The NHS & CHP

Carbon and Energy Bills
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How does one buy a CHP in the NHS?

12 months

This slide describes the competitive dialogue process which has been the best way of procuring complex projects of this sort. It was preceded by the negotiated route, which took just one bidder to final bids. The following slides show why spending time with bidders to work up solutions is best to enable an optimal solution. St Albans is an example of a complex solution, and Watford an example of a simple solution that requires skilled optimisation.
St Albans Hospital

Temporary Provision
Remove steam
New boilers
Chimney
CHP
Replace steam
Plant rooms
DE provision
Demand Measures
A complicated Project – Modest savings

Modest savings
Watford Hospital

Demand side reduction measures
A big, relatively simple project with good savings
How does one buy a CHP in the NHS?

The procurement model shown previously details the process from OJEU onwards and ignores the work before OJEU, which can take a further 6 months,

12 months
How does one buy a CHP in the NHS?

Concentration on procurement ignores the heart of the project – the operational phase which lasts 15 years. A poor project will haunt the Trust for a long time.
You could go it alone

- Procure advice
- feasibility
- SOC
- Spec
- Procure docs
- Draft contract
- Pay design
- Detailed spec
- OJEU
- Tender
- Evaluate
- Invest decision
- Contract
- Install
- Test
- CHPQA reg
- Maintain
- Repairs
- Major repairs

And save a few months here

Some Trusts try to retain control by carefully specifying what they want. This stops the bidder from innovating and does not transfer risk, and any weaknesses will last a long time.
Some of the risks are:

- Design risk
- Install risk
- Technical advice
- Legal advice
- Funding
- Time

- Budget risk
- Major failures
- Major overhauls
- Repair risk

- G59

- Planning

- Procure advice
- feasibility
- SOC
- Spec
- Procure docs
- Draft contract
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- Detailed spec
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- Evaluate
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15 years
NHS

Trust boards are used to an NHS that is starting to look like this. However this is not the truth seen by estates professionals
NHS

These pictures are not special examples from poor sites, but show the day to day plant issues faced by Estates. When planning a project it is impossible to cost for every plant issue and that is why these projects always overspend.
## CHP in the NHS

This slide shows a summary of all the CHPs in the NHS for the year 2009/10, the latest data available. There are 102 machines with a connected capacity of 111Mw.
All the CHP’s in the NHS together reported a carbon saving of 136,000 tonnes in 2009/10 – Well done to the NHS and CHP
Looking at the data more carefully shows that 16 machines (16%) of all the CHP’s in the NHS, contributed little or nothing. The table shows the same figures with the 16 machines removed. This table shows that CHP installations don’t always work.
Looking at the 86 CHP engines that produced meaningful outputs in 2009/10 shows that together they produced 534 million kWh of electrical output. Had they performed at the level routinely guaranteed in the CEF pilot projects, they would have produced 848 million kWh of electrical output. This means that the NHS fleet operated at 63% of its potential.
This graph plots the NHS CHP fleet, showing kWh produced for each machine against the machines size. The CHP engines in a performance contract can be easily identified, though some well managed NHS engines also stand out.
How can the CEF help?

• We have set up the fund which is about holistic support for NHS Trusts wishing to make carbon and energy infrastructural improvements

• This includes
  – Skilled advice for the entire project (17 yrs)
  – Standardised documents & contract
  – Contract balance sheet treatment
  – Procurement framework to save time
  – Sharply reduced project costs & timescales
  – No fees, admin costs recovered from contract
  – Leverage with contractors if there are problems
  – Funding if Trusts want it
## CEF Pilots and track record

<table>
<thead>
<tr>
<th>Project</th>
<th>Capital</th>
<th>Saving</th>
<th>CO2 pa</th>
<th>Base year</th>
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<tbody>
<tr>
<td>Complete standardised form 1998 - 2010</td>
<td>2010</td>
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<td>4,602,210</td>
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<td>2,589</td>
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<td>5,459,598</td>
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<td>3,514</td>
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<td>5,431,549</td>
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<td>4,179</td>
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<td>3,221,695</td>
<td>355,956</td>
<td>1,921</td>
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<td>2,475,380</td>
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<td>667</td>
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<td>1,515,001</td>
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<td>7,378,045</td>
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<td>3,587,500</td>
<td>520,000</td>
<td>2,807</td>
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<td>2,238,122</td>
<td>305,214</td>
<td>1,647</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>69,433,403</strong></td>
<td><strong>9,877,851</strong></td>
<td><strong>53,316</strong></td>
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<tr>
<td><strong>Average</strong></td>
<td><strong>3,654,390</strong></td>
<td><strong>519,887</strong></td>
<td><strong>2,806</strong></td>
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</tbody>
</table>
The CEF framework shortened procurement route

- Interviews
- Tech meets
- 4 Initial Bids
- Evaluation
- Complete contract

6 Months
Again there is work to do before the procurement phase. The CEF gives this support for free, but Trusts are expected to use the limited resource in good faith, because all work done on an aborted project restricts the resource for other NHS Trusts.
The CEF supports the Trust through the entire process including monthly, quarterly and annual savings reconciliations throughout the project 15 year period.
An example of how a complex project stacks up

<table>
<thead>
<tr>
<th></th>
<th>Trust Funded option</th>
<th>Standard PPP performance contract</th>
<th>Performance contract under the carbon &amp; Energy fund</th>
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<tr>
<td>Trust capital required</td>
<td>£ 5,848,921</td>
<td>£</td>
<td>£</td>
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<td>Cap Charges &amp; excluding depn pa</td>
<td>£ 204,712</td>
<td>£</td>
<td>£</td>
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<tr>
<td>Maintenance costs pa</td>
<td>£ 272,276</td>
<td>Incl</td>
<td>incl</td>
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<td>Payment to contractor pa</td>
<td>£</td>
<td>£ 1,049,074</td>
<td>£ 1,000,445</td>
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<tr>
<td>Monitoring costs pa</td>
<td>£</td>
<td>£ 58,489</td>
<td>£</td>
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<tr>
<td>Annual guaranteed savings</td>
<td>£ 1,180,522</td>
<td>£ 1,513,490</td>
<td>£ 1,513,490</td>
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<tr>
<td>NPV over contract 15 yrs</td>
<td>£ 4,102,282</td>
<td>£ 5,331,304</td>
<td>£ 6,853,016</td>
</tr>
</tbody>
</table>

Column 1 shows the Trust funded option. Investing £6m, paying the capital charges and maintenance, lets the Trust enjoy the energy savings. The CEF recommends that these are declared to finance at 80%, based on the NHS CHP fleet record. For example one Trust CHP broke a crankshaft in October, and finance could only afford the 6 figure repair bill in April. The Trust was hit by the double whammy of having the energy budget run out in January.

The same project done using the pilot project process has a better NPV of £5.3m, and the CEF process with its better interest rates and fees yields £6.9m
How the CEF is structured

Trustees: Funder, NHS(3), CEF(3), NHS SBS

- HCS
  - Funder
  - European Bank

- PFPM
  - WT
  - Millbridge

- NHS SBS
- Hill Dickinson
- Beachcroft’s

- Nifes
- Team
- Jacobs

Commercial & Financial

Project management

Procurement & Legal

Technical
The relationship between the parties to a CEF project

- **Trustees**
- **CEF**
- **Trust**
- **Contractor**

Oversight From NHS
Support Through Membership
Performance contract Guaranteed performance
Audit
The CEF is doing projects in tranches

Timescales

The Fund is to be released in tranches each 6 to 7 months apart. Each tranche will start when the previous tranche go to contract – this is a very quick process. The reason for having tranches is to ensure that the Fund and the specialist contractors can all cope with the increased number of projects.

The Tranches are planned as follows:

- July 2011 – The first 6 Trusts (already selected and full)
- February 2012 – The second tranche of 10 trusts (Expressions of interest are now sought – this will replace the current list which needs renewing)
- September 2012 – The third tranche of 12 Trusts (Initial expressions of interest will be logged)
- April 2013 The Fourth tranche of 14 Trusts

After September 2012 – there is expected to be a tranche of 16 Trusts every 7 months for as long as there is demand in the NHS
The tranches shown on a time line. The Trust pays for nothing until practical completion.
Joining the Fund
Trusts wishing to express interest in joining the fund, or be added to the fund update list should email EOI@carbonandenergyfund.net. More information on the fund is on www.carbonandenergyfund.net