

21st September, 1961.

NI/GP/61/43

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

Estimates of Capital and Non-Capital Expenditure 1962/63
and Forecast Estimates 1963/64 and 1964/65

Note by the Secretary

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These estimates have been prepared on the basis of the recommendations of the Governing Board when discussing paper NI/61/20 at the meeting held on the 18th September, 1961.

The General Purposes Committee are invited to review these proposals and to approve submission to the Treasury with such amendments as are considered appropriate.

MSG.

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

Summary of Estimates 1962/63, 1963/64 and 1964/65

All figures in £000

	Grant	1961/62 Latest Forecast	1962/63	1963/64	1964/65
A. RUTHERFORD LABORATORY					
Non-Capital	2,174	2,314	2,785	3,165	3,315
Capital - Buildings and Plant	<u>3,837</u>	<u>3,309</u>	<u>3,649</u>	<u>2,710</u>	<u>1,996</u>
	6,011	5,623	6,434	5,875	5,311
Atlas Computer Project	-	-	<u>690</u>	<u>1,540</u>	<u>885</u>
	<u>6,011</u>	<u>5,623</u>	<u>7,124</u>	<u>7,415</u>	<u>6,196</u>
B. ELECTRON LABORATORY					
Capital	50	10	236	825	1,069
Non-Capital	<u>100</u>	<u>35</u>	<u>230</u>	<u>300</u>	<u>520</u>
	150	45	466	1,125	1,589
TOTAL of A & B	6,161	5,668	7,590	8,540	7,785
Less Shadow Cut	-	-	<u>400</u>	<u>400</u>	<u>200</u>
	<u>6,161</u>	<u>5,668</u>	<u>7,190</u>	<u>8,140</u>	<u>7,585</u>
Less Receipts	16	16	110	120	100
Net Expenditure	<u>6,145</u>	<u>5,652</u>	<u>7,080</u>	<u>8,020</u>	<u>7,485</u>
Net expenditure excluding Atlas and receipts	<u>6,161</u>	<u>5,668</u>	<u>6,500</u>	<u>6,600</u>	<u>6,700</u>
		466	1,125	1,589	5,111
		<u>5.6</u>	<u>6,034</u>	<u>5,445</u>	

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

Financial Estimate 1962/63 and Forecast Estimate 1963/64 and 1964/65

All figures in £000

	Grant	1961/62 Latest Forecast	1962/63	1963/64	1964/65	Remarks
CAPITAL						
Rutherford Laboratory						
Nimrod Project	1,850	1,650	1,711	773	96	
Buildings: (a) Phase II	141	141	67	-	-	
(b) Major Schemes	471	451	610	526	419	See Page 3, Section A.
(c) Minor Works	85	85	40	50	50	
(d) Houses, Hostels & Flats	150	210	190	160	65	See Page 5, Note 1.
Plant: (a) Nimrod	666	316	550	795	1,045	See Page 4, Section B.
(b) P.L.A.	124	106	170	203	150	See Page 4, Section C.
(c) Other major schemes	190	210	171	54	20	See Page 4, Section D.
(d) Other minor items	160	140	140	149	151	
	3,837	3,309	3,649	2,710	1,996	
	-	-	690	1,540	885	See Page 5, Note 2.
Atlas Computer Project	3,837	3,309	4,339	4,250	2,881	
Electron Laboratory	50	10	200	750	950	
4 GeV Electron Synchrotron	-	-	21	45	54	
Buildings	-	-	15	30	65	
Plant	50	10	236	825	1,069	
	3,887	3,319	4,575	5,075	3,950	
TOTAL N.I.R.N.S. CAPITAL						

NOTE: When the estimates are presented to the Treasury, token sums in 1965/66 or later years will be made for

1. Research Reactor,
2. Future Major Sites, and
3. Capital Accelerator Development.

		<u>1961/62</u>		<u>1962/63</u>		<u>1963/64</u>		<u>1964/65</u>		<u>Remarks</u>
		<u>Total</u>	<u>Latest</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	
		<u>Cost</u>	<u>Forecast</u>	<u>£000</u>	<u>£000</u>	<u>£000</u>	<u>£000</u>	<u>£000</u>	<u>£000</u>	
<u>RUTHERFORD LABORATORY</u>										
<u>A. Buildings, Major Schemes</u>										
1.	Heavy Liquid Bubble Chamber Annex	35	16	7	-	-	-	-	-	
2.	Orion Computer Building	45	33	12	-	-	-	-	-	
3.	Lecture Theatre	100	5	20	50	25	25	25	25	
4.	Heavy Laboratories	105	27	70	8	8	8	8	8	
5.	Extension to Building R.2	221	10	80	98	33	33	33	33	
6.	Extension to P.L.A. Buildings	268	100	112	25	25	25	25	25	
7.	Second Main Nimrod Experimental Area	280	-	-	-	-	-	-	-	See Page 5, Note 3.
8.	Extension to Nimrod Control Block - S	25	18	7	-	-	-	-	-	
9.	Restaurant	85	32	47	6	6	6	6	6	
10.	Site Services and Roads	355	97	90	100	19	19	19	19	
11.	Laboratory and Office Block	90	10	60	20	20	20	20	20	
12.	Plant Store	40	20	20	-	-	-	-	-	
13.	Extension to Parasitic Area	80	-	20	30	30	30	30	30	See Page 5, Note 4.
14.	Roofing Hard Standing	60	-	15	35	10	10	10	10	
15.	Landscaping of Spoil	30	5	10	10	5	5	5	5	
16.	Mods. to P.L.A. Experimental Area	30	1	10	19	19	19	19	19	
17.	Sub-Station	80	-	15	30	35	35	35	35	
18.	Extension to Cooling Towers	40	-	5	20	15	15	15	15	
19.	Safety Store and F.A.P.	30	-	1	10	19	19	19	19	See Page 5, Note 5.
20.	Service Workshop	30	-	1	10	19	19	19	19	- do -
21.	Remote Test Building	60	-	1	10	49	49	49	49	- do -
22.	Improvements to P.L.A. Buildings	100	-	1	10	30	30	30	30	- do -
23.	Ancillary Building for Nimrod N.P.	50	-	5	15	30	30	30	30	- do -
24.	Accommodation for additional staff	-	-	1	20	100	100	100	100	- do -
25.	Miscellaneous	-	77	-	-	-	-	-	-	- do -
		<u>2,239</u>	<u>451</u>	<u>610</u>	<u>526</u>	<u>419</u>	<u>419</u>	<u>419</u>	<u>419</u>	

	<u>Total Cost</u> £000	<u>1961/62 Latest Forecast</u> £000	<u>1962/63 Estimate</u> £000	<u>1963/64</u> £000	<u>1964/65</u> £000	<u>Remarks</u>
B. Other NIMROD Plant						
1. Hydrogen Bubble Chamber Services	200	66	-	-	-	
2. Heavy Liquid Bubble Chamber	385	25	100	100	100	
3. Beam Handling Plant - Phase I	1,000	30	150	300	300	
4. " " - Phase II	500	-	10	40	100	
5. Helium Bubble Chamber	416	5	15	60	100	
6. Nuclear Physics Apparatus	325	5	50	70	200	See Page 5, Note 6.
7. Track Analysis Equipment	100	25	25	25	25	See Page 5, Note 7.
8. Machine Spares	40	20	50	50	70	
9. Minor Items	590	140	150	150	150	
	3,556	316	550	795	1,045	
C. P.L.A. Plant						
1. Analysing Magnets	85	11	50	24	-	
2. Tank 1 Improvement	50	1	20	29	-	
3. Minor Items	494	94	100	150	150	
	629	106	170	203	150	
D. Other Major Plant Schemes						
1. Helium Liquifier	60	1	15	44	-	
2. Orion Computer	355	200	155	-	-	
3. Model Accelerators	40	-	1	10	20	
4. Miscellaneous	-	2	-	-	-	
	455	210	171	54	20	

NOTES ON PAGES 2, 3 and 4

1. This expenditure is on the assumption that Treasury approval is received soon for the Peach Croft, Abingdon housing scheme.
2. No provision has been made for credits against the development charge which will arise when further sales of the Atlas Computer are made. These will be treated as Exchequer Extra Receipts.
3. Provision has been made in the Treasury form for expenditure in later years.
4. An estimate for the building work is still awaited. Provision for the associated shielding and beam transport equipment has been made under Beam Handling Plant - Phase II.
5. Token provision has been made to enable work to be started should schemes be submitted to and approved by the General Purposes Committee.
6. Further schemes for beam handling plant will be needed throughout the working life of Nimrod.
7. This expenditure was previously shown as visual and electronic techniques, and will be needed through the working life of Nimrod.

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

Non-Capital Estimates 1962/63 and Forecast Estimates 1963/64 and 1964/65

	1961/62	1962/63	1963/64	1964/65
	Grant £000	Latest Estimate £000	£000	£000
<u>RUTHERFORD LABORATORY</u>				
1. Salaries, Wages, Superannuation, Travelling etc.	713	828	1,080	1,140
2. Stores, Materials and Services.	384	405	930	1,020
3. Other Current Expenditure.	191	200	695	705
4. Services by A.E.R.E.	886	881	460	450
	2,174	2,314	3,165	3,315
<u>ELECTRON LABORATORY</u>				
1. Salaries, Wages, Superannuation, Travelling etc.	20	5	178	232
2. Stores, Materials and Services	80	30	102	208
3. Other Current Expenditure	-	-	20	80
	100	35	300	520

NOTE: Calculations for salaries and wages are based on staff in post at the 31st March, 1962 to 1965 as follows:

1. Rutherford Laboratory ... 716, 835, 880, 900
2. Electron Laboratory ... 35, 100, 150, 200

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

1962/63 Estimates

Research and Development with Industry and Universities

<u>Service By</u>	<u>Firm or University</u>	<u>Estimated Cash Expenditure £000</u>			
		<u>To 31.3.62</u>	<u>1962/63</u>	<u>1963/64</u>	<u>1964/65</u>
<u>Universities</u>	Manchester	4.0	3.5	4.0	5.0
	Oxford	39.3	26.2	30.0	32.5
	University College	23.4	9.5	10.5	12.0
	Glasgow	0.5	0.5	0.5	0.5
	Battersea College	1.0	1.2	1.2	1.2
	Queen Mary College	2.5	5.5	7.4	9.4
	Southampton	6.5	8.5	10.0	12.0
	Durham	3.0	2.6	3.0	4.0
	Imperial College	12.2	6.5	8.4	10.4
	Liverpool	10.0	5.0	4.0	5.0
	Global	2.6	6.0	14.0	18.0
		105.0	75.0	93.0	110.0
<u>Industry</u>	Vickers Research	20.0	-	-	-
	Global	-	5.0	7.0	10.0
		125.0	80.0	100.0	120.0