Comment on Project Funding.

In its present form, the Funding Statement [APP/4.2] does not satisfy the requirements of APFP Regulation 5(2)(h).

A Letter of Support from Pelion and its Audit Report are appended to the Statement.

The Pelion letter (Appendix 1)

The assertion in the Funding Statement that

the letter of support at Appendix 1 confirms that PNE can fund the total of the construction and compulsory acquisition costs for the Scheme [2.3.3]

is not wholeheartedly endorsed by Pelion:

[T]*he sole purpose of this letter of support is to aid* [BOOM's][1] *submission into the* [DCO application process].[2] *This Letter of support does not require us to fund the Project, nor does it represent or create any legal obligations and none shall be implied.* [Appendix 1, Article 4]

Nevertheless,

The [Pelion] *Companies are of sufficient financial capacity and liquidity to fund the total of* [BOOM's] *share of development, construction and compulsory acquisition costs*.

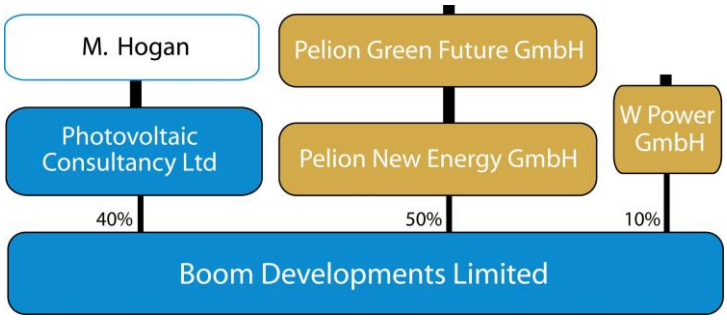
No value is put on the total of BOOM's share.[3] Hopefully Pelion is aware of the extent of its theoretical generosity. A 'blank cheque' business strategy would not instil confidence.

Final Audit Report (Adobe Acrobat Sign)

This item may have been appended in error. The only additional evidence it contributes is to demonstrate that Herr Krüger is a spectacularly fast worker: he can open an email, review and approve a multi-million-pound Letter of Support (in a foreign language), e-sign it (twice) and send it off by email with a signature request – all in just 13 seconds (7:03:55 to 7:04:08). English is my first language, and I barely make it to the end of the first paragraph in 13 seconds.

[1] 'DevCo' = Boom Developments Limited.
[2] 'Request for Proposal' in the obtusely translated German.
[3] Pelion may be unaware: BOOM's share is 100%.

Resolution



Photovoltaic Consultancy Ltd and W Power GmbH might aspire to owning and operating a solar farm. It looks like Pelion is interested in owning and operating a DCO.

In order to satisfy the requirements of APFP 5(2)(h) [*how an order that contains the authorisation of compulsory acquisition is proposed to be funded*], Boom Developments has two options:

1) If Pelion is willing and able to fund the project, it should make this commitment; presumably, records at Germany's equivalent of Companies House could substantiate its claims of financial capacity and liquidity; or,
2) Using the techniques outlined in its Statement [*support of its legal and financial advisors … consult with a variety of financial institutions, advisors and investors that have extensive experience of financing major capital projects*], Boom Developments should secure provisional commitment from an alternative investor, along with verification of its financial reach.

Eclipse – the invisible partner

Boom Developments Ltd is the sole shareholder [2.1.3].

Elsewhere it is stated that Eclipse (an independent Distribution Network Operator) will be *responsible for ongoing ownership* of the substations/transformers and grid connection cable [Grid Connection Statement, APP/7.5, 4.1.2]. This represents a significant financial proportion of the proposed development.

Does *responsible for ongoing ownership* have a particular legal interpretation, or does this just mean 'own'? Is there a contractual arrangement? What is Eclipse's involvement at the design and construction phases? Is there any documentation to confirm that Eclipse is even aware that it has a role in this project?

Eclipse Power Networks Limited (Olney, Buckinghamshire, MK46 5FP) should be apprised of its presumed role and invited to submit a Letter of Support (possibly a Memorandum of Understanding) to confirm/clarify the extent of its financial and technical involvement.

Cost estimate

The total cost estimate is £345m: £310m for the construction plus £35m for compensation payments [3.1.3].

The estimated construction cost for Cleve Hill was 45% higher (£450m[4]). Although the price of PV panels may have reduced over the past five years, East Yorkshire has a 37% higher installed capacity, occupies over twice the land area, employs a sophisticated tracker mechanism and includes an 8 km grid corridor. Given the similarities between Wirsol (Cleve Hill) and BOOM, this low value is a surprise.

A break-down of the £310m estimate would enhance the proposal and give the ExA confidence that BOOM is exercising due diligence in its financial scoping.
This will become particularly relevant in the event that BOOM decides to sell the DCO prior to construction. A potential purchaser might assume that the exhaustive examination process had included meticulous financial auditing.

[4] At 2023 prices. £400m in 2018, adjusted for inflation at 12.5% net 2018 - 2023 (Bank of England rates). The Cleve Hill Funding Statement is at https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010085/EN010085-000199-4.2%20Funding%20Statement.pdf

Comment on Installed Capacity (ISH2 overplanting ratio).

At ISH2, the Applicant's consultant engineer stated that an overplanting ratio of 1.2:1 will be used, and hence the 480 MW Installed Capacity will produce the Export Power of 400 MW:

$$\mathbf{480} \times \frac{1}{1.2} = 400 \qquad \text{..... (1)}$$

Unfortunately, the Applicant still fails to appreciate that when the PV panel does not face the sun directly (as is the case for SAT), you have to factor in the angle of incidence (see box). In our case the angle is 31°, so the Installed Capacity must be increased to 560 MW:

$$\mathbf{560}\ cos(31°) \times \frac{1}{1.2} = 400 \qquad \text{..... (2)}$$

This is the 'classroom' calculation. In the real world, we also have to account for the losses in the components of the electrical chain. We will use an optimistic estimate of just 5% overall loss. Subtracting 5% is the same as multiplying by 95%, so (2) becomes

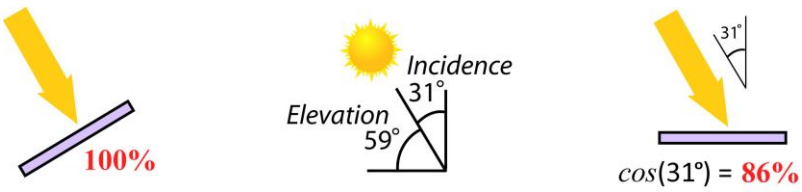
$$\mathbf{590}\ cos(31°) \times \frac{1}{1.2} \times 95\% = 400 \qquad \text{..... (3)}$$

The 1.2:1 ratio (as of ISH2) is untypically low. If BOOM goes with the 1.3:1 proposed in its Statement of Need, the required Installed Capacity would be 638 MW:

$$\mathbf{638}\ cos(31°) \times \frac{1}{1.3} \times 95\% = 400 \qquad \text{..... (4)}$$

This is the value calculated in my Deadline 2 submission (*ExQ1 Q1.5.1a Comment*).

The cosine relationship (GCSE Physics revision)



In Yorkshire, a panel that faces the sun directly (e.g. FSF) generates the rated output (**100%**). But, if the light strikes the panel at an angle (e.g. SAT), the irradiance power received by the panel is reduced depending on the cosine of the incidence angle.
Maximum sun elevation is 59°, so the angle of incidence is 31° (90° – 59° = 31°). Thus the peak output power is scaled by *cos*(31°), which gives approximately **86%** of the panel's rated output.

The Applicant's engineer speculated that I am being misled by free internet solar software. This is school Physics. You do not need software to evaluate SAT Installed Capacity – just sun elevation, overplanting ratio and target output power.
If professional solar design software ('PV SYST'?) is telling you something wildly different, you should probably consider further training in the use of the software.