

Director

██████████ AND THE BAY OF FUNDY TIDAL POWER SCHEME

1 The attached notes KP/672/135 set out my conclusions to date.

2 A major attraction of this scheme is that the earliest starting and completion dates are apparently 1975 and 1980 respectively so that one common reason for ruling out nuclear explosives ("we'd like to use them but the project schedule does not allow for the necessary assessments, site evaluations etc") is invalid in this instance.

3 On the basis of the calculations made so far, nuclear explosives could make economic sense. However since the geologic medium is salt one has to consider the competing solution mining approach.

4 The existence of competing processes is not an unmitigated disadvantage. It means that much of the geological and other site survey work needed to evaluate PNE possibilities is likely to be undertaken in any case; the additional cost of evaluating the PNE approach may then be marginal.

5 Would it be possible to suggest to ██████████ ██████████ that AWRE and the project's consulting engineers should co-operate in examining all the possibilities? Even a small payment for AWRE services would provide a tremendous boost to staff associated with PNE work. Naturally the successful completion of such consultancy work would require that appropriate AWRE expertise was made available, particularly from Chemistry and Chemical Technology Divisions.

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SSDM
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29 June 1972

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0/9/08

PNE

1. At this morning's TRC(PR) meeting, [REDACTED] raised two questions on PNE:-

(a) would AWE or Harwell be undertaking PNE work in 73/74 et seq?

(b) How would the work be funded?

You said that you would wish to discuss these matters in Whitehall shortly and asked for a note on the PNE position.

2. In 71/72, the aims of the work at AWE have been as follows:-

(a) To ~~study~~ understand the science and technology of PNE so as to be able to advise on and participate in IAEA activities in this field.

(b) To give advice to industry and to support studies aimed at assessing the technical and economic opportunities of PNE for the UK.

The resource expenditure was:-

	Cash	Project	Full
Personnel	29.2	31.7	34.6

3. The AED(NNN)C reviewed the PNE project in March 72 and took two papers - P/16(N) by [redacted] and P/17(N) by [redacted]. In discussion it was noted that DTI was overdue in submitting a paper to the Cabinet Official Committee on Nuclear Policy and that, as a result, a Government policy had yet to be established. Meanwhile, the Committee :-

(a) approved the expenditure of 3 pny and £30k in 72/73 to be funded from the AEA vote.

(This was as per [redacted] proposal; [redacted] proposed a lesser allocation).

(b) considered that the eventual future level of work at home to be financed by the Authority would require further examination in the light of discussions with Departments.

(c) approved in principle the appointment of the Technical Adviser to London Office as Project Manager PNE on the departure of WG from the

AEA.

(This was proposed by [redacted])

(c) above prominently envisages that the AEA will continue

to have a mandate to pursue PNE and that
the funding would either come from the AE VSE
or perhaps from D72. The Project manager
would personally have the power to sub-contract the
work to Maxwell whenever practicable.



20 June 72

Memo on discussion with [REDACTED] 5th July, 1972

[REDACTED] will prepare a shorter version of 672/135 with a draft letter which might be sent to [REDACTED]

I said that I would wish to show this to the Chairman before it was despatched.

Regarding the paper [REDACTED] agreed that paragraph 2 was not correct; that paragraph 7 would be amended drawing on American gas field studies to indicate the likely order of the time required for 50 nuclear explosions; paragraph 9 would be modified to eliminate the cost figures which would be shown later in the note.

[REDACTED] will look at the technical aspect of storage using water displacement indicated in Figure 1. Such a system could present difficulties in salt cavities and additional difficulties if the cavity contains radioactive material in the lining. As the cavity normally works a peak pressure of some 40-50 atmospheres it would appear that the loss in efficiency using a variable pressure simple expansion process might be preferable to the constant pressure system proposed.

D/AWRE