



Fight Covid-19

Reinforce resilience. Accelerate recovery.

20 April 2020



COVID-19 poses an unprecedented challenge to humankind. To overcome this crisis, ENGIE is fully committed to the health and safety of all its stakeholders. Every day, we carry out essential tasks to maintain energy supplies and critical services, and ensure the proper functioning of public transport and buildings, especially hospitals.

Medical authorities are under pressure and action has already been taken to optimize and reinforce existing critical infrastructure capacity, mobilize all qualified personnel and reduce the occupancy rate of hospitals by postponing non-urgent procedures and treatments. Yet despite these measures, health services around the world remain in a critical state.

As a global leader in corporate responsibility and with our technical expertise and knowledge of the healthcare sector, ENGIE is not just in a strong position to design and implement initiatives that can reduce the burden of COVID-19 – it's our duty.

“ENGIE’s purpose is to act to accelerate the transition towards a carbon-neutral economy, through reduced energy consumption and more environmentally-friendly solutions. [...] and reconciles economic performance with a positive impact on people and the planet.”

People have always been at the heart of what we stand for. Today they need us more than ever.

Now is the time to be resilient. To work fast. To work together.

Having helped clients and territories combat various crises throughout our long history, resilience is in our DNA. And with an established, robust network that spans 20 countries and reaches hundreds of millions of people in several sectors, we’re already in a place to help governments amplify official guidelines and reinforce resilience to reduce the impact of the virus and accelerate recovery.

We’ve already implemented several initiatives that focus on these priorities, from providing free electricity in Italy and France, providing gas and technical assistance for the construction and extension of new medical units in Italy, to offering free EV charging for critical sector workers.

And now, FightCo19 proposes several new initiatives to quickly address the increasing needs of hospitals, clinics and governments before, during and after COVID-19-peak. These solutions can be adapted to COVID-19 patients directly, or can be designed for other types of patients to indirectly reduce the burden from the disease.

I. “Hospital”: rapid conversion of hotels and other facilities into hospitals

CONTEXT :

In an effort to contribute to the fight against coronavirus, and to reduce the consequent burden on hospitals, we propose to increase the capacity to receive patients in other facilities temporarily transformed into hospitals, “Hospitals”.

PROPOSAL

ENGIE proposes a rapid transformation of existing infrastructures into hospital extensions. This would be a reversible transformation, on-request.

The idea is to gather ENGIE entities efforts to help governments “build” temporary hospitals, based on suitable **hotels, parking lots, stadia, exhibition halls or gymnasiums**, where necessary.

Depending on the requirement and local priorities, the site can be conceived to receive either Covid-19 or other populations (homeless, migrants...).

Thanks to our expertise on this field (air quality, ventilation, distribution of medical gases, management of refrigeration facilities, emergency generators, electricity infrastructures, heat etc.), we can accompany governments from prospection to site management, through design, installation works, decontamination, commissioning and facility management. We can mobilize our experts of Tractebel (project management and design) and teams of ENGIE Solutions (implementation) dedicated to healthcare sector.

We have physical presence in around 20 countries today with such expertise at the service of 350 hospitals and clinics in France, 93 in Italy, and around 70 in UK and Belgium together. Our people can be mobilized quickly.

REFERENCES

- In partnership with **Médecins Sans Frontières** in Belgium, we have transformed a youth hostel in Lier into a centre to welcome contaminated patients leaving hospital and requiring medical attention (27 rooms, 78 beds). The conversion took less than 10 days, and first patients arrived beginning of April.
- In March, ENGIE installed an inflatable tent at **CHC Liège**, Belgium to help the hospital with the sorting of patients.
- ENGIE is installing oxygen lines in a temporary hospital being deployed at the **National Tennis Center** in Queens, NY, USA (mid-April).
- Change of facilities for emergency usage in Singapore's largest hospitals: **KK Women's & Children's Hospital** (830 beds) and **Ng Teng Fong General Hospital** (700 beds).
- We have the experience of **working in crisis mode**, in missions as requested by the UN and in compliance with their requirements: temporary hospitals in tents, providing equipment and services.



- Creation of **NHS Nightingale hospitals** in London, with 3,600 beds. ENGIE team moved to a 24/7 operation and strengthened resilience of critical heating and cooling systems to support the British Army.

- Conti has transformed the TCF Center, **Michigan's largest convention center**, into a field hospital with 1,000 beds serving non-critical coronavirus patients. Working with the U.S Army Corp of Engineers, the rapid transformation only took one week.



- Installation of three additional refrigeration units at **Queen Elizabeth Hospital**, Birmingham, UK, to doubling the mortuary capacity to 200.

UNDER PROSPECTION

- We have had discussions with **Accor Group**, which is ready to mobilize empty hotels with us (70 hotels at a standstill to date) to transform them into hospitals.
- We continue to work with **Médecins Sans Frontières in Belgium**, to make infrastructures suitable for either patients or infected vulnerable people to be quarantined.



II. Conversion of surgery blocks into intensive care units

CONTEXT

A very large number of intensive care beds will be needed in the short term to accommodate COVID-19 patients with a severe form of the disease at the peak of the epidemic. At the same time, due to the postponement of surgeries, the operating blocks are being under-utilized in clinics and hospitals.

PROPOSAL

ENGIE proposes to design and carry out in less than 10 days the - reversible - transformation of surgery blocks and possibly recovery rooms into intensive care units, in order to meet the growing demand for the treatment of patients seriously affected by COVID-19.

To transform surgery blocks into intensive care units, we need to reverse the air pressure to create containment and thus prevent any air from spreading outside the hospital. This technique is at the heart of our expertise.

REFERENCES

- Extension of a hospital and response to the demand for intensive care beds, **Henri Mondor Hospital in Créteil, France.**



- Early opening of a new clinic to accommodate Covid-19 patients, with a total of 400 beds, **Private Clinic of Courlancy in Reims, France.**
- Expansion of Intensive Care Unit capacity for two hospitals in New York City, USA: **Coler Hospital** with 4 floors converted by the end of March and **North Central Bronx Hospital** with 5 floors under conversion.
- Rapid conversion of hospital rooms into negatively pressurised ICU rooms at **Calvary Mater Hospital in Newcastle, Australia.**
- Expansion of critical care by utilising theatre space to provide an additional 28 beds at **Queen Elizabeth Hospital, Birmingham, UK.**



III. Ventilators and pharmaceuticals: converting industrial production

CONTEXT

In approximately 5% of COVID-19 patients, the disease degenerates into pneumonia and requires hospitalization under respiratory assistance. Italy has been facing a lack of those devices, and a rapid spread of the virus that causes COVID-19 can also spark alarm in other countries.

On top of that, other industries, such as pharmaceutical, are likely to be under pressure in the short term to respond to growing demand for COVID treatment (medicines) and prevention (vaccines).

PROPOSAL

ENGIE has a long-standing reputation in the design and installation of production lines (out of process) for the pharmaceutical and chemical industries, automotive, agro-food and beverage, aviation. As more automakers answer the call to manufacture ventilators during the COVID-19 crisis, ENGIE puts its skills at the disposal of the national effort to build or adapt production lines to match the COVID-19 crisis growing demand for ventilators.

Similar know-how can be put in place to realise industrial conversion in the pharmaceutical sector once a treatment will be found against COVID-19, to accelerate drugs production. We can therefore provide the required technical skills to increase manufacturing capabilities or convert production lines from the design, construction, commissioning to maintenance, in the shortest possible time.



REFERENCES

- ENGIE NORAM's Conti is providing solutions to Ford's Rawsonville Components Plant in Ypsilanti, Michigan, USA, from engineering design and material supply to installation of over **100 new workstations customized for ventilator manufacturing**. Production is to start on April 20th to make 50,000 ventilators within 100 days, and 30,000 per month after that.
- Conti is also working on-site at the **General Motors plant in Indiana**, USA, to create the facility upgrades needed to start manufacturing up to 200,000 life-saving ventilators.
- ENGIE supported the non-profit organisation **Gear Up Medical** in the development of an intelligent breathing apparatus, through the combined expertise of ENGIE Solutions in Belgium, Tractebel, Laborelec, among others, in the industrialisation phase.

IV. Digital solutions for urban resilience

CONTEXT

In view of the difficulties of predicting risks in general and public health in particular, it is essential to take into account each stage: before, during and after the crisis, whatever its scale.

Looking at the restart phase after the Covid-19 peak, digital technologies will be crucial to improve the resilience of the system in terms of security and risk mitigation.

PROPOSAL

In addition to continuity plans, particularly for energy and associated services, the digital expertise and innovations acquired by ENGIE in the field of public space security or information flows enable it to establish a comprehensive vision of the interdependencies between systems. ENGIE can support the authorities in a number of subjects: CCTV, drones, robots, protection of sensitive sites; cyber security; smart cities, Identity and access management, etc. ENGIE's digital platforms for cities and city operations are more than ever critical for a more resilient city management. In fact, facing the upsurge of cyberattacks, especially against operators of vital interest and critical infrastructure in times of crisis, ENGIE has many expertise and tools deployed successfully.

REFERENCES

- **ENGIE's CyberProtect solution** enables to secure information and computer systems applied to critical sites (hospitals, research laboratories, ...) in a context of increased attacks and flows.

- With references in more than 60 countries over the last 25 years, **Siradel** has been modelling thousands of cities in 3D, publishing 3D simulation and visualisation software, offering its expertise for the integrated planning of infrastructures and projects for the transformation of connected, sustainable, resilient and attractive territories. ENGIE Siradel's products and services can be applied in the field of smart cities and we are developing, together with the authorities in **IDF region (Paris region)** a directory of information on COVID-19 for citizens, companies, health actors.
- ENGIE Siradel also offers a dedicated solution of integrated risk management: **"Asphales"** uses specially adapted methods, procedures and technologies: Data base, Logical tree drawing, Data geo-localization, Effects area exploitation, Measures management, Dashboard, Actions management, Decision making help, Document management...).



V. Taking care of people: monitoring patients in rehabilitation and keeping the social bond with those in isolation

CONTEXT

Isolation is already a particularly relevant public health issue in normal times and the current confinement period in several countries increases this isolation. The longer this period lasts, the greater will be the exposure to the elderly and other people at risk.

On top of that, national systems are operating at their limits, even in terms of health care staff, and that is limiting the ability to deliver care to patients suffering from less urgent pathologies or in rehabilitation phase. However, after being released from intense care, patients still require a recovery time of several weeks under supervision.



PROPOSAL

ENGIE proposes two innovative platforms to help address those issues:

With Ôgénie, ENGIE promotes the social bond with senior people and contributes to keeping them longer at home. This digital tool gathers actors involved

in the well-aging in a territory (cities, associations, social landlords) and makes services for the elderly easily accessible (services to the person, health prevention, mobility solutions, meal deliveries, culture...).

For patients in rehabilitation after intensive care or people in quarantine, ENGIE offers a mobile monitoring solution, AbilyCare, jointly developed with the French Army Health Service and Institut Borelli in Paris. It monitors and provides quantified assessments of biomarkers for locomotion, equilibrium, frailty, etc. The mobility of the equipment, the remote access to the data for the doctors, and the ability to have the tests performed by any trained paramedical staff makes it particularly well suited for use in monitoring patients in quarantine or in recovery after intensive care.

REFERENCES

- Ôgénie has been used daily for more than a year in a community of seniors in **Rillieux-la-Pape, France**, and now, in partnership with Groupe SOS, it's being deployed in **Moselle, France**, a region heavily-stroke by the pandemic.



- During the Covid quarantine, ENGIE makes **Ôgénie digital platform free** of charge for tailored solidarity spaces. Quick information for the elderly, and communication at an individual level with the seniors and isolated people is indeed crucial in this time of crisis.
- AbilyCare has been tested since Q1 2019 in the rehabilitation service of Cochin hospital at **AP-HP in Paris** and it's now being used to evaluate rehabilitation workshops for elderlies in Ile-de-France and in La Réunion Island.



For more information
on our expertise to face the crisis,
please have a look at our website:

www.engie.com/en/covid-19-continuity-service

In addition, our Group also put in place
a number of solidarity initiatives.
Some of them are available on this website:

www.engie.com/en/front-tag/covid-19-mobilization