

11/2
July 18th 1958

IN CONFIDENCE

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GENERAL PURPOSES COMMITTEE

ESTIMATES OF CAPITAL EXPENDITURE IN 1959/60
AND FORECAST ESTIMATES FOR 1960/61 AND 1961/62

Note by the Secretary

Details are given of estimated capital expenditure on the schemes already approved, and on schemes proposed for the development of the Rutherford High Energy Laboratory, and for provision for a second laboratory. These details have been prepared with the assistance of the staff of the Atomic Energy Research Establishment.

In accordance with the procedure proposed in paper NI (57) 2 and generally approved at the second meeting of the Board, the General Purposes Committee are invited to review these proposals, and to recommend to the Board which schemes should be included in the 1959/60 estimate and the forecast estimates for 1960/61 and 1961/62 to be sent to the Atomic Energy Authority for submission to the Treasury.

In parallel with the Institute's consideration of these proposals, they are being included in the first draft estimates and the Research Group of the Atomic Energy Authority to allow A.E.A. consideration of them, and of their consequences within the A.E.A.

NATIONAL INSTITUTE OF RESEARCH IN NUCLEAR SCIENCE

Estimates 1959/60 and Forecast Estimates 1960/61 and 1961/62

Summary of Capital Expenditure Proposals

	1958/59	1959/60	1960/61	1961/62	Later	NOTES
	£'000's	£'000's	£'000's	£'000's	£'000's	
1. Schemes already started or approved						
(a) 7 GeV Proton Synchrotron	1,837	3,438	1,691	79	-	NI GP(58)14
(b) Transfer of proton linear accelerator	-	760	-	-	-	Notional expenditure only. Note 1.
2. New Schemes proposed.						
	Latest Estimate of Total Cost £'000's					
1) Labs and Offices to accommodate visiting Nuclear Physics teams.	48	-	30	18	-	Note 2
2) Conversion of ARCON Building to permanent NIRS Workshop.	40	-	1	39	-	Includes M/C Tools £35,000. Note 3
3) Engineering Building Offices, Design Office, Labs and Testing Shops.	110	-	80	30	-	Note 4
4) Bubble Chamber Test House.	25	-	18	-	-	Note 5
5) Extension to Experimental Area.	210	-	5	120	85	Note 6
6) Flats for NIRS Married Visiting Physicists.	30	-	20	10	-	Note 7
7) Beam extraction handling and detection plant.	2,000	-	500	800	700	Initial equipment of accelerator for Nuclear Physics use. Note 8

	Latest Estimate of Total Cost £'000's	1958/59 £'000's	1959/60 £'000's	1960/61 £'000's	1961/62 £'000's	Later £'000's	NOTES
8) Acquisition of Boulton Paul Bldgs. from AEA and conversion.	75	-	-	-	70	5	Note 9
9) Extension of 7 GeV Control Room Block.	15	-	-	10	5	-	Note 10
10) New Transformer and Sub Station.	100	-	-	100	-	-	Note 11
11) Increase on Plant Cost of 7 GeV	500	-	-	-	300	200	Note 12
12) Provision of Plant spares for 7 GeV.	200	-	10	100	50	40	Note 13
13) Extension of P.L.A.	90	-	-	-	5	85	Includes £15,000 for Building. Note 14
14) (a) Active drains and storage tanks	20	-	-	10	10	-	Note 15
(b) Radio Chemistry Laboratory for P.L.A.	20	-	-	5	15	-	Note 16
15) Analysing Magnet for P.L.A.	10	-	10	-	-	-	Note 17
16) Minor Modifications to Building 412 and P.L.A.	24	-	8	8	8	-	Note 18
17) (a) Second Laboratory for NRRMS NOT AT HARWELL.	7,000	-	-	500	2,000	4,500	Note 19
(b) Opening up site of new Lab	1,500	-	-	750	750	-	Note 20
18) Plant withdrawn from stores, or made in workshops		-	55	67	79		Note 21
	12,017		4,299	3,884	4,388		

NOTES.

1. This notional expenditure represents the capital value of the proton linear accelerator at the date of transfer from the A.E.A. to the National Institute. It would be balanced by an appropriation-in-aid to the appropriate A.E.A. sub-head within the Atomic Energy vote. The amount given is that quoted in paper NI (58) 1, no later estimate being available.
2. Additional to the laboratory and office accommodation provided in the original scheme.
3. Internal modifications to the building, and provision of machine tools etc. to convert the Arcon building into a permanent site workshop. This conversion was intended when the building was originally proposed and approved (paper NI(GP)(57)6).
4. Offices, design offices, laboratories, testing shops etc. for the permanent engineering team serving the Laboratory.
5. A building for testing the large hydrogen bubble chamber which is being designed and constructed by a group of Universities and financed by the D.S.I.R. It is for consideration whether the cost of this building should be provided for by the D.S.I.R. or by the Institute.
6. Addition to the experimental area provided in the original scheme.
7. Living accommodation as proposed in paper NI (GP)(58) 9; flats to be built, or possibly prefabricated houses to be transferred from the A.E.A.
8. This provision is for the initial equipment including magnets, quadrupoles, antiproton analysers, power supplies etc., for the use of the proton synchrotron in nuclear physics research.
9. This sum provides for the acquisition from the A.E.A. of certain prefabricated office buildings already on the site, which are required for the use of the Laboratory, the removal of some other temporary buildings and some conversion, re-arrangement and clearing up of the site.
10. Addition to the provisions in the original scheme.
11. It now seems probable that the electricity supply authority will not be prepared to provide the capital for the necessary transformer and sub-station.
12. Probable increases in the cost of the proton synchrotron during actual construction.
13. Spares which it is prudent to buy with the plant, and normal maintenance spares. The original plant scheme only included those special spares which must clearly be bought with the plant, e.g. spare ferrite frames and spare excitrons.
14. Addition of a 40 ft tank to accelerate protons by an additional 20 MeV.
15. Drains, etc. to make it possible to provide some radiochemistry laboratory accommodation in the area.
16. A small addition has been made to this item as a token provision in case the Institute desire to provide some accommodation at the Laboratory for University workers using materials of short-lived activity from the A.E.R.E. reactors (Papers N.I. (58)7 and 9). These requirements have not yet been assessed, and might be on a much larger scale.
17. A high resolution analysing magnet. A particular item of equipment for the use of the proton linear accelerator in nuclear physics research.

NOTES.

18. Provision for the ordinary minor modifications to the P.L.A. and its building, necessary from time to time in the course of its use.
- 19, 20. These large items make provision for a second large accelerator at a new site. The Physics Committee are not yet ready to recommend the type of machine, and Members will be aware that no decisions have been taken about a second laboratory or its siting. Nevertheless, it is thought that the Board will wish to make this provision in estimates.
21. Equipment withdrawn from A.E.R.E. stores, or made in workshops, which is of a capital nature.