BUSINESS CASE FOR REPLACEMENT RADIOThERAPY EQUIPMENT

Report by Malcolm Iredale, Director of Finance

The Board is asked to:

- Note the revenue costs of the replacement radiotherapy equipment.
- Agree to the funding application outlined in the report.

1 INTRODUCTION

The case for a second Linear Accelerator was originally considered by the Board as part of the approval for the replacement Linear Accelerator in June 2006. This discussion recognised the clinical requirement for two Linear Accelerators within Highland, both to deliver the required capacity, and to provide the necessary level of resilience for such a service.

This decision facilitated the necessary specialist construction work on the “bunkers” for both Linear Accelerators – providing a new location for the second machine and a re-furbishment for the replacement machine. These plans were taken forward and integrated into the National Radiotherapy Plan which provides relevant capital funding for the purchase and installation of agreed equipment. The associated revenue costs fall to be met by host Boards, and this paper confirms the funding arrangements in place to deliver the revenue aspect.

2 REPLACEMENT RADIOThERAPY BUSINESS CASE

The local Linac Business Case, prepared in April 2010 has been aggregated into the national Business Case for replacement Radiotherapy equipment (Executive Summary attached). This sets out the clinical and capital requirements – which as noted above, have been used to ensure the necessary capital progress. The capital impact of this plan is summarised on page 35 of the Business Case (copy attached).

The capital cost of the Raigmore replacement Linac is included within the NHS Highland Capital Plan, and funded specifically by ring fenced capital resource which is issued to relevant Health Boards to allow delivery of the National Radiotherapy Programme. This capital resource is planned and monitored by a Specialist National Sub-Group of the Scottish Government Health Directorate Radiotherapy Advisory Group – The Technical Specification and Evaluation Sub-Group (TSE), on which NHS Highland is represented alongside the four other Health Boards who have radiotherapy facilities.

The TSE report to capital planning within SGHD, to allow the necessary ring fenced capital resources to be made available to Boards as a national priority programme. This means that such resource, when agreed, is top sliced from the National NHS capital resource before distribution of any local or formula capital to NHS Boards.

As noted above, revenue costs fall to be met by local NHS Boards and the additional revenue costs of the 2nd Linear Accelerator can be split into 3 major areas:
Pay Costs
Capital Charges
Regular Maintenance Costs

However, there is also a revenue benefit because the existing machine (The Elektra) is currently leased, and this lease cost will no longer be incurred. The savings on this lease more than off-set the additional pay and regular maintenance costs of the new machine, leaving the capital charge costs as the additional item requiring to be financed. This sum has been included within the Board’s capital charge calculations and is therefore covered within the budgeted capital charges within the Financial Plan. In future periods there may be additional maintenance costs for the repair or replacement of specific parts. No provision is being made for such costs at this stage because the new machine has a 2 year warranty, and such costs should be relatively low for such a new machine in the period after expiry of the warranty.

3 CONCLUSION

This short paper concludes consideration of the Replacement Radiotherapy Equipment at Raigmore and provides the revenue costs details which were not included in the initial Business Case. The revenue costs are affordable through a combination of the application of lease savings from the existing machine and the Board’s capital charge provision.

The Board is therefore asked to note the financial consequences of the Replacement Radiotherapy Equipment and agree to the application of funds outlined above.

4 GOVERNANCE IMPLICATIONS

These facilities would ensure that the best radiotherapy practice would be followed in Inverness, allowing the best chance of cure, and minimising side effects.

Raigmore can continue to offer treatment for the most common cancers in Inverness, thereby avoiding patients being sent to the central belt for treatment. The new facilities will also reduce waiting times.

5 IMPACT ASSESSMENT

The population served by the Raigmore Hospital Cancer Centre will continue to receive treatment in a local setting. Waiting times and interruptions to treatment will be minimised, which when combined with modern techniques will ensure that the best possible treatment is provided.

Malcolm Iredale
Director of Finance

25 March 2011
BUSINESS CASE FOR REPLACEMENT OF RADIOTHERAPY EQUIPMENT

NHS GREATER GLASGOW & CLYDE
NHS LOTHIAN
NHS GRAMPIAN
NHS TAYSIDE
NHS HIGHLAND

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EXECUTIVE SUMMARY

Scotland has a population of 5.1 million who are served by five radiotherapy centres (Aberdeen, Dundee, Edinburgh, Glasgow and Inverness). There are currently 25 radiotherapy machines or linear accelerators (Linacs) which deliver in excess of 200,000 fractions per annum, of which 75% or more are with curative intent.

Linacs have a recommended life span of ten years and in the period 2010-12 ten machines reach this age. Beyond this age, Linacs become less reliable with increasing down-time and consequent effects on the wider service (1), and potentially compromising the waiting time guarantee. The capital funds for this replacement have been agreed as part of the ongoing radiotherapy Capital Equipment Replacement Programme (CERP) announced by the Cabinet Secretary on behalf of the Scottish Government Health Directorate (SGHD). A total of 10 Linacs reach this age by 2012 and so require replacement (Aberdeen 3, Dundee 1, Edinburgh 2, Glasgow 3 and Inverness 1). In order to obtain optimal value for money a unified procurement process is proposed.

Also required are, one CT Simulator (Glasgow), one conventional simulator (including DICOM RT Image Archive facility) (Aberdeen), and one Record & Verify System (Dundee).

As set out in “Better Cancer Care” (2), the SGHD through its Scottish Radiotherapy Advisory Group (SRAG) is committed to continuous service improvement for our patients, providing state-of-the-art radiotherapy. Therefore, rather than simply replace ‘like with like’, it has been agreed by SRAG that a higher specification machine should be sought to help improve access to more complex radiotherapy techniques, such as Intensity-Modulated Radiotherapy (IMRT) and Image-Guided Radiotherapy (IGRT) whilst retaining the capability to deliver routine treatments using current techniques.

IMRT is an advanced mode of high precision radiotherapy that allows for the radiation dose to conform more precisely to the three-dimensional (3-D) shape of the tumour by modulating the intensity of the radiation beam. This shapes the radiotherapy treatment around critical structures, enabling higher doses to be delivered with reduced toxicity. It is the recommended technique for the majority of patients receiving radiotherapy for head & neck and prostate cancers and it is estimated that a third of all radical patients would benefit from IMRT (3, 4).

Due to normal body movements, such as breathing and digestion, tumours can move during a radiation treatment session out of the planned range of the radiation beam. This means the tumour may not receive the full amount of radiation, reducing the probability of cure and/or normal tissues may receive increased amounts of radiation, thereby increasing toxicity. In IGRT, specialised patient positioning techniques and complex computing and imaging technologies are used to take patient and tumour movement into account during radiation treatment, thereby delivering more effective radiation treatment to the tumour in real time. “Better Cancer Care”, the SGHD strategy for cancer care (5) confirms the commitment to making IMRT and IGRT available to Scottish patients.

Capital funding for both the equipment and the building work is to be provided by the Scottish Government. This is in accordance with the monitoring report submissions relating to version 18 of the Capital Equipment Replacement Programme which identified £28.934m for the equipment, and £7.555m for building costs, in total £36.489m. Equipment costs for the major capital items including essential ancillary items to facilitate system integration into existing radiotherapy departments and provide the key components to support the introduction of IMRT/IGRT will be provided as part of the national programme.

As with all projects there are potential revenue consequences which will need to be met by the Health Boards, namely:
• Capital charges
• Hardware and software support contracts
• Service and maintenance

There should be no additional staffing costs as this is replacement equipment. There is the possibility that there will be additional costs associated with service and maintenance however it is anticipated that any increase in costs will be partially offset by the introduction of a catalogue with fixed term prices for parts and spares.

The options considered within this business case are:

A: Do nothing
B: 5 Centres procure separately
C: Unified Scottish Procurement Approach

The preferred option for this Business Case is Option C the unified Scottish Procurement Approach.

UNIFIED SCOTTISH PROCUREMENT APPROACH

This approach will ensure that the replacement of equipment will be undertaken in a timely fashion and that the Linear Accelerators in particular will include the provision for modern rotational ARC therapy that would offer additional tools to deliver IMRT with the potential for maintaining Linear Accelerator capacity.

Another major potential advantage is the savings which could be made, thereby delivering the best value for money for NHS Scotland. There is also the potential for consolidation of the service contracts and savings in the purchase of equipment spares. Also the co-ordinated approach meets the SGHD desire for a more unified Scottish Radiotherapy Service. A turn-key approach can also be used for a unified procurement and potentially a single Scottish contractor could ensure expertise in this complex process and hence minimise delays.

The procurement will utilize the OJEU “Open procedure” for the procurement exercise and it is anticipated by using this process that the timescales for tender evaluation and supplier selection could be compressed in order to meet the Centre’s installation timetables.

The following replacement equipment is required

<table>
<thead>
<tr>
<th>NHS GRAMPIAN</th>
<th>NHS GG&amp;C</th>
<th>NHS LOTHIAN</th>
<th>NHS TAYSIDE</th>
<th>NHS HIGHLAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 x Linear Accelerators</td>
<td>3 x Linear Accelerators</td>
<td>2 x Linear Accelerators</td>
<td>1 x Linear Accelerator</td>
<td>1 x Linear Accelerator</td>
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<tr>
<td>1 x Conventional Simulator (inc DICOM Archive)</td>
<td>1 x CT Simulator</td>
<td></td>
<td>1 x IGRT Retrofit</td>
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<td></td>
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<td></td>
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<td>1 x R&amp;V system</td>
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</tbody>
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FINANCIAL CONSIDERATIONS

5.1 CAPITAL COST ALLOCATION & FUNDING

The capital for this project has been allocated by the SGHD. In the worst case scenario, the capital spend would be £36,489k (including VAT at 20%).

Capital Expenditure by Cancer Centre

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen</th>
<th>Dundee</th>
<th>Edinburgh</th>
<th>Glasgow</th>
<th>Inverness</th>
<th>Total</th>
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<tbody>
<tr>
<td>Linacs</td>
<td>£2,812k</td>
<td>£2,354k</td>
<td>£2,158k</td>
<td>£2,158k</td>
<td>£2,812k</td>
<td>£26,498k</td>
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<td></td>
<td>£2,812k</td>
<td>£523k</td>
<td>£2,812k</td>
<td>£2,433k</td>
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<tr>
<td>Sim/CT sim</td>
<td>£948k</td>
<td></td>
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<td>£948k</td>
<td></td>
<td>£1,896k</td>
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<tr>
<td>OMS</td>
<td></td>
<td>£390k</td>
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<td>DICOM archive</td>
<td>£150k</td>
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<td>£150k</td>
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<td>Associated Building work</td>
<td>£6,403k</td>
<td>£205k</td>
<td>£218k</td>
<td>£729k</td>
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<td>£7,555</td>
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<tr>
<td>Total</td>
<td>£15,937</td>
<td>£3,472</td>
<td>£5,188</td>
<td>£9,080</td>
<td>£3,022</td>
<td>£36,489</td>
</tr>
</tbody>
</table>

Notes:
All figures taken from V18 Radiotherapy Capital Equipment Replacement Plan
NHS Grampian – only 2 Linear Accelerators are required to be purchased 2010-2012, 3rd Lin Acc scheduled for 2012/13

In addition to equipment set out above, supporting equipment is required to ensure optimal treatment delivery. As part of this Procurement process, the “prime contractor” will be expected to provide all supporting equipment as part of the overall equipment package.