THE OCB ENERGY VISION

TO PROVIDE TECHNICALLY, SOCIALLY, ENVIRONMENTALLY AND ECONOMICALLY RESPONSIBLE ENERGY SOLUTIONS ADAPTED TO CONTEXT AND NEEDS, OFFERING THE BEST SETUP TO OUR OPERATIONS.

MSF OCB's activities are increasing in number and complexity. Energy production and use is key for MSF's operations, and ensuring quality energy production has become more important in recent years. Innovative long-term energy solutions adapted to MSF's different operational realities are needed; solutions focused on beneficiaries and staff health, and which are appropriate for particular contexts or environments. From this need arises the following project, developed between June and December 2017, with the aim of aiding in the extension of the OCB energy vision: evaluating the potential of all energy alternatives (renewable and non-renewable), and helping to increase our impact on beneficiaries. As a means of achieving this general objective, the study proposes three questions:

1. What is the current energy situation in OCB?
2. What is our desired energy situation?
3. How can we reach this envisioned energy situation?

In order to answer these three main questions, we followed an ad hoc methodology based on quantitative and qualitative research techniques, using semi-structured and unstructured interviews, questionnaires, workshops, external literature review, and internal data analysis. In total we conducted 4 months of data collection, wherein qualitative methods were essential as they enabled a deep exploration of different stakeholders' aspirations and views on energy.
The methods were also useful for understanding interactions between different actors and for identifying relevant issues in enacting the proposed solutions developed in this report.

Following that methodology and based on the different approaches that currently frame energy-based interventions in the humanitarian sector, we set our own approach to energy which will guide our analysis. This approach creates a **link between energy and health based on an energy system perspective**. Within this understanding, an energy system becomes a flexible and dynamic system which seeks to be reliable, cost-efficient, and sustainable, and where the introduction of innovative solutions appropriate for the unique and challenging contexts of our operations is actively encouraged, consequently resulting in an improvement of our impact on our beneficiaries.
Building on that approach, the study reveals and proposes the following key elements structured around the three main questions.

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THE CURRENT SITUATION: WHERE ARE WE NOW?

MSF sees its strength in its identity as a humanitarian emergency organization, but a **majority of its projects last for five years or longer** (sometimes even decades longer).

There is a **need to establish planning processes that allow for long-term solutions to shape operations**, which are appropriate to local conditions and which may differ from those that are fast and effective in an emergency context.

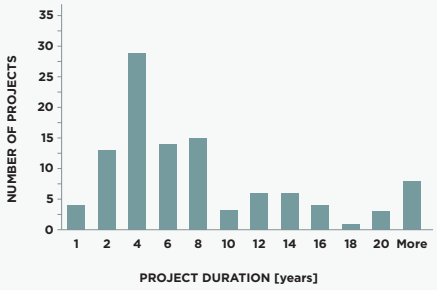
Growing attention has been given to HVAC systems due to their nature as an often high-energy consuming service for which the demand is increasing. In some setting as much as **60%-80% of the overall energy is used to ensure a suitable indoor climate and to prevent airborne infections**.

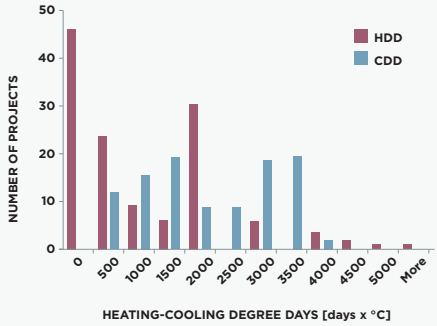
Slightly less than 80% of OCB projects have grid access (pay electricity bills), but a majority use generators. We estimate around **350-400 stationary generators are currently deployed globally**, with an average size of about 60-65 kVA and a total generation capacity of more than 20,000 kVA.

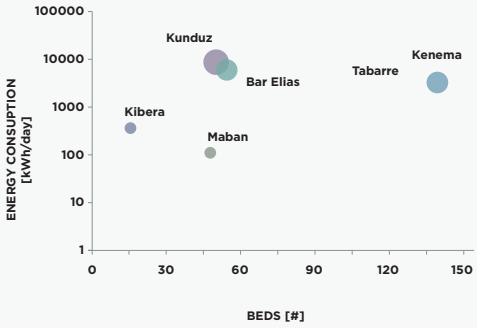
In 2016, OCB used around **5,000 m3 of fuel** (equivalent to about 5M€ excl. costs related to transport of fuel).

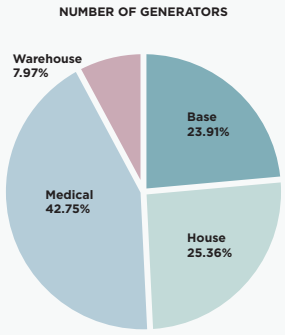
The carbon footprint related to the combustion of 5,000 m3 of fuel amount to around **13,500 tonnes of CO2**, of which around 4,000 tonnes of CO2 might be related to the diesel used in generators. The emissions related to electricity bought from the grid may add, as a rough estimate, another 2,000 tonnes CO2 (5000 m3 of diesel would take a Toyota Land Cruiser almost 1000 times around the equator).

One of the major challenges when trying to gain a wider overview of the OCB energy setup is the **lack of reliable and consistent data**. The reporting systems in place are not used consistently which undermines their potential informed decisions.









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DESIRED FUTURE SITUATION: WHERE DO WE WANT TO GO?

Desired improvements are largely reflected in the initiatives that are already in progress; the implementation of **passive energy solutions and energy saving measures** are discussed as parallel activities to **increase the use of renewable energies**. Interest in energy storage is raised in relation to intermittent renewable energies and non-electric energy sources.

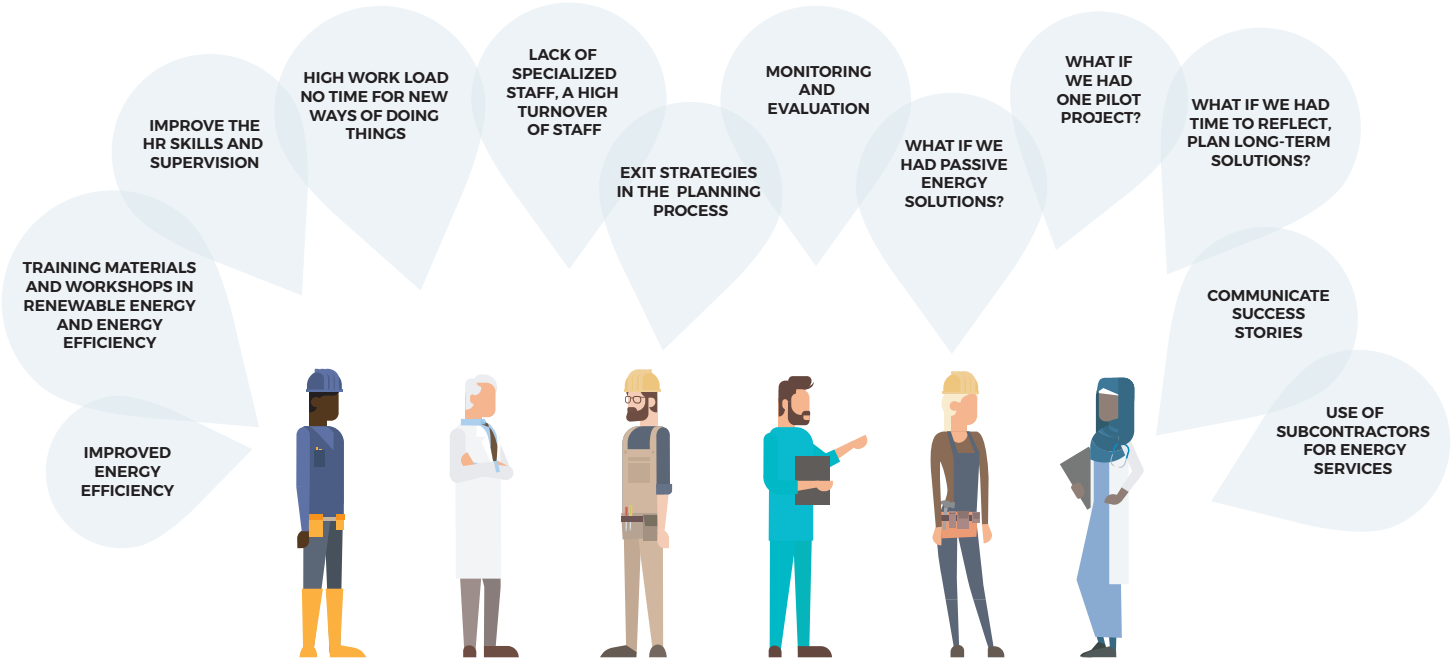
The lack of reliable data from the field is recognized, and better continuity of information is desired partly to **improve the understanding the actual energy use within our projects**, and to **enable a re-assessment of the needs behind that energy demand.**

There is a wish to have **more time available for the planning process of projects** in order to allow for appropriate solutions to develop from interdisciplinary cooperation.

Limitations of internal HR capacities along with the growing complexity of projects incentivise the **use of more external partners and subcontractors to provide energy services**.

Internally, the implementation of the new Log Vision strives to open for the **inclusion of competences and expertise held collectively by the OCB community**.

Increase the diversity of the energy system to improve robustness and make some services less electricity grid dependent so as to improve both safety and continuity of services.



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CONCEPTUAL SOLUTION PROPOSALS: HOW DO WE GET THERE?

Based on the current energy reality and on the desired energy vision, we propose several **actions** structured around 4 key elements: **mind-set change, capacity building, monitoring, and technology**. Those elements are concurrently the core pillars of **the road-map** developed in order to help the energy team to further build an action plan towards the implementation of the expanded OCB energy vision.

CHANGE OF MIND-SET

Set up a strategic communication in order to establish **support for a more long-term approach** to our operations.

Create a vocabulary for **effective communication** of an expanded energy concept in which electricity is an important subset.

Define **relevant performance indicators** that link between energy and the final services that that infrastructure supports, as well as between energy and health.

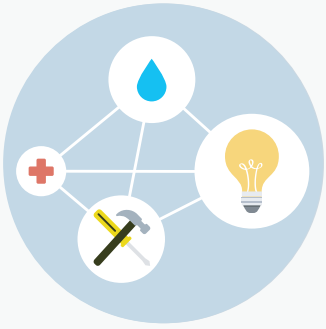
Communicate good initiatives taken in the field or at other level of the organization, and support champions that lead the way.

CAPACITY BUILDING

Create internally validation of resources, **training material** and support documents on energy concepts **beyond the standard solutions for electricity systems used today**.

Increase the number of technical managers and people with a **professional knowledge of electricity and energy**; explore new ways of recruiting from that category.

Create space and time for **deeper collaborations across the technical families** to co-create appropriate solutions.



Evaluate the **use software tools to support design of energy systems** and potentially assess building energy properties.

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MONITORING

Well-chosen **energy-related data available remotely and well visualized**, could provide support to improve the operation and management of technical systems in the field. It could also give valuable (and missing) input for planning interventions on the energy setup.

Allow for **standardized automated monitoring systems** which could complement existing manual data collection routines.

Assessing or re-assessing the actual service needs as they directly relate to the quality of care we offer to our patients and staff and the creation of suitable environments for our operations. Given the limited insight in the energy systems of individual projects, **energy audits** can be designed to map the situations in the field, regarding both infrastructure and its use.

TECHNOLOGY

Hence, **hybrid electric or thermal systems combining** several generations of technologies are required, and in most cases together with energy storage: **new battery technologies and thermal energy storages**.

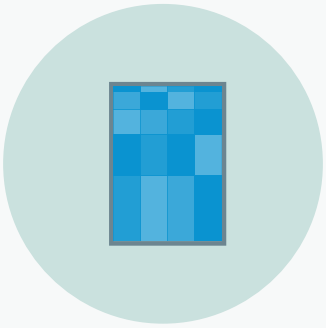
The integration of for example **solar thermal** into the energy systems, could offer a low tech passive solution, appropriate to many contexts and readily availability in many places.

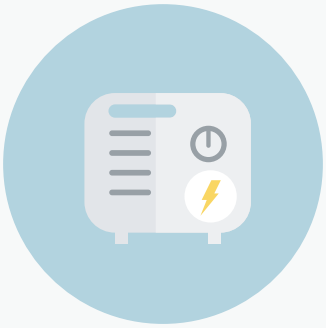
As generators and incinerators will continue to serve MSF settings for a time to come, technology to **recuperate the waste heat** might be investigated further as a possibility to increase fuel efficiency.

Flexible operating loads like ACs, perhaps along with a thermal storage, to match available solar resources via PV electricity production (potentially as a stand-alone unit) is of high interest given the increasing use of AC in the field.

Create ways to **capture energy-related initiatives from the field** and **increase cooperation with external actors and service providers**.

Integrate simple technical solutions such as automatic door closers, LED lighting, motion sensor lights, efficient water dispensers, and power consumption visualisation to reduce unnecessary energy waste.





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THE ABOVE RESULTS GIVE US THE KEY ELEMENTS OF THE CURRENT AND DESIRED ENERGY PICTURE. WITH THESE INPUTS, AND TOGETHER WITH THE SUPPORT OF THE RELEVANT STAKEHOLDERS, THE ENERGY TEAM HAS FORMULATED A COMPREHENSIVE AND COLLECTIVE ENERGY VISION TO IMPROVE OUR OPERATIONS.

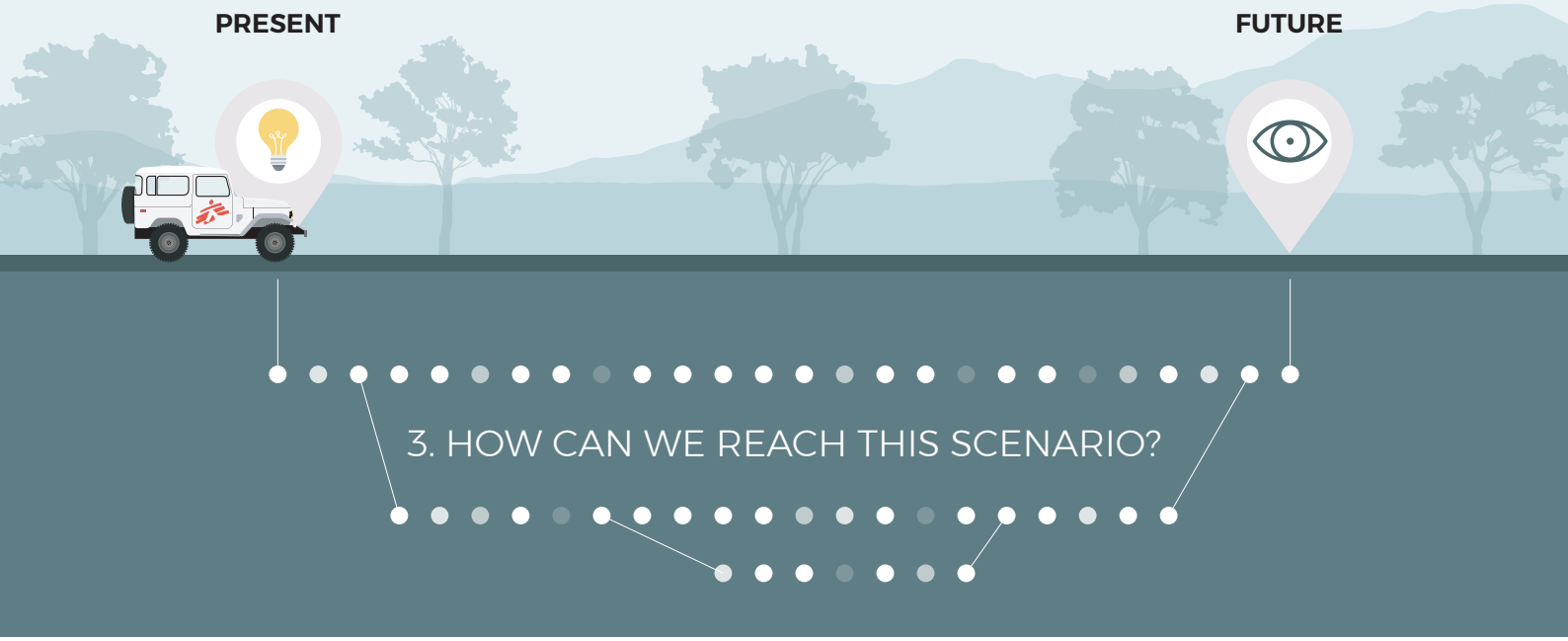
WHAT ARE YOU WAITING FOR?
JOIN US ON THIS JOURNEY!

1. WHAT IS THE CURRENT ENERGY SITUATION IN OCB?

2. WHAT IS OUR DESIRED ENERGY SITUATION?

PRESENT

FUTURE



3. HOW CAN WE REACH THIS SCENARIO?

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