Engaging hospital personnel in searching for energy solutions

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Sucha Beskidzka Hospital

RES Hospitals Project

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RES Hospitals: Goals

50% renewable energy sources by 2020

ENERGY EXPERT KNOWLEDGE

Rise of energy efficiency

Reduction of CO_2 emission (with perspective to zero carbon hospital)

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Expert knowledge

Experts

Expensive

Additional problem: price-based public procurements

'Seen it all'

May lack innovative approach

… or are very expensive

Highly specialized

Experts on energy may not be experts on hospitals

… or are very expensive

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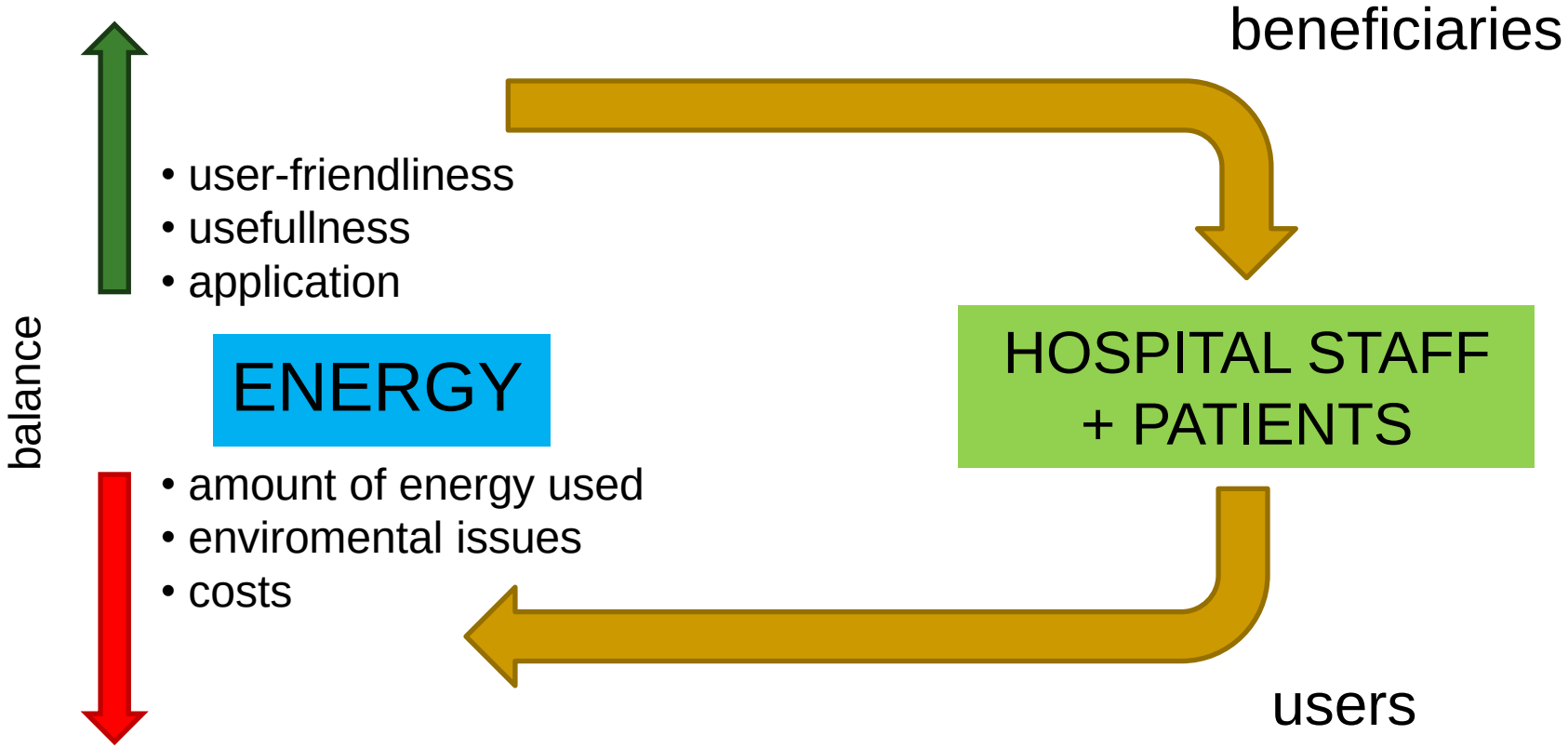
Energy in hospitals



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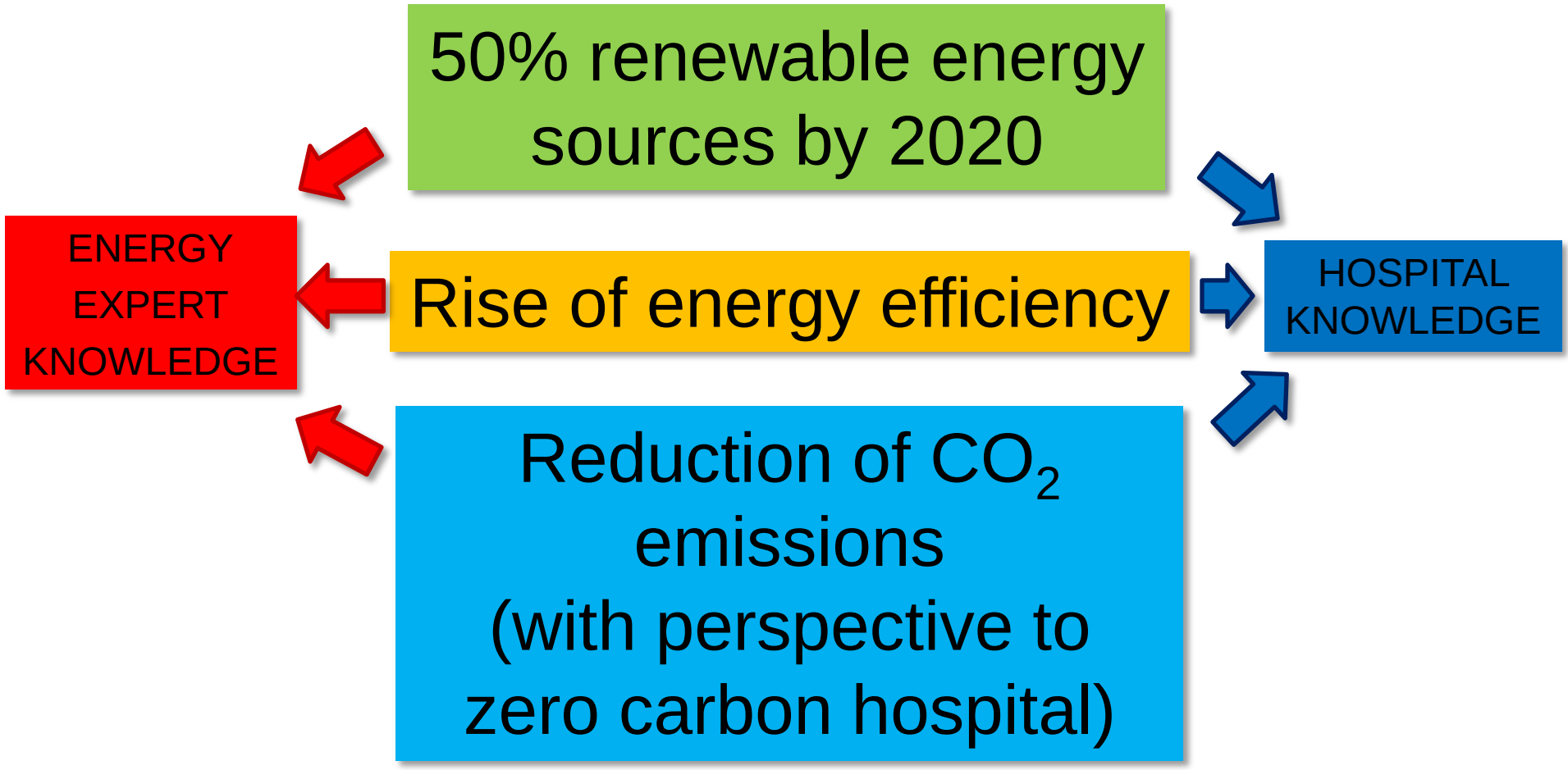

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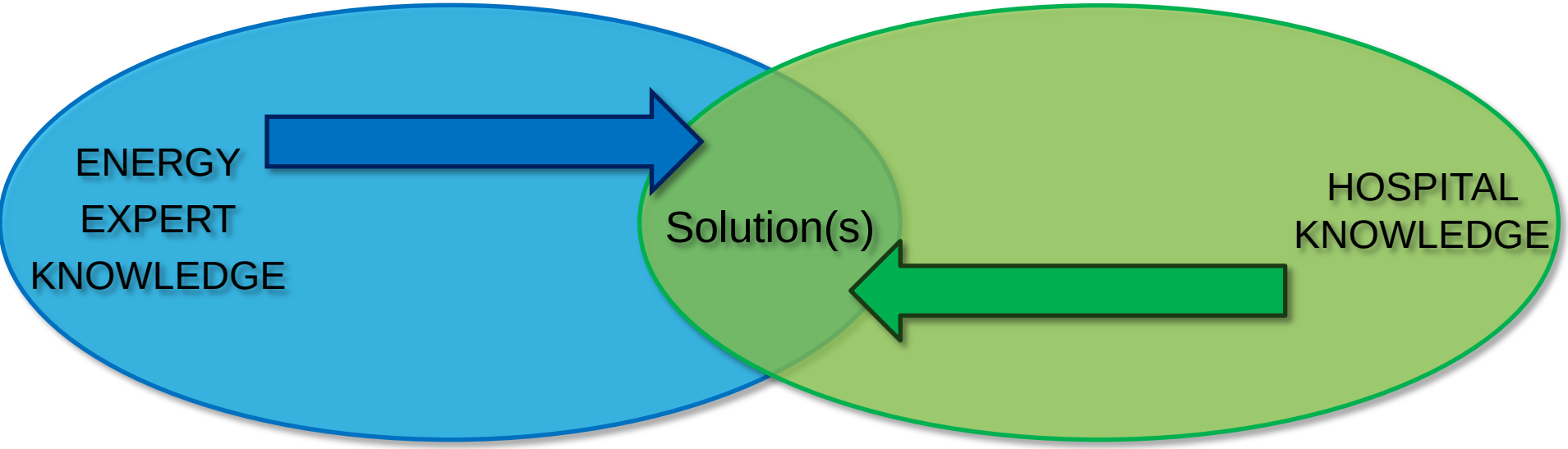
Birth of the idea

Finding middle ground



- Meetings with subcontractor
- Pointing out key issues
- Evaluating their work through other experts specialising in healthcare

- Presenting a goal
- Providing with tools
- Motivating

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RES Hospitals workshop

Saving energy – improving processes

Finding solutions

- No-investment or low-investment solutions
- Saving energy
- Reducing CO_2 emissions
- Eliminating waste

Rising awareness

- Changing behaviour patterns
  - Through workshops
  - Through projects
- Providing knowledge concerning renewable energy sources

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RES Hospitals workshop

Lectures

Common effort

Team effort

Individual effort

Games

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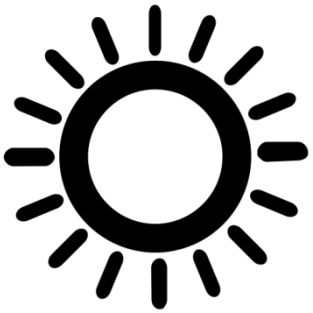
Patient and personnel thermal comfort solution

According to a decree of Minister of Health all hospitals must address this issue by 2016

Problem addressed	In summer patients' rooms are exposed to extensive sunlight
Aim	Secure patient and personnel thermal comfort
Means	Search for a solution that protects from extensive sunlight and heat



Idea started during the workshop became a backbone of planned innovative procurement under EcoQUIP project

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Eco-friendly procurement

Problem addressed	Public procurements focus on price criteria
Aim	Include eco-friendly and CO_2 requirements
Means	Create a tool that can be used by procurement department

	X_1	X_2	X_3	X_4	X_5
A_1	218	9	7,5	380	3
A_2	190	8	6,2	265	2
A_3	198	8	6,4	240	2
A_4	196	8	6,5	250	2
A_5	207	7	7,8	290	3

Methodology in now being discussed with procurement department and will be (from next year) used as a default way of running procurements by the hospital

$$q_5(A_i) = \frac{x_{5.i} - 2}{3 - 2} = \frac{x_{5.i} - 2}{1} = x_{5.i} - 2$$

$$A_2 \; f \; A_5 \; f \; A_4 \; f \; A_3 \; f \; A_1$$

$$q_j(A_i) = \frac{x_{j.max} - x_j(A_i)}{x_{j.max} - x_{j.min}}$$

X_j	X_1	X_2	X_3	X_4	X_5	$n(X_j)$
X_1	X_1	X_2	X_3	X_1	X_5	2
X_2		X_2	X_2	X_2	X_5	4
X_3			X_3	X_3	X_5	3
X_4				X_4	X_5	1
X_5					X_5	5
					Total	15

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Reusable operation clothes

Problem addressed

Single use operation clothes produce a lot of waste

Reduced waste

Aim

Identify waste free alternative

Reduced CO_2 emission

Means

Feasibility study of reusable operation clothes

Life long cycle costs nearly 5 times smaller than traditional solution

Fulfils hospitals' requirements

Comfortable

Cheaper than clothes already used (life long cycle costs)

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Cost-effective and eco-friendly way of making hot drinks

Problem addressed

Hot water used to prepare tea and coffee is not produced efficiently

Aim

Identify the best way of preparing hot drinks in the hospital

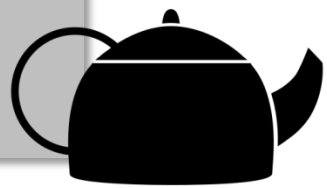
Means

Compare possible ways of preparing hot drinks

- Convince management to buy them
- Convince staff to use them

Potential annual savings:
- 10,675 kWh
- 5,130 PLN

(~1,300 EURO)



Options for heating water	Gross cost **in 6 days** (348 hot drinks) [PLN]	
	One cup	Two cups
600 W heating/cooling kolumn	10,8	10,8
700 W microwave	9,0	12,9
1 500 W kettle	5,6	5,2
2 200 W kettle	9,4	4,7
2 750 W kettle	11,5	5,7
Gas stove	(more than 6,3)	6,3

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Education event

Problem addressed	Hospital staff is using energy inefficiently
Aim	Identify the areas in which energy is most wasted and change them
Means	Conduct a survey amongst hospital staff and launch an educational compaign aimed at energy saving

- Created a survey
- Conducted research (research sample: 200 employes from various departments)
- Identyfied key areas of energy waste
- Planned remedial measures
- 1) Information compaign (inlcuding budget)
  - Posters
  - Leaflets
  - Energy ambasadors
- 2) Educational events

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Workshop ending

14 June 2013

Teams presented outcomes of their work to hospital's management, RES Hospitals project representatives and each other.

'Please make sure that we include those ideas in hospital's next strategic plan'

- Marek Haber, Sucha Beskidzka Hospital Director

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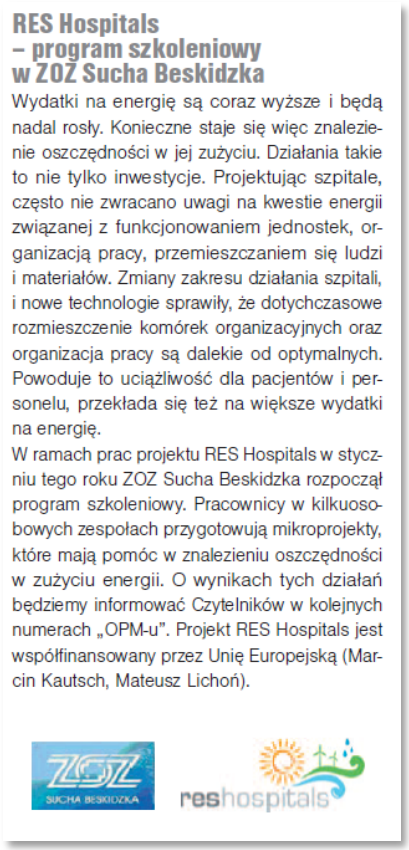
Dissemination

Local authorities' website

Local news website

Powiatsuski24.pl

Nationwide newspaper



RES Hospitals – program szkoleniowy w ZOZ Sucha Beskidzka

Wydatki na energię są coraz wyższe i będą nadal rosły. Konieczne staje się więc znalezienie oszczędności w jej zużyciu. Działania takie to nie tylko inwestycje. Projektując szpitale, często nie zwracano uwagi na kwestie energii związanej z funkcjonowaniem jednostek, organizacją pracy, przemieszczaniem się ludzi i materiałów. Zmiany zakresu działania szpitali, i nowe technologie sprawiły, że dotychczasowe rozmieszczenie komórek organizacyjnych oraz organizacja pracy są dalekie od optymalnych. Powoduje to uciążliwość dla pacjentów i personelu, przekłada się też na większe wydatki na energię.

W ramach prac projektu RES Hospitals w styczniu tego roku ZOZ Sucha Beskidzka rozpoczął program szkoleniowy. Pracownicy w kilkuosobowych zespołach przygotowują mikroprojekty, które mają pomóc w znalezieniu oszczędności w zużyciu energii. O wynikach tych działań będziemy informować Czytelników w kolejnych numerach „OPM-u". Projekt RES Hospitals jest współfinansowany przez Unię Europejską (Marcin Kautsch, Mateusz Lichoń).

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Outcomes

- Operation clothes are to be purchased by the end of the year
- From next year new procurement methodology is to be used by the hospital
- Patient thermal comfort is the fundament of hospital's innovative procurement (EcoQUIP Project)

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Thank you for your attention

For further information:

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Pictograms source: http://www.freepik.com

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