as the many visitors to the Wallace Monument (VP 95).
- 3.6 Translating effects into a measure of **significance** is a matter for some degree of professional judgement, as the GLVIA advises, but that must obviously be based upon and around a systematic fusion of magnitude and sensitivity, which normally would follow and only occasionally depart from a matrix. When set out in a single tabulation, as above, the results in the ES can be seen to be inconsistent as the norm, rather than the exception. There can be no argument that Medium + Medium becomes Moderate (VP99), yet in 3 cases Medium + High or High + Moderate also become Moderate, and no more. It must also self evidently follow that were there to be a Low sensitivity receptor, then Low + Low would become Minor. Yet the tabulation shows 12 cases where Low + Moderate becomes only Minor rather than the rational position of Minor/Moderate. More inexplicably, there are 8 cases where Low + High even becomes Minor, rather than the obvious Moderate. Again the overall effect of this is to down-grade the assessment, often using individual parameters that have themselves already been denied a higher intermediate position.
- 3.7 The time for a comparative analysis of methodology in this Inquiry has long gone. Nevertheless I set out in **StBP/4/61** the approach which I have used in reaching my own broad conclusions. In assessing visual effects it is important to recognise the clear commitment to the landscape by local people, the area's proximity to a significant local population, and its recreational and tourism importance in a national and international context. Visual receptors and their visual amenity are a key issue which compounds the importance of landscape impacts.
- 3.8 My conclusions are set out *in italics* in the table below, next to the ES findings.

VP	Location and comments	Incremental Magnitude	Receptor sensitivity	Significance
Subsection F - Plean to Denny North substation				
112	Falkirk Wheel	Low	Moderate	Minor
		<i>Neg/Slight</i>	<i>Medium/High</i>	<i>Minor/Mod</i>
111	Dunipace	Low	Moderate	Minor
		<i>Neg/Slight</i>	<i>Low/Medium</i>	<i>Minor</i>
110	W of Denny	Low	Moderate	Minor
		<i>Slight</i>	<i>Medium/High</i>	<i>Minor – Min/M</i>
109	Tapoch Broch	Low	Moderate	Minor
		<i>Slight/Moderate</i>	<i>Medium/High</i>	<i>Moderate</i>
108	Gartincaber	Low	Moderate	Minor
		<i>Slight/Moderate</i>	<i>Medium/High</i>	<i>Moderate</i>
107	Carbrook	Low	Moderate	Minor
		<i>Slight/Moderate</i>	<i>Medium/High</i>	<i>Moderate</i>
106	Torwood	Low	Moderate	Minor
		<i>Slight/Moderate</i>	<i>Medium/High</i>	<i>Moderate</i>
Subsection E - Steuarthall to Plean				
105	Plean	Low	Moderate	Minor
		<i>Slight/Moderate</i>	<i>Medium/High</i>	<i>Moderate</i>
104	Plean Castle	Medium	High	Moderate
		<i>Mod/Substantial</i>	<i>Medium/High</i>	<i>Mod/Major</i>
103	Cowie	Low	High	Minor
		<i>Moderate</i>	<i>Medium/High</i>	<i>Mod – M/Major</i>
102	Bannockburn	Low	Moderate	Minor
		<i>Slight</i>	<i>Medium/High</i>	<i>Minor/M - Mod</i>
101	Throsk	Medium	High	Moderate
		<i>Mod/Substantial</i>	<i>Medium/High</i>	<i>Mod/Major</i>
100A	Fallin north	Medium	Moderate	Moderate
100B	Fallin south	Medium	Moderate	Moderate
	<i>Combined view</i>	<i>Mod/Substantial</i>	<i>Medium/High</i>	<i>Mod/Major</i>
Subsection D - Logie Villa to Steuarthall				
99	A905 Stirling	Medium	Moderate	Moderate
		<i>Moderate</i>	<i>Medium/High</i>	<i>Mod – M/Major</i>
98	Stirling Castle	Low	High	Minor
		<i>Slight/Moderate</i>	<i>High</i>	<i>Mod – M/Major</i>
97	Tuillibody	Low	Moderate	Minor
		<i>Slight</i>	<i>Medium</i>	<i>Minor/Mod</i>
96	West Gogar	Low	Moderate	Minor
		<i>Slight/Moderate</i>	<i>Medium/High</i>	<i>Moderate</i>
95	Wallace Monument	Low	High	Minor
	<i>[see comment above]</i>	<i>Moderate</i>	<i>High/VHigh</i>	<i>M/Maj - Major</i>
93	Blair Mains	Low	Moderate	Minor
		<i>Slight/Moderate</i>	<i>Medium/High</i>	<i>Moderate</i>
92	Menstrie	Low	High	Minor
		<i>Slight</i>	<i>Medium/High</i>	<i>Minor/M - Mod</i>

Subsection C - Bridge of Allan and Airthrey Castle				
94	Airthrey Castle	Low	High	Minor
		<i>Slight/Moderate</i>	<i>High</i>	<i>Mod – M/Major</i>
91A	Dumyat north	Low	High	Minor
91B	Dumyat south	Low	High	Minor
	<i>Combined View</i>	<i>Moderate</i>	<i>V High</i>	<i>Major</i>
Subsection B - Upper Whiteston to Bridge of Allan				
90	Glentye Cottage	Low	High	Minor
		<i>Slight/Moderate</i>	<i>High</i>	<i>Mod – M/Major</i>
89	Sheriffmuir	Low	Moderate	Minor
		<i>Slight/Moderate</i>	<i>High</i>	<i>Mod – M/Major</i>
Subsection A - Braco substation to Upper Whiteston				
88	A9 Dunblane	Low	Moderate	Minor
		<i>Slight/Moderate</i>	<i>Medium/High</i>	<i>Moderate</i>
87	N of Cromlix	Low	Moderate	Minor
		<i>Slight/Moderate</i>	<i>Medium/High</i>	<i>Moderate</i>
86	W Cambushinnie	High	Moderate	Moderate
		<i>Subst/V Subst</i>	<i>Medium/High</i>	<i>Major</i>
85	A9 Greenloaning	Low	Moderate	Minor
		<i>Slight</i>	<i>Medium/High</i>	<i>Minor/M - Mod</i>
84	Greenloaning	Low	Moderate	Minor
		<i>Slight</i>	<i>Medium/High</i>	<i>Minor/M - Mod</i>

3.9 The crudity of the ES methodology coupled with a lack of flexibility in analysis results in a finding that 25 of the 31 relevant views are classed as Minor, and the remaining 6 as Moderate, as summarised below. I find that by using a finer-tuned approach and reflecting the relevant parameters in a more responsive way the results (and I believe, the reality) are strikingly different. They show that there is greater variation in both magnitude and sensitivity than recognised in the ES analysis, with the result that only 1 viewpoint has a Minor significance (rather than 25 in the ES), while at the other end of the spectrum 6 (rather than none) are Moderate/Major or above – 2 actually being Major. This is not, as may be alleged, some kind of conceptual or classificatory fiddle designed to produce a different result showing greater impact. I believe it is a defensible conclusion from a rational analysis borne of an approach that is rooted in mainstream methods, and ask the Reporters to compare it and its findings carefully with those in the ES.

Number of View Points recorded as:	ES	<i>This assessment</i>		
		ES locations	Extra VPs [see below]	
Negligible				Below Minor
Neg – Neg/Low				
Negligible/Low				
Neg/Low - Minor				
Minor	25	1		Below Moderate
Minor – Min/Mod		1		
Minor/Moderate		2		
Min/Mod -Mod		4	1	
	25	8	1	
Moderate	6	9	1	Moderate
Mod – Mod/Major		6		
	6	15	1	
Moderate/Major		3		Mod/Major and above
Mod/Maj - Major		1	4	
Major		2	1	
Major –Maj/Ext				
Major/Extreme				
Maj/Ext - Extreme				
Extreme				
		6	5	
Overall Totals	31	29 *	7	

* 29 positions allowing for the merging of two views split in to two by the ES

- 3.10 As indicated at 2.6 above, I have produced a photo-sequence to show the present pylons in the landscape in StBP/4/62 from the following positions

	View	Approximate grid reference
/1	South face of Dumyat from new extension to B9140 N of Tullibody	NS 858 955
/2	Pylon descent of the Ochil face from West Gogar	NS 831 952 *
/3-5	Pylon descent from near Logie	Around NS 820 967
/6-7	Pylon descent from Logie Cemetery	NS 817 967
/8	Pylon u/c road NW of Parkhead	NS 813 976
/9-10	Pylon and cable run descending from start of Dumyat path	NS 813 989
/11	Pylon row	
/12	View from roadside to Cooksburn reservoir	NS 814 982
/13	Roadside view towards Braes o'Doune	NN 822 006
/14	Pylon run from S edge of Sheriffmuir plantation	NN 824 020
/15	Current pylon run from Sheriffmuir with Braes o'Doune backcloth	NN 829 024

* corrected grid reference 831 952 [not 838 952]

3.11 My assessment of the existing and predicted impacts is as follows:

VP	Location	km	Incremental Magnitude	Receptor sensitivity	Significance
1	S face of Dumyat	3.5	Slight	Med/High	Min/M - Mod
2	West Gogar	1.0	Slight/Moderate	Med/High	Moderate
3-5	Near Logie	0.2	Mod/Substantial	High	M/Maj - Major
6-7	Logie Cemetery	0.2	Mod/Substantial	High	M/Maj - Major
8	NW of Parkhead	0.3	Mod/Substantial	High	M/Maj - Major
9-10	Start of Dumyat path	0.0	Substantial	High	Major
11-12	Above Cooksburn	0.1	Mod/Substantial	High	M/Maj - Major
13	View to Braes o'Doune	0.3	Mod/Substantial	High	M/Maj - Major
14	Sheriffmuir plantation	0.3	Mod/Substantial	High	M/Maj - Major
15	Sheriffmuir [line to be removed]	[0.9]	Minus Moderate	High	Beneficial Moderate/Major

For the purposes of the Table at 3.9 above, these viewpoints have been grouped together as shown above, thus producing 7 extra positions.

3.12 The ES assesses impacts on settlements in 24.5.5 concluding Moderate Adverse visual effects on Fallin, Cowie, Throsk and Plean. It recognises Minor Adverse effects on a wide area including the fringes of Dunblane, on Bridge of Allan, parts of Stirling, Bannockburn, Menstrie, Alva, Tullibody, Denny and Dunipace. It notes Moderate beneficial effects on Greenloaning. Notwithstanding my specific comments above, I would agree with these generalised assessments, and their implications for individual properties, roads, the rail line and rights of way in the wider landscape which are generally acknowledged to be Moderate Adverse.

4 Landscape effects

- 4.1 Correctly and conventionally the ES distinguishes between landscape effects as those on the physical resource, and visual impacts as those perceived by users of, or residents within, the landscape. It clearly states (23.3.1.2) that *landscape effects resulting from the introduction of an overhead transmission line will normally be considered to be of an adverse nature*. I would agree, noting that landscape qualities which are valued – naturalness, integrity, balance, colour, scale, harmony - are entirely dissimilar to the properties of pylons and transmission lines.
- 4.2 The ES refers to **effects on designated areas** for the whole of the proposed line in 23.6 focusing on Areas of Great Landscape Value at 23.6.5, noting that the line would run within the Ochil Hills AGLV. It does not explicitly say that this is the only designated area directly affected by the proposed line at any point in its course – as may be readily seen from ES Figure 23.1. The text at 23.6.5.11ff conforms that the line would run for 5.5km through the AGLV concluding that there would be a low magnitude of effect on a landscape of moderate sensitivity resulting in a minor adverse effect. Although these are landscape as opposed to visual impacts, it is difficult to recognise the assessment of a Moderate Sensitivity for a landscape that is clearly open and at this part of the Ochils quite intimate in character, consisting of wooded valleys, steep but variable slopes and, with the exception of Sheriffmuir, lacking the large bland surfaces into which pylons might be more easily accommodated. In sensitivity terms, the presence of a relatively modest pylon line might be considered to make the landscape even more sensitive to a larger version, for to argue otherwise is to condone the principle that one relatively small discordant feature justifies others of a greater size. It is also arguable that the incremental magnitude would be low in the sections of the AGLV affected. The comments at 23.6.5.15 that there would be no adverse effects on the integrity or designated status of ‘this area’ meaning presumably the AGLV, is probably true, but arises from a different test.

- 4.3 The ES discusses the adverse and beneficial effects of creating (and locally reducing) ‘**wirescape**’ effects (23.8). I would broadly agree with this text which notes minor adverse effects around Cowie and Plean, a detrimental effect on the setting of Fallin, and localised benefits elsewhere in this general area.
- 4.4 At 23.9 the ES discusses **cumulative effects** recognising Moderate Adverse impacts on the southern part of the Ochil Hills AGLV, and around Fallin.
- 4.5 It then devotes some attention to the topic of cumulative effects in relation to **windfarm development** for the entirety of the proposed line. This needs some examination not least because of the rapidly changing situation since the ES was finalised but because the potential for cumulative effects in relation to windfarms is considerably greater in this section of the route than anywhere else in its length. Figure 25.3 A-W consists of a series of cumulative Zone of Visual Influence (ZVI) maps showing the relationship of the line’s ZVI with that of a sequence of individual proposals. The table below attempts to summarise and up-date that material in order to place the projected effects on the Braco - Denny section into a current context. That shows that of the 23 projects, 5 have been dismissed at Appeal, 7 have not been determined, and it is understood that 1 has been withdrawn. Of the remaining 10, 3 have recent consents but no start has been made, 2 are under construction and 5 are operational. Of these same 10, six (Braes o’ Doune, Earlsburn, Black Law, Lochelbank, Greendykeside and Green Knowes) are shown to have some degree of cumulative effect in relation to the Braco – Denny section of the route. However, by far the most extensive and closest impacts would come from Braes ‘o Doune, which is illustrated in views of the proposed pylon line at **StBP/ 13 & 14**.

ES subset Figure	Windfarm	Size [number of turbines x height in metres]	Current status
A	Novar	34 x 55	Operational
B	Farr	40 x 100	Operational
C	Novar extension	16 x	Not determined
D	Dunmaglass	36 x 110	Not determined
E	Millennium	16 x 115	Under construction
F	Abercairny		Appeal dismissed
G	Calliachar		Appeal dismissed
H	Drumderg	16 x 107	Under construction
I	Green Knowes	18 x 95	Consented
J	Griffin	68 x 124	Not determined
K	Knowehead		Withdrawn
L	Little Law		Appeal Dismissed
M	Lochelbank	12 x 91	Consented
N	Logiealmond	40 x 125	Not determined
O	Mellock Hill		Appeal Dismissed
P	Tillyrie	5 x 76	Not determined
Q	Snowgoat Glen		Appeal Dismissed
R	Braes o' Doune	36 x 100	Operational
S	Earlsburn	15 x 115	Operational
T	Black Law	54 x 111	Operational
U	Slamannan		Not determined
V	Greendykeside	2 x 100	Consented
W	Fairburn	20 x 100	Not determined

5 Assessing Significance and reaching a conclusion

- 5.1 In practice the Environmental Assessment Regulations require would-be developers to identify significant effects, which are conventionally defined as those which are **Moderate/Major or greater**. There is – perhaps inevitably - something of the ‘sheep and goats’ philosophy attached to the concept of the threshold of significance. Effects not finally judged to be ‘significant’ tend to be discarded, and there is no apparent methodology to synthesise a conclusion on the overall significance of the proposal’s effects. The applicants may argue that Moderate effects should be considered significant, but that begs the question of ‘how significant’ and is rendered as a somewhat flimsy threshold when one considers the rather vague way in which many of those rankings have been produced. We simply do not know where this line occurs within the Moderate effects recognised in the ES – a point of great importance when related to the viewpoint findings, none of which exceeds that level.
- 5.2 The GLVIA 2nd Edition certainly stresses that ‘significance is not absolute’ (7.8 p.92) and should be determined in the course of each assessment. A more flexible system than conventionally used is set out in **StBP/4/61**. As well as adopting a more liberal approach to classifying Magnitude and Sensitivity as explained above, this also attempts to give ‘near-significant’ effects an appropriate, **though diminishing**, role in the final assessment, and appropriately increased weight to those well above the level. This avoids the artificiality of the inherently ‘sheep and goats’ effect, which is predestined to reduce the overall assessment of impacts by eliminating marginal results.

6 Conclusions

- 6.1 I conclude that impacts will be significantly greater than suggested in the ES and that moreover this section is the most inflexible and vulnerable part of the whole route, in terms of both landscape and visual receptors. It is therefore unsurprising that a high level and a wide range of critical responses has been provoked.
- 6.2 Given the higher level of landscape effects and visual impacts than predicted in the ES, it is next necessary to consider the section in the context of the whole of the proposed route. An important factor accounting for the adverse landscape effects and visual impacts is the relatively small-scale and intimate nature of the landscape where the route crosses through the Ochils AGLV and descends its scarp face. It is no co-incidence that this occurs near the terminus of the line where choice is constrained by the need to take the direct route across the end of the Ochils. The consequence has been to involve a degree of landscape sensitivity and numbers of settlement nuclei not encountered elsewhere on the route.
- 6.3 Although there is resistance to the option of undergrounding any part of the route on grounds of cost and perhaps precedent, the circumstances described above justify treating this relatively short, vulnerable and deeply affected section as a special case. There is therefore a clear need to investigate an undergrounding option. As a course along the proposed overhead route would pose its own adverse impacts in either descending the scarp by blasting a trench or passing through the highly sensitive Airthrey Castle grounds, the only acceptable solution to this dilemma is for a serious and determined investigation of an alternative to the west of Stirling, as SNH has advocated.
- 6.4 The 1959 Holford Rules and their later informal Notes (ES Appendix H) are written in such a way that undergrounding is treated as something even beyond a last resort. This is perhaps not surprising since they are, after all, *Guidelines for the Routeing of New High Voltage Overhead Transmission Lines*. They establish the principle of avoiding major areas of highest amenity value – defined in terms of existing designations. This is understandable, but makes an assumption that such areas are uniformly designated, which is not the case.

6.5 Undoubtedly, however, the 1989 Electricity Act places heavy and potentially conflicting responsibilities upon developers. Its strictures in relation to s36 projects clearly also apply to applications under s37. The ES helpfully quotes the following from the Act:

3.3.2 Statutory Obligations

3.3.2.1 Under the Electricity Act, the holders of a transmission licence (SHETL and SPT) are required to meet the following obligations:

- Section 9 (2) of the Electricity Act places a duty on the holder of a transmission licence:
 - to develop and maintain an efficient, co-ordinated and economical system of electricity transmission; and
 - to facilitate competition in supply and generation of electricity.
- Section 37 of the Electricity Act requires Secretary of State consent (now Scottish Minister's consent) to install an electric line above ground.

3.3.2.2 Section 38 and Schedule 9 of the Electricity Act require the holder of a transmission licence in Scotland to preserve amenity and fisheries.

6.6 It is important that these Obligations are read carefully. Section 37 consent is required for what is described as an overhead route, but it does not follow that all or part of such a route has to be overhead. Indeed, consents issued under the Town & Country Planning Acts or s36 may require that the connection proposed separately under s37 should involve partial or even complete undergrounding.

6.7 The principle of partial undergrounding is well established. The ES reveals (6.3.1) that 'only' 2.4% of transmission lines in Europe were undergrounded. It shows that SHETL has 1.3% (despite the fact that a high proportion of its routes pass through some of the UK's finest landscapes), while SPT has 5.8%.

6.8 Given the extent of adverse landscape and visual impacts associated with the chosen route, the precedents which exist for undergrounding and the potential for removing the existing pylons from Sheriffmuir and the Ochils AGLV, then the arguments for treating this section as a special case are compelling. Such a solution to an otherwise intractable problem would demonstrate a practical application of the statutory responsibilities of SHETL and SPT, and would at the same time bring about an environmental gain for the landscape and its visual receptors, who manifestly do not want to 'receive' this development.