Fully Automated Robotic Hospital Bed Washing Unit

Environmentally sustainable and auditable bed cleaning solution
Erasmus University Medical Centre, The Netherlands

The New Solution

Hygiene and infection control are key requirements for a modern healthcare facility. Erasmus University Medical Centre (Erasmus MC) needs to provide enough clean and disinfected beds for its daily operational needs. Following a period of market engagement, a tender process was launched for a solution to deliver 70,000 clean beds for patients each year using a cleaning process that is effective, auditable and environmentally sustainable.

This project produced a resource efficient, environmentally sustainable and auditable bed cleaning solution. The solution is fully automated and provides guaranteed precision cleaning for beds and mattresses.

Innovation often involves cross fertilisation between supply chains. The solution uses robotic technology, originally developed for car production lines, to solve the problem of bed cleaning in hospitals.

This new to market solution resulted from an Innovation Procurement by Erasmus Medical centre using the Forward Commitment Procurement method.

Innovation procurement projects are designed to create better solutions for the benefit of the healthcare sector.

Status

This project is currently concluding a demonstration phase prior to installation at the new Erasmus University Medical Centre building in Rotterdam early in 2015.

Once proven in demonstration this solution is ready for wider uptake within hospitals and other healthcare facilities.

The innovative nozzle and hot water technology that delivers consistent, precision cleaning can also be adapted for cleaning other equipment and wider hospital environment.

This project won the European Commission Innovation procurement Award 2014.

Collaboration and Replication

- Would you be interested in a solution that could deliver these outcomes?
- Would you be interested in a post demonstration study visit to see this new technology in action?
- Do you know of other innovative healthcare solutions that deserve replication?

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The solution is provided by Dutch SME IMS Innovations and it combines robot-technology from the car manufacturing industry with a patented nozzle.

The robotic arms are programmed to ensure that the hot water jets cover the whole of the bed surface.
Product Information

The robotic cleaning facility will provide cost-effective, precision cleaning and an auditable process for hygiene control purposes. Moreover, it will be highly resource efficient and environmentally sustainable. The benefits that this solution provides include:

- 35% reduction in Total Cost of Ownership
- 65% Reduction in carbon footprint
- Reduced water and chemicals use
- Consistent, precision cleaning
- Auditable cleaning process for infection control purposes

Get Involved

- Join the EcoQUIP collaborative procurement network and find out about new and emerging solutions and active innovation procurement projects to create or adopt new and better solutions, share good practice, or submit your own challenges
- Access professional development in innovation procurement through the EcoQUIP Leadership programme, delivered in collaboration with Cambridge University
- Join peer learning workshops and study tours

Find out more, access the resource centre or contact us: www.ecoquip.eu
IMI Future Ward Pod
Patient centred ward environment incorporating ultra-efficient biodynamic lighting
Rotherham NHS Foundation Trust, UK

The New Solution
This project produced a cost effective hospital refurbishment solution that delivered a step change in the patient experience and incorporated future ready Ultra Efficient Biodynamic lighting and storage.
This new to market solution resulted from an Innovation Procurement by the Rotherham NHS Foundation Trust using the Forward Commitment Procurement method.
Innovation procurement projects are designed to create better solutions for the benefit of the healthcare sector.

Status
The IMI Future Ward Pod is a new to market solution that is ripe for wider adoption.
An award winning demonstration was installed at Newham Hospital, Barts NHS Foundation Trust, London, UK.

The IMI Ward - Design Benefits
• Personal space and privacy
• Increased storage
• Bio-dynamic lighting
• Intuitive icon lighting control
• Modular and flexible solutions

The IMI Ward - Construction Benefits
• Off-site fabrication
• Factory made quality
• Quick installation
• Same cost as traditional
• Fewer suppliers and trades to coordinate

The IMI Ward - Operational Benefits
• Reduced patient anxiety
• Local linen storage
• Easy to clean and maintain
• Reduced energy consumption / cost
• Reduced maintenance time / cost

Collaboration and Replication
Would you be interested in buying this solution?
Would you be interested in a post demonstration study visit to see this new technology in action?
Do you know of other innovative healthcare solutions that deserve replication?

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Judges called the Newham University Hospital project, “an innovative lighting system, which comes as part of a modular patient room interior, a sea change in healthcare lighting, and a great example of ‘lighting for people rather than for buildings.’”
**Product information**

The IMI ward is an off-site fabricated, modular, future ready, integrated patient environment, improving the efficiency of the lighting and energy use. The product can be built to meet the brief of the customer (e.g. size, patients, colour).

The key features include:

- High quality off-site fabrication
- Easy to clean robust sustainable materials
- Patient focused design and ergonomics
- Daylight simulation lighting
- 30% Energy saving potential
- 80% Maintenance saving potential
- Quick, clean and coordinated installation

The IMI ward is an off-site fabricated, modular, future ready, integrated patient environment, improving the efficiency of the lighting and energy use. The product can be built to meet the brief of the customer (e.g. size, patients, colour).

**Get Involved**

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Find out more, access the resource centre or contact us: [www.ecoquip.eu](http://www.ecoquip.eu)
Ultra Low Carbon Energy Solutions for Hospitals
Nottingham University Hospitals NHS Trust, UK

The Project
Nottingham University Hospitals NHS Trust is one of the largest acute Trusts in the UK. In common with other healthcare organisations, the Trust faces unprecedented challenges associated with increasing energy costs; the pricing of carbon; the need for flexibility in building use in the face of changing healthcare provision; and the goal of a substantial reduction in CO₂ emissions. For the last 35 years the primary source of heat to the City Site has been a coal-fired boiler, which is now coming to the end of its useful life.

Initial market sounding identified that a distributed energy solution and the next generation of combined heat and power (CHP) technology, Fuel Cell CHP, could provide a cost-effective, flexible solution that would meet the Trust’s needs.

This project demonstrates the potential for the adoption of new solutions that are ambitious and can achieve more than a step-change reduction in energy demand and emissions.

The Requirement
The best solution for the Trust will be one that can demonstrate that it is:

- Cost effective (based on total cost of ownership)
- Reliable and resilient in operation
- Flexible in use - to meet variable demand efficiently
- Flexible in siting – low noise, low vibration, small footprint
- Future ready – can adapt to changing needs of the hospital estate, climate etc
- Low maintenance with minimal down time
- High energy efficiency
- Low operational and embedded carbon
- Ultra low emission - minimal emissions of greenhouse gases and other atmospheric pollutants i.e. NOₓ, particulates and other pollutants detrimental to health

Status
The second stage of the market consultation is now underway. It will assess the market’s response to the Trust’s requirements, following the initial market sounding, and enable the project team to refine the business case ahead of the tendering process.

The market consultation will explore in more detail the capacity, capability and appetite of the market to deliver a fully or partially distributed environmentally and economically sustainable energy solution for the Nottingham University Hospitals City Site, comprising energy generation, distribution and related infrastructure.

The market dialogue will determine availability and feasibility of:

- The adoption of Fuel Cell CHP as all, or part, of this solution
- Tri-generation to provide cost effective cooling e.g. for priority areas
- Options for energy demand management
- Non-capital financing options
- Grants and demonstration funding for innovative solutions (based on zero residual value)
Collaboration and replication

- Would you be interested in a solution that could deliver these outcomes?
- What ultra-low carbon energy solutions have other hospitals deployed?
- Do you know of other innovative healthcare solutions that deserve replication?

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Get Involved

- Join the EcoQUiP collaborative procurement network and find out about new and emerging solutions and active innovation procurement projects to create or adopt new and better solutions, share good practice, or submit your own challenges
- Access professional development in innovation procurement through the EcoQUiP Leadership programme, delivered in collaboration with Cambridge University
- Join peer learning workshops and study tours

Find out more, access the resource centre or contact us: www.ecoquip.eu
Eco-Textiles for Hospital Uniforms
Low carbon, environmentally sustainable hospital uniforms for staff comfort
Rawicz Hospital, Poland

The New Solution
Rawicz Hospital in Poland undertook a review of nurses’ uniforms, looking at their whole-life cost, environmental sustainability and user satisfaction. This process identified an outcome-based requirement for a new environmentally sustainable, low carbon uniform that was durable, attractive, comfortable and cost effective.
The outcome of this innovation procurement project was the purchase of uniforms made from a new eco-textile based on eucalyptus fibre. These have now replaced the traditional cotton uniforms used previously.

Status
The eco-textile uniforms have now been introduced within the hospital and are supplied by a local company.
There is considerable scope for replication.
The adoption of bio-materials and eco-textiles for use in hospital clothing and textiles could easily be replicated within other hospitals, with potential wider applications.
The moisture management quality of the fabric is also proving valuable in hygiene products, such as incontinence pads.

Product information
The benefits that have been gained by seeking an innovative solution are:
- New modern uniforms at lower whole life costs (-20%)
- Light, comfortable and durable uniforms
- Lower carbon life-cycle
- Moisture management and better hygiene
- Environmentally sustainable eco-textile (Eucalyptus fibre)
- When compared to cotton, they:
  - Use fewer pesticides in production
  - Use less water in production
  - Have higher fibre yields per hectare

Uniforms are made from a new eco-textile based on eucalyptus fibre

Communication
- Would you be interested in buying this product?
- Are there other applications where this textile could benefit patients and staff?
- Do you know of other innovative healthcare solutions that deserve replication?
Comment using the hashtag: #EcoQuipNetwork
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Get Involved
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This is an EcoQUIP replication and collaboration brief to communicate good ideas, stimulate collaboration in procurement, and promote take up of new solutions for the benefit of everyone who uses healthcare services
People Centered Low Carbon Catering
Driving progressive improvements in efficiency, quality and sustainability in hospital catering services
The Rotherham NHS Foundation Trust, UK

The Project
The Rotherham NHS Foundation Trust needed to stimulate innovation in the catering supply chain to deliver a modern and progressive approach to a new catering contract. Through a process of cross-departmental consultation and collaboration, they determined an unmet need for ‘people centered low carbon catering’ and stimulated innovation in the supply chain.

By adopting an innovation procurement approach (Forward Commitment Procurement - FCP) the Trust developed an outcome based specification, engaged the market in pre-procurement dialogue and managed a pro-innovation procurement process that facilitated the supply chain in bringing forward an innovative approach to hospital catering.

This project offers a model, specifications and evaluation criteria to stimulate the supply and wider uptake of innovative catering products and service. It also offers an opportunity for the sharing and wider adoption of good practice and pro-innovation procurement processes.

The project documentation is available on the The Rotherham NHS Foundation Trust Project web-page at:

Projected Outcomes
The final stages of the tender process will conclude by the end of 2014 and the Trust is confident that it will achieve the following outcomes:

- New patient centered approach to catering
- Nutrition monitoring and management
- Improved patient hydration
- Progressive reduction in operational and embedded carbon
- Better catering options for staff and visitors
- Soil Association Gold standard within 1 year
- Innovative products introduced in preparation and delivery of food and hydration
- Progressive improvements - innovation watch
- Improved relationship and communication between stakeholders and suppliers
- Potential for commercial operation for the Trust

Collaboration and Replication
- Would you be interested in a solution that could deliver these outcomes?
- Would you be interested in a study visit to find out more about driving innovation in catering?
- Would you like information about the innovative products and services being adopted?
- Do you know of other innovative healthcare solutions that deserve replication?

Comment using the hashtag: #EcoQuipNetwork
Follow us @EcoQuip
The Procurement Specification

The outcome-based specification stated that “The Trust wish to procure a catering service for patients, staff and visitors that is innovative, people centered environmentally sustainable and low carbon and demonstrates whole-life cost savings”.

It detailed the following requirements:

**Patient meals and nutrition**

The Trust requires an integrated catering service that:

- Demonstrates a step-change in both patient mealtime experience and nutritional care
- Facilitates patient recovery
- Enables involvement of nursing staff in meal provision and accurate assessment and recording of a patients daily dietary intake
- Delivers the right meal and nutrition to patients when required
- Is flexible and versatile
- Provides mechanisms for a constructive interface with clinical and nursing staff and for monitoring performance and progressive service development

**Staff meals**

The Trust needs to ensure that staff have easy access to nutritious, high quality, enjoyable and affordable food and drinks; available and delivered in a way that is convenient for staff and in tune with meal breaks and shift patterns. It should also provide, when required, a retreat from the patient environment

**Visitors**

The Trust wishes to provide affordable and accessible food and drinks in a relaxed and social setting that meets the needs of different types of visitors to the hospital

**Low Carbon**

The Trust requires the following environmental objectives to be achieved:

- Provision of a low carbon service with progressive carbon reductions over the life of the contract in both the catering service and the wider supply chain
- Reduction in food plate and food preparation waste
- A step-change in the environmental sustainability of catering services

Get Involved

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“Yet again the FCP approach has proved highly effective in drawing out an innovative response from suppliers that delivers better services, better outcomes and better value.”

John Cartwright
Director of Estates and Facilities
The Rotherham NHS Foundation Trust
Innovative Pressure Care Mattress
Pressure Care Management Solutions
The Rotherham NHS Foundation Trust, UK

The New Solution
A strategic review of mattress provision within the Trust highlighted scope for improvement in relation to assistance with pressure care management and reducing the environmental impact of end-of-life mattresses. At the same time, new guidelines required that all mattresses should be compatible with pressure ulcer prevention and management.

A cross-departmental project team was established and determined that there was an unmet need for mattresses that could adapt to meet each patient's comfort and pressure care management needs in an effective and efficient way, while increasing the environmental sustainability and reducing the carbon impact of mattresses.

The solution that emerged, following a market sounding exercise, was a new to market product - Harvest Prime Comfort Active Mattress. This product delivers the required outcomes in a cost-effective, adaptable solution.

Product website: http://harvesthealthcare.biz/32,0,new-products.html

Status
The Rotherham NHS Foundation Trust have now adopted this new to market product, have established a new mattress management and hygiene system and dispose of end-of-life mattresses to a local waste heat recovery scheme.

"We have been delighted with the performance of these innovative pressure care management mattresses, supplied by a small local company. They have made an important contribution to our 'take the pressure off' campaign."

Donna Jones, Head of Facilities Services

Collaboration and Replication

• Would you be interested in buying this product?
• Would you be interested in a study visit to see the hospitals pressure care management programme in action?
• Do you know of other innovative healthcare solutions that deserve replication?

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Product information

The Prime Comfort Active is a high risk static mattress replacement which has the facility to be stepped up to a very high risk dynamic system if needed. If the patient requires stepping up to a higher level of pressure relief the carer simply has to connect the pump supplied with the mattress to the integral hoses and turn on.

This mattress also has a unique feature called Heel Safe Technology. The feature helps to further reduce the level of pressure on the heels of a patient.

The Prime Comfort Active not only provides excellent pressure relief but also gives great patient comfort. Foam core can be replaced without disposing of the whole mattresses; removable anti-bacterial mattress covers can be washed at 71oc. The product can be fully sterilized in an auto-clave if required.

Collaboration and replication

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Low Carbon Solution to Maintain the Thermal Comfort of Patients
Sucha Beskidzka Hospital, Poland

The Project
The County Hospital in Sucha Beskidzka provides healthcare services for over 80,000 inhabitants of the Sucha Beskidzka County and also for neighbouring counties. The hospital boasts 442 beds in 10 hospital wards. The problem facing the hospital, however, is that over two thirds of patients and many high dependency patients are located on the south-side of the building and high summer temperatures are leading to the thermal discomfort of at risk patients and staff. This problem is expected to worsen with climate change.

In addition, there is now a legislative requirement for all hospitals to provide shading from sunlight for all patients rooms, by 31st December 2016. Current solutions are proving inadequate e.g. shutters and blinds that darken the rooms without reducing the temperature significantly, leading to an increased use of lighting. In addition, the use of air conditioning units is proving costly from the point of view of energy and carbon emissions.

Requirement
After a review of the current situation, the project team determined they required a cost effective, low carbon solution to maintain the thermal comfort of patients and staff.

The solution should deliver the following outcomes:
• Reduction of excessive sunlight in patients rooms
• Thermal comfort for patients and staff
• Energetic self-sufficiency of a solution
• Meeting health and safety standards
• Comfort of usage
• Improve thermal comfort in winter time
• Cost effective based on whole life costs

Status
Following a process of market sounding and technical dialogue, a tender has been launched and is currently in progress. During a series of consultations with other hospitals, it was identified that the problems and future requirements of this project are common to many other hospitals, hence a wider market potential for any forthcoming solutions identified.

Communication
• Would you be interested in a solution that could deliver these outcomes?
• Would you be interested in a post demonstration study visit to see this new technology in action?
• Do you know of other innovative healthcare solutions that deserve replication?

Comment using the hashtag: #EcoQuipNetwork
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Collaboration and Replication
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Innovation in Cleaning of the Healthcare Environment

Effective, safe, and environmentally sustainable cleaning of the hospital environment
Sant'Orsola Polyclinic, Bologna, Italy and the Rotherham NHS Foundation Trust, UK

The Project
Cleaning services are an essential part of the Clinics effective and safe operation and this is a common requirement of all hospitals.

Retendering of the Clinic’s hotel services contract is providing an opportunity to explore with the supply chain how cleaning and infection control services can be improved and how innovative solutions can contribute to better, more sustainable and cost effective outcomes.

The requirement is for cleaning services and solutions that can:

• Provide an accurate and auditable record of cleaning outcomes
• Rapidly identify at risk areas
• Minimise the use of chemicals
• Minimise all aspects of environmental impact (including embedded carbon)
• Minimise risks to staff, patients and visitors, including cross infection
• Reduce whole-life costs
• Support and add value to the infection control agenda

The clinic invites contributions from the supply chain and peers about solutions that could deliver some or all of these outcomes and also information about other goods, services and procedures that could contribute to ever better infection control.

Collaboration and Replication

• Would you be interested in a cleaning solution that could deliver these outcomes?
• Are you aware of solutions or services that could deliver these outcomes?
• Would you be interested in joining a buyers group for innovative cleaning solutions?
• Do you know of other innovative healthcare solutions that deserve replication?

Comment using the hashtag: #EcoQuipNetwork
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Get Involved

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• Access professional development in innovation procurement through the EcoQUIP Leadership programme, delivered in collaboration with Cambridge University
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Find out more, access the resource centre or contact us: www.ecoquip.eu
Leadership Programme for innovation procurement in healthcare

Autumn 2015 – Madingley Hall, Cambridge

The University of Cambridge Institute for Sustainability Leadership has been running high-level workshops for private and public sector participants for 25 years and has over 6000 alumni worldwide.

This Autumn 2015 leadership programme is sponsored by EcoQUIP. The aim of the EcoQUIP project is to improve the efficiency, quality and environmental sustainability of healthcare through the strategic use of procurement to drive innovation in the supply chain.

Efficiency, quality and sustainability for better health care outcomes

The seminar will be delivered over 3-days and will bring together an ‘Innovation Procurement Leaders Group’ to develop and increase competence in innovation procurement and the capacity to pioneer new approaches to collaborative procurement. Dates will be announced in January 2015.

Seminars will explore how environmental changes and social trends are creating new strategic imperatives for health, and will help professionals from the healthcare sector to explore the co-benefits of approaches that enhance environmental sustainability, improve health, and deliver financial savings.

The programme builds on the world-class, multidisciplinary strengths of the University of Cambridge and its international network of leading business practitioners, civil society and policy leaders.

Our approach aims to be inspiring and positive, with a focus on practical implementation as well as an understanding of the context and the broader political, technical and behavioural drivers for change.

The workshops and seminars will take a very practical, pragmatic approach; encouraging participants to show how delivering the triple outcomes of efficiency, quality and sustainability is increasingly part of the core agenda, and how to position themselves as thought and action leaders in the field.

To cater for individual and collective learning, a series of intensive sessions will combine different learning approaches. Participants will be encouraged to apply their experience, challenges, opportunities and knowledge to the practical issues and challenges they, and others, face. The group will be encouraged to be part of the continuing delivery mechanism for future programmes. A key outcome of the seminar will be to identify joint and collaborative actions that can be realised through the EcoQUIP project and Horizon2020*.

Find out more about EcoQUIP, CISL and H2020

http://www.cisl.cam.ac.uk
www.ecoquip.eu

*Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020)
European Procurers Platform - eHealth
Transforming the Market for eHealth Solutions
Horizon 2020 spin-off project on the procurement of eHealth solutions

Background
The market potential of eHealth remains high despite the negative effects of the economic crisis. The global telemedicine market grew from $9.8 billion in 2010 to $13.8 billion in 2012 and to $16.1 billion in 2013. Market projections for 2018 indicate a $35.1 billion market, representing a five-year compound annual growth rate of 16.9% from 2013 to 2018.

"Information and Communication Technologies (ICT) applied to health and healthcare systems can increase their efficiency, improve quality of life and unlock innovation in health markets." 

The aim of the EPP-eHealth project is to transform the market for eHealth solutions through dialogue and innovation procurement. The project seeks to create a network of procuring organisations that understand the opportunities that eHealth can offer and have competence in innovation procurement and the capacity to pioneer new approaches to collaborative procurement. As well as stimulating demand for eHealth goods and services and creating a robust framework for practical procurement (public procurement of innovation – PPI – and pre-commercial procurement – PCP –) outcomes within the period of the project, it will also serve as a leading procurers group for the wider population of some 15,000 hospitals in Europe. The infrastructure of the project will enable the stakeholders to come to a common understanding of the barriers to widespread take up and replication of eHealth solutions and determine how these needs will be overcome through practical policy and procurement actions. The network will begin with a core group of leader hospitals and stakeholders and widen through the course of the project through advocacy, engagement and regular web-based dissemination actions. A key outcome will be the identification and communication of common unmet needs and the development of a practical implementation plan for PPI and PCP projects that address these needs. EPP-eHealth will create a critical mass of procurers that will proactively develop forward procurement plans to create a coherent demand for eHealth solutions.

Current Status and Requirement
This project was recommended for H2020 funding and is expected to commence in January 2015.

Public Procurement of Innovation (PPI) is a crucial challenge for public bodies. The “usual” way of purchasing goods is based solely on the price of the product. Life cycle costing, supply chain analysis or group purchase is rarely used, which means opportunities to get innovative products are missed that would give purchasers competitive advantage. Therefore, there is an urgent need to start developing networks of procurers. These networks will enable them to identify common needs, conduct market analysis, understand the supply chain, use these tools to comprise a higher procurement volume, and achieve a bigger impact on suppliers. It will also allow them to voice their unmet needs, create a new demand to access sustainable products of higher quality, and develop new applications with lower life cycle costs.

1 According to BCC Research study of October 2013
2 eHealth is the use of ICT in health products, services and processes combined with organisational change in healthcare systems and new skills, in order to improve health of citizens, efficiency and productivity in healthcare delivery, and the economic and social value of health. eHealth covers the interaction between patients and health-service providers, institution-to-institution transmission of data, or peer-to-peer communication between patients and/or health professionals.
Scope for Collaboration and Replication

This project aims to transform the market for eHealth solutions through dialogue and innovation procurement by developing a network of procuring organisations - all of whom recognize the opportunities eHealth can offer.

Find out more, access the resource centre or contact us: www.ecoquip.eu

Get Involved

• Do you have unmet eHealth needs?
• Are you aware of adoption barriers of eHealth solutions?
• Would your organisation like to join the network of procurers and/or attend workshops?
• Are you aware of any organisations that have used innovation procurement to overcome barriers and deploy eHealth solutions?

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Brief background
The efficiency and source of energy used by the healthcare sector has significant implications for the health of local and global populations. Energy inefficient healthcare systems based on fossil fuel sources is widespread in Europe and, typically, few links are made with the associated negative health consequences. Infrastructure, such as hospitals, could contribute to better health outcomes by improving their energy efficiency and moving away from fossil fuel generation and, in the process, become leading examples for other sectors to follow. In so doing they could also reduce financial risks associated with changing healthcare demand and increasing energy prices. Furthermore where such action is taken there are two additional benefits. Firstly, there may be significant savings made which can then be available for investment in direct patient care. Secondly, security of energy supply should form part of the sustainability strategy for hospitals to ensure long-term reliability of services – a hospital cannot function without energy.

There are limited funds in Europe to build new hospitals and those that exist have significant potential to become more energy efficient and less reliant on fossil fuels. The main improvements, as a sector, will therefore arise from energy efficiency and renewable energy actions as part of refurbishment and retrofit activities. However, the drivers for action in this area require strengthening. Barriers need to be overcome to support the healthcare sector adopt existing solutions and actions are also required to support the healthcare system demonstrate leadership in energy efficiency and renewables use due to the associated health impacts of fossil fuel use.

Instead of being an exemplar of how to minimise the risk to human health from climate change and poor air quality, the healthcare sector is behaving in a way that would be unacceptable for industrial companies.

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1 The other five are concerned with electric vehicles, energy efficient renovation of residential property, energy producing buildings, ICT in transport and PV products.

Key issues
The key issues for healthcare systems and the demand for energy efficiency and renewable energy have been identified as:

- Lack of comparable energy benchmarking data
- Limited access to finance and investment
- Lack of knowledge transfer and skills development for energy
- Lack of recognition of the health impacts of energy choices
- Lack of strategic direction and incentives to address energy in healthcare
- Risk aversion limiting adoption of innovative solutions

Vision and main actions
In response to these issues, the following framework for a demand-side roadmap is proposed. This could transform the sector from its current unsustainable energy position to become a global leader.

Strengthen Drivers
The current low level of adoption of energy efficiency and renewable energy by hospitals can be attributed to a general lack of drivers for action. The link between a hospital’s energy choice and health impacts is not typically being made.

The potential operational cost savings and positive contribution to ongoing sustainability performance related to energy efficiency and renewable energy systems is also an important driver that could be strengthened.

Changing healthcare demands have also created uncertainty about future infrastructure requirements, resulting in increased investment risk. This requires strategic clarity about the future requirement to reduce investment risk. There are limited incentives for healthcare stakeholders to address energy use and supply. Without additional incentives (e.g. regulatory push and/or demand pull based incentives) then stakeholder behaviour is unlikely to change.

The proposed actions to strengthen drivers are summarised below:

- 1. Linking Health with Energy Choices
  - 1.1 Health impacts of climate change
  - 1.2 Health impacts of local air pollution
  - 1.3 Health impacts of fuel poverty

- 2. Demonstrating Cost and Sustainability Benefits
  - 2.1 Operational cost savings
  - 2.2 Lifecycle sustainability improvements

- 3. Providing Strategic Charity and Aligning Incentives
  - 3.1 Strategic review of infrastructure
  - 3.2 Link EU energy policy and Structural Funds
  - 3.3 National energy policy alignment
  - 3.4 Procurement of health as an outcome
  - 3.5 Market driven reputational drivers
  - 3.6 Healthcare specific targets

Energy4Healthcare VISION 2025
The European healthcare sector has become a global leader in energy efficiency and community renewable energy systems. Many are becoming both carbon and cost neutral. The average cost of energy is less than 1% of healthcare budgets and the sector is well on its way towards reducing its 2050 carbon footprint to less than 20% of 1990 levels.
1. Linking Health with Energy Choices
   1.1 Identify, develop and promote evidence about the health impacts of climate change and link to healthcare energy choices
   1.2 Identify, develop and promote evidence about the health impacts of local air quality and link to healthcare energy choices
   1.3 Identify, develop and promote evidence about the health impacts of fuel poverty and the role of the healthcare sector in preventative action

2. Demonstrating Cost and Sustainability Benefits
   2.1 Identify, develop and promote evidence demonstrating the operational cost savings potential of energy efficiency and renewable energy systems
   2.2 Identify, develop and promote evidence demonstrating the contribution of energy efficiency and renewable energy systems to lifecycle sustainability strategies

3. Providing Strategic Clarity and Aligning Incentives
   3.1 Strategic infrastructure review of healthcare facility provision to reduce investment uncertainty
   3.2 Clarify link from EU energy policy to EU Structural Funds for healthcare investments
   3.3 Energy policy alignment at a national level to identify the contribution of the healthcare sector to National Energy Efficiency Action Plans and National Renewable Energy Action Plans
   3.4 Procurement of health as an outcome to incentivise action to reduce health impacts of fossil fuel use and reduce fuel poverty
   3.5 Develop market driven reputational incentives to reward action
   3.6 Establish healthcare specific targets related to energy efficiency, carbon reduction and air quality pollution reduction

Address Barriers
Even with strengthened drivers in place interventions are still required to address barriers to action. Skills development and knowledge sharing about energy efficiency and renewable energy in healthcare needs further development. Low cost dissemination of this knowledge across Europe requires a new approach using web-based platforms such as the Global Green and Healthy Hospitals Network. Such a platform could provide access to best practice approaches to energy efficiency and renewables by the healthcare sector. It would also have the potential to facilitate low cost training through webinars, etc.

Overcoming financial barriers through innovative approaches, partnerships and guidance to accessing EU funds is a key area to enable the healthcare sector to adopt existing solutions already used in other sectors. The removal of legislative and policy barriers is an important step in some countries.

The proposed actions to address barriers to action are summarised below.

4. Developing Skills and Sharing Knowledge
   4.1 Improve knowledge sharing networks across the European healthcare sector (with reference to existing platforms such as the Global Green and Healthy Hospitals Network)
   4.2 Identify and disseminate best practice approaches to energy efficiency and renewable energy systems adoption

5. Adopting Existing Solutions
   5.1 Identify and develop best practice in offering innovative financial solutions to supporting the European healthcare sector
   5.2 Develop and disseminate guidance to access EU funds for energy efficiency and renewable energy systems in healthcare
   5.3 Support partnership approaches between healthcare facilities and others to develop community based action
   5.4 Reduce barriers to finance for healthcare sector investment, where relevant (e.g. removal of restrictions on access to private finance)
Energy Leadership

The healthcare sector could be a strong advocate for the development and collaborative demonstration of future energy solutions that will reduce the harmful health impacts of climate change. A first step would be that the transparent and comparable reporting of energy performance data by the healthcare sector should be encouraged. This will require actions to address data quality and comparability to enable benchmarking. Recognition of best practice through certification and awards should add to incentives for action and provide a credible source of information which the market can use as part of its selection criteria.

Innovation in the energy for healthcare market is low and should be increased, given the importance of publicly funded services playing a lead role in driving innovation. This will require engagement with the energy efficiency and renewables supply chains and access to funding to support technical innovation. Changes to short term energy infrastructure procurement will also be required. Introducing innovative procurement methods, based on desired outcomes rather than prescriptive technical specification, is a key action.

The proposed actions to address barriers are summarised below.

**6. Reporting and Recognition of Performance**

1. Work with stakeholders, such as Eurostat, to improve the availability of baseline data on healthcare sector energy use and renewable energy adoption
2. Establish an energy efficiency benchmarking system to enable healthcare facilities to compare their performance with peers
3. Develop and disseminate European framework guidance on energy performance reporting by the healthcare sector
4. Develop certification and award schemes to recognise organizational and individual energy leadership (taking into account best practice national examples such as the BUND Label in Germany)

**7. Lead Market for New Solutions**

1. Engage with the energy efficiency and renewable energy supply chains to address energy challenges of the healthcare sector
2. Support technical innovation demonstration projects to overcome healthcare energy challenges
3. Support the adoption of innovative procurement methods for healthcare energy systems based on outcomes rather than prescriptive technical specifications

**Questions for stakeholders**

1. Validation/development of the issues limiting the adoption of energy efficiency and renewable energy systems by hospitals and the wider healthcare system
2. Views on the 2025 Vision statement
3. Validation/development of the proposed actions to address the issues
4. Views on which stakeholders should be involved in the actions to address the issues

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