

15th March, 1963.NI/63/4NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCEGOVERNING BOARDFive-Year Financial Forecast 1964/65 to 1968/69

Prepared by A. Miller

1. The five-year forecast set out in this paper is submitted for consideration by the Board. The paper differs from the draft in paper NI/GP/63/2, which Members will have seen, only in the following ways:
 - (a) As requested by the G.P.C., a large electrostatic generator for nuclear structure work has now been included among the "future major schemes", and also an adjustment has been made to the annual total amounts for future major schemes because they would not all proceed simultaneously at the rate shown.
 - (b) An additional reconciliation statement (No. 3) has been added to the first section of the appendix. There has still been no agreement with the Treasury on the base line for the 2% p.a. increase or on the exclusion of reactor work from the 2% limitations. In a letter dated 1st March the Treasury have proposed that instead of trying to agree a notional starting figure for 1962/63, we should work on the basis of the 1963/64 Estimate of £6.85M for N.I.R.N.S. as a whole (excluding Atlas) and that figures up to 1967/68 would then be arrived at by adding 2% (£0.137M) to this figure each year, plus the price increase factor to be negotiated annually. A reply is being sent asking for this question to be deferred until after the Board meeting. The additional reconciliation statement (No. 3) has been added to show the divergence between the Treasury proposal and the present forecasts.

The figures in statement No. 3 are very similar to those in statement No. 2, but there is really a fundamental difference, because the Treasury proposal is no doubt intended to include the cost of reactor support, whereas our "2% forecast" in the first line of statement No. 2 does not.

Therefore, if it became necessary to work within the Treasury proposal, we should not only have to forego:

(a) the additional costs for the proper exploitation of Nimrod;	}	or other items
(b) all the future major schemes;	}	of equivalent
and (c) the increased expenditure in these years for the Electron Laboratory;	}	cost

but also (d) the whole of the reactor support, or other items of equivalent cost to this.
2. The last five-year forecast (NI/62/2) was prepared in February, 1962 and was revised (NI/GP/62/29) at the request of the Treasury after the approval of the Electron Laboratory. It showed a pattern of expenditure consistent with the 2% p.a. rate of increase for research in nuclear physics which was set by the Treasury.

3. The present forecast (which like the revised form of the earlier one is at 1962/63 prices) shows that the pattern of expenditure can be held to the 2% rate of increase, but only by accepting very severe restrictions on the work. Quite apart from the need to obtain a satisfactory agreement on the base line for the 2% p.a. increase, and on the exclusion of reactor work from the 2% limitation, there are three distinct headings of expenditure which cannot be accommodated within the 2% pattern, if the Institute's work is to go ahead properly. The schedules in the appendix have been arranged so as to show the extent of these as clearly as possible. They are:-

(a) Future Major Schemes: These items do not represent a departure from the spirit of the Minister's letter which laid down the 2% limitation. They are the "new projects for which a sum of £800,000 is allowed in the N.I.R.N.S. forecast for 1967/68" which the Minister explicitly left open for later consideration separately from the 2% limit. The expenditure forecast for these items is substantially greater than the amount mentioned in the Minister's letter and starts earlier (£M):-

	1964/65	1965/66	1966/67	1967/68	1968/69
Minister's letter (NI/62/7)	-	-	-	0.8	-
Previous forecast NI/GP/62/29	-	0.03	0.57	1.05	-
This forecast (including non-capital)	0.04	1.09	1.91	1.86	2.44

On the other hand, in this forecast the items involved, together with some new ones, have been specified with more precision and they are indeed items for which refusal of approval, however unfortunate, would not interfere with the other projects already in hand.

(b) Additional costs for the proper exploitation of Nimrod: The present estimate is that the proper exploitation of Nimrod and the associated projects already approved can be contained within the 2% pattern for the next two years, but that in 1965/66 and later years it will require rather more people, and will cost rather more than previously forecast. The total increased requirement during the five years which were covered by the 2% dictum is £1.04M.

(c) Electron Laboratory: The forecast provides for a four-year construction period, with no delay in site acquisition. The effect of this on the forecast is mainly to increase the expenditure in early years and decrease it in the later years. However, the latest estimate of the total cost of the laboratory in the four relevant years has increased by £0.26M. The effect of these changes is that if the Electron Laboratory can be pressed forward vigorously without delays it will require an additional £0.82M in 1964/65. It is expected that a review of the estimate will be completed before the meeting.

4. A substantial increase in the cost of reactor support has been included. A large part of this increase covers the hire of U.K.A.E.A. reactor space for university use. These costs are not within the scope of the "2% pattern" since they are not for nuclear physics.

5. When these forecasts are submitted to the Treasury after the amendments required by the Committee and in suitably condensed form, the following points will be made in the covering letter:

- No provision has been made for major new scientific developments not at present foreseen.
- The cost of carrying out the approved programme in this field cannot be accurately assessed several years ahead.
- These are forecasts and not a five-year budget.
- The restricted rate of progress imposed in September, 1961 and intensified in July, 1962 still dominates the present Rutherford Laboratory forecasts. Overall, however, it will be seen that a need to rise decisively above the present level of expenditure is expected sooner than was forecast a year ago.

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

Financial Forecasts - 1964/65 to 1968/69

Reconciliation Statements - £M

1. Treasury Grant with 1963/64 column of summary

<u>Grant</u>		<u>1963/64</u>	
Based on programme	6.85	Per summary	8.48
Hydrogen Bubble Chamber	.37	Less increase in Electron	
Atlas Computer Laboratory	1.22	Laboratory forecast	.04
	<u>8.44</u>		<u>8.44</u>
Less Appropriations in Aid	.14	Less cut by Treasury	.14
	<u>8.30</u>		<u>8.30</u>

2. Forecast in September, 1962 for the R.H.E.L. and the E.L. compared with the present forecast (Identifying the items which cause the difference between the two forecasts and account for the present one rising above our interpretation of the 2% level)

	<u>1964/5</u>	<u>1965/6</u>	<u>1966/7</u>	<u>1967/8</u>	<u>Total</u>
"2%" forecast in paper NI/GP/62/29 (4b)	7.08	6.94	7.22	7.53	28.77
Add additional costs for the proper exploitation of Nimrod	-	.25	.43	.36	1.04
Cost of future Major Schemes	.04	1.09	1.91	1.86	4.90
Increased expenditure in these years for the Electron Lab.	+ .82	- .10	- .28	- .18	+ .26
Present forecast of Reactor Support	.25	.33	.34	.39	1.31
<u>Amended previous forecast</u>	<u>8.19</u>	<u>8.51</u>	<u>9.62</u>	<u>9.96</u>	<u>36.28</u>
R.H.E.L. forecast - Schedule I	6.42	7.00	8.06	8.44	29.92
E.L. forecast - Schedule I	2.37	1.62	1.54	1.52	7.05
	8.79	8.62	9.60	9.96	36.97
Deduct Shadow Cuts	.50	.10	-	-	.60
<u>Present forecast</u>	<u>8.29</u>	<u>8.52</u>	<u>9.60</u>	<u>9.96</u>	<u>36.37</u>

3. Treasury proposal compared with the present forecast at 1962/63 prices
- Atlas excluded

	<u>1964/5</u>	<u>1965/6</u>	<u>1966/7</u>	<u>1967/8</u>	<u>Total</u>
Treasury proposal £6.85M + 2%	6.99	7.13	7.27	7.41	28.80
Present forecast after shadow cut	8.29	8.52	9.60	9.96	36.37
Difference					7.57
(a) Additional costs for the proper exploitation of Nimrod				1.04	
(b) Cost of Future Major Schemes				4.90	
(c) Increase rate of construction of the Electron Laboratory				.26	
(d) Reactor Support				1.31	7.51
					<u>.06</u>

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCESummary of Financial Forecasts - 1964/65 to 1968/69£ Million

	1963/4	1964/5	1965/6	1966/7	1967/8	1968/9	
Rutherford Laboratory*	6.88	6.42	7.00	8.06	8.44	8.99	Sched. 2
Electron Laboratory	1.12	2.37	1.62	1.54	1.52	1.53	Sched. 7
Atlas Computer Laboratory	1.22	1.46	1.15	.84	.71	3.06	Sched. 8
	9.22	10.25	9.77	10.44	10.67	13.58	
<u>Deduct</u> Shadow Cut	.60	.50	.10				
	8.62	9.75	9.67	10.44	10.67	13.58	
<u>Less</u> Receipts	.14	.27	.81	.84	.84	.84	
	8.48	9.48	8.86	9.60	9.83	12.74	

* Possible future major schemes at unknown sites have been included under this heading for convenience.

N.I.R.N.S.

RUTHERFORD HIGH ENERGY LABORATORY

£ Million

	<u>1963/64</u>	<u>1964/65</u>	<u>1965/66</u>	<u>1966/67</u>	<u>1967/68</u>	<u>1968/69</u>
<u>Summary - Present Programme</u>						
Capital - Schedule 4	3.38	2.56	1.64	1.55	1.90	1.51
Non-Capital - Schedule 6	3.50	3.82	4.02	4.17	4.32	4.45
	6.88	6.38	5.66	5.72	6.22	5.96
<u>Summary - Present Programme: Additional costs for proper exploitation of Nimrod</u>						
Capital (minor items)			.20	.30	.20	.40
Non-Capital - Schedule 6			.05	.13	.16	.19
			.25	.43	.36	.59
<u>Summary - Future Major Schemes</u>						
Capital - Schedule 5	.01		.82	1.47	1.23	1.64
Non-Capital - Schedule 6	.03		.27	.44	.63	.80
	.04		1.09	1.91	1.86	2.44
<u>Summary - Combined</u>						
Capital	3.38	2.57	2.66	3.32	3.33	3.55
Non-Capital	3.50	3.85	4.34	4.74	5.11	5.44
	6.88	6.42	7.00	8.06	8.44	8.99
	.14	.12	.11	.12	.14	.18
<u>Less Receipts</u>	6.74	6.30	6.89	7.94	8.30	8.81

Schedule 2

N.I.R.N.S.

CAPITAL EXPENDITURE - PRESENT PROGRAMME

RUTHERFORD HIGH ENERGY LABORATORY - £M

	<u>Estimated Approval Date</u>	<u>Total Cost</u>	<u>1963/64</u>	<u>1964/65</u>	<u>1965/66</u>	<u>1966/67</u>	<u>1967/68</u>	<u>1968/69</u>
<u>Nimrod and associated schemes</u>								
Nimrod Machine	-	11.10	.67	.15				
Nimrod Spares (major items only)	-	-	.06	.04				
National Hydrogen Bubble Chamber	-	.37	.37					
Heavy Liquid Bubble Chamber	-	.43	.13	.15				
Helium Bubble Chamber	-	.48	.10	.16				
* High Energy Physics Apparatus (major schemes)	1.9.63	.73	.01	.01	.18	.02	.34	.30
* High Energy Physics Apparatus (minor)	-	-	.07	.10	.15	.15	.30	.20
Track Analysis Equipment	-	-	.04	.05	.07	.10	.20	
Beam Handling Plant - Phase I	-	1.04	.39	.30	.08	.08	.30	
Beam Handling Plant - Phase II	-	.42	.03	.20	.10	.25		
* Special Beam Equipment and Magnets	-	-	.01	.05	.10			
Parasitic Area Extension (including shielding)	-	.21	.13	.04				
Building R.2 Extension	-	.21	.10	.03				
* Aux. Building for Nimrod Physics	1.9.63	.10	.01	.05	.04	.35	.35	.35
Minor Plant	-	-	.22	.27	.35			
			2.34	1.60	1.17	1.15	1.49	1.15
<u>P.L.A. Schemes</u>								
* Machine Improvements	-	-	.01	.05	.02	.02	.02	.02
Analysing Magnets	-	.09	.07	.01				
* Building Improvements	1.9.63	.04	.01	.03				
Radio Chemistry Laboratories	-	.27	.02	.15	.10	.10	.10	.10
Minor Plant	-	-	.14					
			.25	.24	.12	.12	.12	.12

* Not yet approved.

N.I.R.N.S.

Rutherford High Energy Laboratory - £M

Capital Expenditure - Present Programme

Other schemes

	<u>Estimated Approval Date</u>	<u>Total Cost</u>	<u>1963/4</u>	<u>1964/5</u>	<u>1965/6</u>	<u>1966/7</u>	<u>1967/8</u>	<u>1968/9</u>
Orion Computer	-	.40	.10					
*Helium Liquifier	1.9.65	.09				.04	.05	
*Reactor Loops etc.	-	.10	.01	.05	.04			
Minor Plant	-	-	.15	.15	.15		.15	
Heavy Lab. and Office Block	-	.22	.05					
*Electronics Labs. and Offices	1.4.63	.20	.11	.09				
*Heavy Plant and Metals etc. Store	1.9.63	.10	.01	.07	.02			
*Workshop & Remote Test Building	1.9.63	.09	.01	.07	.01			
*Cooling Towers Extension	1.9.63	.05	.01	.04				
Site Services and Roads	-	-	.06	.04	.04	.04	.04	.04
*Safety Store & First Aid Post	1.9.63	.05	.01	.03	.01			
*Low Background Laboratory	1.4.64	.02		.02				
Lecture Theatre	-	.05	.03	.02				
Abingdon & Chilton Houses	-	.22	.10	.08	.03		.05	.05
Minor Building Works	-	-	.14	.06	.05	.05		
			.79	.72	.35	.28	.29	.24
<hr/>								
Nimrod		2.34	1.60		1.17	1.15	1.49	1.15
P.L.A.		.25	.24		.12	.12	.12	.12
Others		.79	.72	.35	.28	.28	.29	.24
		3.38	2.56	1.64	1.55	1.90	1.51	

Capital Summary - Present Programme

*Not yet approved

N.I.R.N.S.

Capital Expenditure - Future Major Schemes
Not yet Approved

Rutherford High Energy Laboratory - £M

	<u>Estimated</u> <u>Approval</u> <u>Date</u>	<u>Total</u> <u>Cost</u>	<u>1963/64</u>	<u>1964/65</u>	<u>1965/66</u>	<u>1966/67</u>	<u>1967/68</u>	<u>1968/69</u>
<u>Nimrod</u>								
Machine Improvements	-	-		.01	.25	.25	.25	.20
2nd Main Experimental Area	1.4.66	.29			.05	.05	.20	.04
Beam Handling Plant - Ph. III	1.4.66	1.00			.05	.05	.50	.45
Special Beam Equipment & Magnets	-	-					.01	.25
H.E. Physics Apparatus	-	-					.02	.20
Physics and Office Block	1.4.66	.25			.01	.01	.15	.09
Power Supplies and Special Services	-	.15			.01	.01	.08	.06
<u>P.L.A.</u>								
Machine Extension to Pion Energies	1.4.66	5.00					.06	.35
Associated Buildings	1.4.66	1.00					.05	.20
<u>Future Major Accelerator*</u>	1.4.66	21.00					.01	.30
<u>Large Electrostatic Generator*</u>								
Machine	1.4.64	3.00		.10	1.00	1.50	.40	-
Other Plant	-	-		.01	.01	.10	.20	.30
<u>Deduct Adjustment⁺</u>								
			.10	1.02	1.97	1.93	1.93	2.44
			.09	.20	.50	.70	.70	.80
			.01	.82	1.47	1.23	1.23	1.64

* Site unknown

⁺ Because some schemes may not be adopted and others may be delayed.

Rutherford High Energy Laboratory - £M

N.I.R.N.S.

Non-Capital Expenditure

Present Programme

Salaries, Wages etc.

Administration Expenses

Stores, Materials and Services

University E.M.R. & Experimental Agreements

Reactor Support

	<u>1963/4</u>	<u>1964/5</u>	<u>1965/6</u>	<u>1966/7</u>	<u>1967/8</u>	<u>1968/9</u>
	1.27	1.39	1.41	1.43	1.45	1.47
	.13	.15	.16	.16	.16	.16
	1.88	1.95	2.00	2.10	2.20	2.30
	.18	.25	.30	.30	.30	.30
	.10	.16	.25	.30	.35	.40*
	3.56	3.90	4.12	4.29	4.46	4.63
	.06	.08	.10	.12	.14	.18
	3.50	3.82	4.02	4.17	4.32	4.45

Less Costs attributable to the Atlas Laboratory

Receipts

Staff Numbers

Staff in post at 31st March

	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
	.14	.12	.11	.16	.16	.16
	995	1022	1022	1022	1022	1022

Present Programme - Additional costs for proper exploitation of Nimrod

Salaries, Wages etc.

Administration Expenses

Stores, Materials and Services

	<u>1963/4</u>	<u>1964/5</u>	<u>1965/6</u>	<u>1966/7</u>	<u>1967/8</u>	<u>1968/9</u>
			.02	.05	.06	.07
			-	.01	.01	.01
			.03	.07	.09	.11
			.05	.13	.16	.19

Staff Numbers

Staff in post at 31st March

	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
	-	-	28	48	58	63

Future Major Schemes

Salaries, Wages, etc.

Administration Expenses

Stores, Materials and Services

University E.M.R. and Experimental Agreements

	<u>1963/4</u>	<u>1964/5</u>	<u>1965/6</u>	<u>1966/7</u>	<u>1967/8</u>	<u>1968/9</u>
		.01	.10	.15	.20	.25
		-	.01	.02	.03	.03
		.02	.15	.22	.30	.37
			.01	.05	.10	.15
		.03	.27	.44	.63	.80

Staff Numbers

Staff in post at 31st March

	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
	-	10	80	140	160	250

*plus £40,000 p.a. for minor plant

ELECTRON LABORATORY£ Million

	<u>Estimated Approval Date</u>	<u>Total Cost</u>	<u>1963/64</u>	<u>1964/65</u>	<u>1965/66</u>	<u>1966/67</u>	<u>1967/68</u>	<u>1968/69</u>
<u>Capital Expenditure</u>								
NINA - 4 GeV E.S. (including buildings)	-	3.36*	.80	1.57	.68	.31	.15	.01
External Electron Beam	1.4.65	.31			.01	.14	.30	.40
Physics Apparatus	-	1.00		.01	.03	.14	.01	.01
NINA Development	1.4.67	3.00						.01
Storage Rings	1.4.68	.10		.05	.05			.15
Hostel	1.4.64	-	.11	.18	.15	.15		
Minor Works and Plant	-							
			.91	1.81	.92	.74	.61	.58
<u>Non-Capital Expenditure</u>								
Salaries, Wages etc.			.09	.24	.30	.35	.40	.41
Administration, Expenses			.01	.03	.04	.05	.06	.06
Stores, Materials & Services			.09	.25	.31	.35	.40	.42
E.M.R.			.02	.04	.05	.05	.05	.06
			.21	.56	.70	.80	.91	.95
<u>Receipts</u>			-	-	-	-	-	-
<u>Summary</u>								
Capital Expenditure			.91	1.81	.92	.74	.61	.58
Non-Capital Expenditure			.21	.56	.70	.80	.91	.95
Net Expenditure before Shadow Cut			1.12	2.37	1.62	1.54	1.52	1.53
Staff Numbers								
Staff in post 31st March			1963	1964	1965	1966	1967	1968
			40	143	183	204	240	240

* It has been assumed that site work will start by 1.4.63.

N.I.R.N.S.

ATLAS COMPUTER LABORATORY

£ Million

	Est. Approval Date	Total Cost	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69
Capital Expenditure								
Computer (including development and buildings)	-	3.33	.94*	1.01*	.54*	.18*	-	-
New Computer Stores etc.	-	-	-	-	.20	.20	.20	.20
Computer Extension	1.4.65	5.00	-	-	-	-	.01	2.25
Minor Schemes and Plant	-	-	.02	.02	.03	.04	.04	.05
Visual Display Output	1.4.64	.10	-	.10	-	-	-	-
			.96	1.13	.77	.42	.25	2.50
Non-Capital Expenditure								
Salaries Wages, etc.			.04	.06	.07	.08	.09	.12
Administration Expenses			.01	.01	.02	.02	.03	.04
Stores, Materials and Services			.06	.09	.14	.15	.15	.17
EMR			.05	.05	.05	.05	.05	.05
University Computer Support			.04	.04	-	-	-	-
Rutherford Laboratory overheads			.06	.08	.10	.12	.14	.18
			.26	.33	.38	.42	.46	.56
Receipts			-	.15	.70	.70	.70	.70
Summary								
Capital Expenditure			.96	1.13	.77	.42	.25	2.50
Non-Capital Expenditure			.26	.33	.38	.42	.46	.56
			1.22	1.46	1.15	.84	.71	3.06
Deduct Receipts				.15	.70	.70	.70	.70
Net Expenditure			1.22	1.31	.45	.14	.01	2.36
Staff Numbers								
		1963	1964	1965	1966	1967	1968	1969
Staff in post at 31st March		26	39	49	55	60	90	120

Schedule 8

* Provision has been made for an annual development payment of £140,000

Staff - Five Year Forecast 1963/64 to 1967/68

<u>In Post - 31st March</u>		<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>R.H.E.L.</u>	Professional	320	365	380	430	470	490
	Ancillary	348	378	400	440	470	480
	Industrial	252	252	252	260	270	270
		920	995	1032	1130	1210	1240
<u>E.L.</u>	Professional	20	53	65	70	80	80
	Ancillary	10	50	70	82	100	100
	Industrial	10	40	48	52	60	40
		40	143	183	204	240	240
<u>ATLAS</u>	Professional	9	13	19	23	26	36
	Ancillary	17	23	27	29	31	48
	Industrial	-	3	3	3	3	6
		26	39	49	55	60	90
<u>TOTAL</u>	Professional	349	431	464	523	576	606
	Ancillary	375	451	497	551	601	628
	Industrial	262	295	303	315	333	336
		986	1177	1264	1389	1510	1570

PLA/A/04(2) *D. Stafford* 16/5

00628

14th May, 1963.

Amendment to
NI/63/4

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GOVERNING BOARD

Five-Year Financial Forecast 1964/65 to 1968/69

Note by the Secretary for information

At the meeting of the Governing Board on 28th March, 1963 Professor Merrison submitted revised forecasts of expenditure at the Electron Laboratory, which were accepted.

Subsequently, after a review of the building proposals for the Electron Laboratory by a special committee which met on 18th April at the Board's request, the G.P.C. have approved a further increase of £140,000 in the Electron Laboratory estimate.

To bring paper NI/63/4 up to date taking the above changes into account, and to clarify the reconciliation statement No. 3 by the addition of further detail, the following amendments are required:-

Paragraph 3 (c) (Electron Laboratory)

Line 5 for "£0.26m" read "£0.48m"

Line 7 for "£0.82m" read "£0.74m"

Appendix - Reconciliation statements

Schedule 1

Schedule 7

Schedule 9

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to be replaced by
attached pages

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCEFinancial Forecasts - 1964/65 to 1968/69Reconciliation Statements - £M1. Treasury Grant with 1963/64 column of summary

<u>Grant</u>			
Based on programme	6.85	Per summary	8.51
Hydrogen Bubble Chamber	.37	<u>Less</u> increase in Electron	
Atlas Computer Laboratory	1.22	Laboratory forecast	.07
	8.44		8.44
<u>Less</u> Appropriations in Aid	.14	<u>Less</u> cut by Treasury	.14
	8.30		8.30

2. Forecast in September, 1962 for the R.H.E.L. and the E.L. compared with the present forecast (Identifying the items which cause the difference between the two forecasts and account for the present one rising above our interpretation of the 2% level)

	<u>1964/5</u>	<u>1965/6</u>	<u>1966/7</u>	<u>1967/8</u>	<u>Total</u>
"2%" forecast in paper NI/GP/62/29 (4b)	7.08	6.94	7.22	7.53	28.77
<u>Add</u> additional costs for the proper exploitation of Nimrod	-	.25	.43	.36	1.04
Cost of future Major Schemes	.04	1.09	1.91	1.86	4.90
Increased expenditure in these years for the Electron Lab.	+ .74	+ .11	- .19	- .18	+ .48
Present forecast of Reactor Support	.25	.33	.34	.39	1.31
<u>Amended previous forecast</u>	8.11	8.72	9.71	9.96	36.50
R.H.E.L. forecast - Schedule I	6.42	7.00	8.06	8.44	29.92
E.L. forecast - Schedule I	2.29	1.83	1.63	1.52	7.27
	8.71	8.83	9.69	9.96	37.19
Deduct Shadow Cuts	.50	.10	-	-	.60
<u>Present forecast</u>	8.21	8.73	9.69	9.96	36.59

3. Treasury proposal compared with the present forecast at 1962/63 prices
- Atlas excluded

	<u>1964/5</u>	<u>1965/6</u>	<u>1966/7</u>	<u>1967/8</u>	<u>Total</u>
Treasury proposal £6.85m and 2%	6.99	7.13	7.27	7.41	28.80
Present forecast after shadow cut	8.21	8.73	9.69	9.96	36.59
Difference	1.22	1.60	2.42	2.55	7.79
(a) Additional costs for the proper exploitation of Nimrod	-	0.25	0.43	0.36	1.04
(b) Cost of future major schemes	0.04	1.09	1.91	1.86	4.90
(c) Increased cost & rate of con- struction of the Electron Lab.	0.74	.11	- 0.19	- 0.18	0.48
(d) Reactor support	0.25	0.33	0.34	0.39	1.31
Total of (a), (b), (c) and (d)	1.03	1.78	2.49	2.43	7.73

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCESummary of Financial Forecasts - 1964/65 to 1968/69£ Million

	1963/4	1964/5	1965/6	1966/7	1967/8	1968/9	
Rutherford Laboratory*	6.88	6.42	7.00	8.06	8.44	8.99	Sched. 2
Electron Laboratory	1.15	2.29	1.83	1.63	1.52	1.53	Sched. 7
Atlas Computer Laboratory	1.22	1.46	1.15	.84	.71	3.06	Sched. 8
	9.25	10.17	9.98	10.53	10.67	13.58	
<u>Deduct</u> Shadow Cut	.60	.50	.10				
	8.65	9.67	9.88	10.53	10.67	13.58	
<u>Less</u> Receipts	.14	.27	.81	.84	.84	.84	
	8.51	9.40	9.07	9.69	9.83	12.74	

*Possible future major schemes at unknown sites have been included under this heading for convenience.

ELECTRON LABORATORY

£ Million

Schedule 7

	<u>Estimated Approval Date</u>	<u>Total Cost</u>	<u>1963/64</u>	<u>1964/65</u>	<u>1965/66</u>	<u>1966/67</u>	<u>1967/68</u>	<u>1968/69</u>
<u>Capital Expenditure</u>								
NINA - 4 GeV E.S. (including buildings)	-	3.88	.89	1.62	0.97	.40	.15	.01
External Electron Beam	1.4.65	.31			.01	.14	.30	.40
Physics Apparatus	-	-		.01	.03	.14	.01	.01
NINA Development	1.4.67	1.00						.01
Storage Rings	1.4.68	3.00		.05	.05	.15	.15	.15
Hostel	1.4.64	.10	.11	.18	.15			
Minor Works and Plant	-	-						
			1.00	1.86	1.21	.83	.61	.58
<u>Non-Capital Expenditure</u>								
Salaries, Wages etc.			.07	.18	.27	.35	.40	.41
Administration, Expenses			.01	.02	.04	.05	.06	.06
Stores, Materials and Services			.06	.19	.27	.35	.40	.42
E.M.R.			.01	.04	.04	.05	.05	.06
			.15	.43	.62	.80	.91	.95
<u>Receipts</u>			-	-	-	-	-	-
<u>Summary</u>								
Capital Expenditure		1.00		1.86	1.21	.83	.61	.58
Non-Capital Expenditure		.15		.43	.62	.80	.91	.95
Net Expenditure before Shadow Cut		1.15	2.29	1.83	1.63	1.52	1.52	1.53
Staff Numbers								
Staff in post 31st March			1963	1964	1965	1966	1967	1968
		5	90	140	190	240	240	240

Staff - Five-Year Forecast 1963/64 to 1967/68

<u>In Post - 31st March</u>		<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>R.H.E.L.</u>	Professional	320	365	380	430	470	490
	Ancillary	348	378	400	440	470	480
	Industrial	252	252	252	260	270	270
		920	995	1032	1130	1210	1240
<u>E.L.</u>	Professional	3	40	55	70	80	80
	Ancillary	2	30	55	75	100	100
	Industrial	0	20	30	45	60	60
		5	90	140	190	240	240
<u>ATLAS</u>	Professional	9	13	19	23	26	36
	Ancillary	17	23	27	29	31	48
	Industrial	-	3	3	3	3	6
		26	39	49	55	60	90
<u>TOTAL</u>	Professional	332	418	454	523	576	606
	Ancillary	367	431	482	544	601	628
	Industrial	252	275	285	308	333	336
		951	1124	1221	1375	1510	1570