With more than 150 years’ industrial experience and as a global energy and services group, ENGIE has set itself the aim of leading the energy transition in Europe, particularly through innovation. This dynamic drives the whole Group to convert good ideas into operational solutions for its clients.

ENGIE favors entrepreneurial creativity and close connections to innovative ecosystems that contribute to the Group’s long-term development.

To achieve this aim, ENGIE uses its “ENGIE New Ventures” Corporate Venture Capital €171M fund, which has already made 21 investments in startups. Also, the Group regularly issues Calls for Projects from startups. ENGIE has created several “New Business Factories” around the world. They combine internal and external talents to give birth to new innovative offers.
In 2019, more than ever, innovation is at the heart of our strategy. Consumers, whether they are businesses, local authorities or individuals, are now used to high value-added services in all activity sectors. Their purchasing decisions are made knowingly and they expect a high level of service as well as a great ease of use and control from their suppliers, especially thanks to the digital tools.

For ENGIE, this issue is particularly important since we are an energy company. To decarbonize the world economy by 2050, we need a steady pace of innovation, to develop technological solutions and accelerate their use in daily life. To become a leader in the zero-carbon transition, our strategy is to develop both digital and services to effectively meet our customers’ demands and feed our infrastructure and energy production activities with renewables and gas.

Furthermore, to attract new talents, ENGIE must remain a place where the expression and creativity of all its employees can thrive.

ENGIE employees have every reason to be proud of the 100 innovations presented in the booklet you now hold in your hands. In all our activity sectors, you managed to create new ways of producing, thinking, working, adapting our offers to the diversity and the specific needs of our customers. These innovations demonstrate that we have the means of our ambitions, and above all, that we are a community united by the will to contribute in a positive way to the evolutions of the societies we serve.
For more than 30 years, the Innovation Trophies have recognized our employees’ innovations. The projects are selected over several months before the competition winners are chosen. One highlight is when nominees present their project to a Grand Jury, who selects winners. The interest in this event, which has been part of the Group’s history for more than three decades, underlines employees’ enthusiasm for inventing solutions that help to transform the energy and services industries.
APPLICATIONS FROM 48 COUNTRIES

52
SHORT-LISTED PROPOSALS

160
APPLICATIONS SELECTED BY GROUP’S BUS

520
APPLICATIONS FROM 48 COUNTRIES
CIRCULAR ECONOMY OF BIOMASS ASHES

We have incorporated an industrial waste, ashes from our biomass boiling rooms, in a filter to clean biogas in substitution of active carbon, a polluting product. Doing this, we reduce cost treatment of these ashes, and improve biogas carbon footprint. Cylergie, with SOVEN and DeltaLys, support the development of this new international sector (replicability).

Christophe PASCUAL, Michel BDYADJIAN, Pierre RENNESSON, Raphael GENIN

THRIVING IN CIRCULAR ECONOMY

From river waste to bioproducts in mini Hydro. Business based on the circular economy. This solution uses an innovative technology capable of transforming non-recoverable vegetable waste from the river into a business opportunity by selling biocoal. The biocoal produced has an energy efficiency far superior to traditional alternatives and the process is without emissions, without water consumption and without waste generation.

Mirian CORDERO, Mar CASANOVAS, Vicente MARTÍN, Carlos TREMPS, Irene OGEA

WIND TRACK

When ENGIE wind turbines do not let the wind escape!
The study and the optimization of the reactivity of the wind turbine in front of the wind direction changes have demonstrated the increase of its production, this by ensuring the integrity of the machine, all by modifications purely software. Usually, studies on yaw focus on static misalignments of windmills. Here, for the first time, we are optimizing the control-command aspects of the machine.

Sophie GUIGNARD, Thomas DUC, Damien BRUYÈRE, Thomas MUSEUR, Marc VAN CAILLIE, Nicolas GIRARD, Colin LE BOURDAT

SEA TITAN

Building a faster, stronger and more efficient wave power conversion system.
ENGIE Fabricom has partnered into SEA TITAN, a European consortium to develop a disruptive, generic and modular linear generator. The project aims at a clear step change in wave energy by designing and validating a generic Direct Drive Power Take-Off (PTO). The proposed linear solution leads to higher robustness, higher efficiency, less used material and hence lower costs and higher reliability.

Dennis RENSON, Nik VAN SOETENDAEL, Alain GODDYN

How to realize our ambition towards a Zero Carbon transition and preserve the environment including in urban areas? As a start, let’s develop circular economy, optimize renewable energies efficiency, promote the use of “new” gas like biomethane and hydrogen, co-build “Zero Carbon” cities and industries…

8 100 INNOVATIONS 2019
Tackle the issue of Urban Air Quality.

Based into the framework of a PPP scheme, we propose a new business model to improve the Urban GHG reduction, providing funding and investments through the economic exploitation of CO₂ eq abatement measures at City level. Thanks to the application of ENGIE LIVIN', the innovative digital interconnection and supervision platform, we will be able to collect data and information in real time on the territory and to return a dynamic analysis of the urban environmental context, with a particular application focus on the calculation of the environmental footprint of the urban area itself.

**LILIBOX**

**Flexibility Platform for Biomethane**

The "Little Liquefaction Box" allows biomethane producers to get full value of their production without network constraints.
BIM TO CIM

Pioneers of the BIM, we continue to develop our know-how and our partnerships with innovative young companies to extend our scope to cities with 3D simulations, Big Data, Open Data, co-construction of tomorrow’s energy efficiency, and quality of life on a daily basis.

BIM & CIM IN ACTION

Building and City Information Models to design cities of the future.

The aggregation of millions of urban data in the framework of CIM (City Information Modeling) / BIM (Building Information Modeling) approaches makes it possible to address issues of urban planning, mobility, energy and the environment. Partnerships between technological startups recently acquired by the group (SXD, SIRADEL) and traditional business units (Axima, Ann Nouvelle, Réseaux) encourage the definition of innovative and cross-functional business models through projects “in action” that illustrate the rise of ENGIE in the real estate and urban development value chain.

NEW MILESTONE: THE GOAL OF 100 BIM REFERENCES HAS BEEN REACHED

The BIM Life adventure continues with the digital avatar! Thanks to the BIM Life digital avatar, we can now manage building life and optimize buildings’ usage from the design to the operation-maintenance, throughout the life cycle of the building. The ENGIE Axima BIM Factory has become a key player in BIM with more than 100 references. The 2019 target is a backlog of 10 new “BIM Life” projects, with hospitals and aquatic centers as priority targets.

100 INNOVATIONS 2019

CREATING SMARTER AND MORE SUSTAINABLE CITIES WHILE IMPROVING URBAN MOBILITY

Deployment of a revolutionary Intelligent Traffic System for an optimized urban mobility in a smart city perspective.

Deployment of a revolutionary Intelligent Traffic System (ITS), Variable Message Signs (VMS), CCTV and a scalable data network (based on EPON technology) in Niterói – Brazil. These systems and technologies were integrated by MAESTRO – our open, customizable and innovative software – which optimized urban mobility (by 30%), improved sustainability, facilitated traffic management and created the foundation for additional digital services, amplifying the smart city concept.

BIM TO CIM

A TRUE CONCENTRATE OF INNOVATIVE TECHNOLOGIES TO MANAGE CRISIS SITUATION.

KAIROS command center meets specific needs of security operational teams in providing a wide spectrum of what is taking place on the field – in real time. KAIROS helps commanders in immediate and appropriate decision-making and allows them to manage the most critical situations thanks to artificial intelligence and disruptive patented technologies.

KAIROS

France BtoB • ENGIE Axima / France

Leonardo DA SILVA MATTOS, Jonas MARIANO, Flavio VERAS, Médéric DE LA HOUSSEY

Globale Business Support, New Corp-BtoB, ENGIE Digital

Vincent VANDENBERGHE, Romain PETIT, Eamon DRUMM and more than 40 people from ENGIE Digital, ENGIE Ineo, ENGIE Brazil, ENGIE NECST, Métier BtoB, Siradel
BUILD LOCAL ECOSYSTEMS

Energy transitions require to re-invent territories on a local scale. Together, we are stronger!
Here are some examples combining inventiveness, data modeling and expertise to help “co-transform” the local ecosystems.

— TERR’NR

New replicable model of partnership with local communities for the development of renewable energies.

The implementation of a new form of public-private partnership negotiated over the counter allows a majority private operator and minority public actors to form a company whose purpose is the production of decentralized renewable energy, without theoretical limitation of duration and without submission to the constraints of the public order. For example, the Renewable Energy Society of Montalaisir (SEREM) was created in September 2018 in Angers. This “SAS ENR”, a simplified joint-stock company whose purpose is to produce renewable heat, brings together Angers Loire Métropole, Caisse des Dépôts et Consignations and ENGIE Networks. As a 65% shareholder, ENGIE Networks will be in charge of the construction of a biomass power plant and a heat network as well as the operation of the whole for a period of 30 years.

— REDUCING THE LIGHTING FOOTPRINT ON TERRITORIES

For a better societal and environmental integration.

In the current context of biodiversity erosion, reducing the light footprint is a major issue, as it is estimated that 30% of vertebrates and 65% of invertebrates are nocturnal in whole or in part.

Our approach aims to reduce the light footprint of our activities, towards a territorial integration that complements the technological expertise on lighting solutions.

This offer will enable the ENGIE group to create value either directly for industrial and tertiary assets or indirectly as a differentiating element in calls for tenders.

— SOCIAL FOOTPRINT

Innovative digital solution valuing HR impact of ENGIE on French Regions.

It enables ENGIE representatives to engage in a dialogue with local elected officials (senators, deputies, mayors) and prefects by showing them the economic, social and societal impact of ENGIE on their territory in terms of jobs, number of employees, links with educational schools and universities. This much expected application, by being both simple and intuitive, gives a visual presentation of transversal data, from every sector of the Group, and is developed in-house with standard solutions.

— BUILD LOCAL ECOSYSTEMS

Energy transitions require to re-invent territories on a local scale. Together, we are stronger!
Here are some examples combining inventiveness, data modeling and expertise to help “co-transform” the local ecosystems.

— TERR’NR

New replicable model of partnership with local communities for the development of renewable energies.

The implementation of a new form of public-private partnership negotiated over the counter allows a majority private operator and minority public actors to form a company whose purpose is the production of decentralized renewable energy, without theoretical limitation of duration and without submission to the constraints of the public order. For example, the Renewable Energy Society of Montalaisir (SEREM) was created in September 2018 in Angers. This “SAS ENR”, a simplified joint-stock company whose purpose is to produce renewable heat, brings together Angers Loire Métropole, Caisse des Dépôts et Consignations and ENGIE Networks. As a 65% shareholder, ENGIE Networks will be in charge of the construction of a biomass power plant and a heat network as well as the operation of the whole for a period of 30 years.

— REDUCING THE LIGHTING FOOTPRINT ON TERRITORIES

For a better societal and environmental integration.

In the current context of biodiversity erosion, reducing the light footprint is a major issue, as it is estimated that 30% of vertebrates and 65% of invertebrates are nocturnal in whole or in part.

Our approach aims to reduce the light footprint of our activities, towards a territorial integration that complements the technological expertise on lighting solutions.

This offer will enable the ENGIE group to create value either directly for industrial and tertiary assets or indirectly as a differentiating element in calls for tenders.

— SOCIAL FOOTPRINT

Innovative digital solution valuing HR impact of ENGIE on French Regions.

It enables ENGIE representatives to engage in a dialogue with local elected officials (senators, deputies, mayors) and prefects by showing them the economic, social and societal impact of ENGIE on their territory in terms of jobs, number of employees, links with educational schools and universities. This much expected application, by being both simple and intuitive, gives a visual presentation of transversal data, from every sector of the Group, and is developed in-house with standard solutions.
**NEWCASTLE REGENERATE PARTNERSHIP**

Newcastle / ENGIE partnership to regenerate the city.

A pioneering partnership between ENGIE and Newcastle City Council to support the Council’s objectives of de-carbonizing the city and improving the living standards of City's residents, through the development of district energy schemes and other energy projects and services including energy efficiency, demand response, renewable energy, EV infrastructure and energy storage, over a 40-year term - to 2050 and beyond.

**MHYRABEL**

An innovative model of energy transition in a rural area.

Supporting rural areas in their energy and local transition: set up, in rural areas, a production and distribution station for green hydrogen produced from local wind farms to supply carsharing.

**ENGIE ZERO**

An innovative approach to 'Whole House' refurbishment.

ENGIE Zero is a radical whole-house retrofit solution which transforms existing inefficient homes to net zero energy through the introduction of energy efficiency solutions. The funding model enables the capital costs of these measures to be spread over the long term via a financed energy plan with guaranteed savings, which results in no net increase in costs to the occupier.

**ZERO EMISSION VALLEY**

An innovative project setup to launch hydrogen mobility in a region.

Tipping the Mont Blanc Valley territory towards hydrogen mobility, through a public/private alliance to design, build and operate a network of 20 green hydrogen stations and deploy a fleet of 1,000 vehicles.

**SPEED**

Through the SPEED project, the ENGIE group is the first energy company in its capacity as the last operator and institutional owner to have ceded with constraint to rehabilitate part of its real estate assets (former industrial sites) for new uses through the implementation third party claim proposed by the ALUR law. The first phase of site requalifications will be the building of some 2,200 lodgings on 150,000 sq. meters between 2020 and 2024.

**SAM**

Aligning ENGIE brand with social causes on a harmonious progress.

Since 2009, ENGIE Brazil performs voluntary allocation of resources to promote social transformation and contribute to Sustainable Development. ENGIE Brazil developed a system which centralizes in one unique place all the Corporate Social Responsibility requests made from the communities to the company. A digitalization process that guarantees AGILITY, CONTROL and TRANSPARENCY in all donation and sponsorship processes.
ACCESS TO ENERGY

Access to energy is a condition for wellbeing and human development. Today, technology, digitalization and decentralization allow to be more innovative than ever.

SUSTAINABLE SOLUTIONS FOR HOMELESSNESS

A fast and effective solution to a complex, high priority social problem by providing a groundbreaking, unique offering to finance, design, build, maintain and power affordable new accommodation to help Local Authorities tackle homelessness. The solution is decentralized, decarbonized and digitized, creating long term organic growth through an infrastructure and asset-led business model which combines ENGIE’s energy, services and regeneration capabilities.

UK / United Kingdom

Caris HENRY, Sam HODKIN, Haydn SCARBROUGH, Karl LIMBERT, Dan GERMANN

AFRICA / Uganda

Luke HODKINSON, Emma FREDERICK, Farhan NAEEM, Jesus VILEGAS, Andrew TMMINns

AFRICA / Uganda

Terry KARUNGI, Albert LIMU, Andrew WEKESA, Gilbert TURYABASA, Paul RWEMALLA, Bineyam AFEWORK

AFRICA / Tanzania

Quentin PERIES-JOLY, Frédéric MADRY
MOBILITY

New mobilities are here...“as a service”: with electricity or hydrogen, from micro-mobility to collective transports, while controlling your EV charging at distance.

DISRUPTIVE E-MOBILITY SOLUTIONS AS A SERVICE IN CHILE

How Engie became the major e-mobility player in Chile.

With 50 e-taxis and 100 e-buses, ENGIE Chile entered the e-mobility market with a complete set of integrated solutions offered as a service (financing of the vehicles and chargers + design, installation and O&M of the charging infrastructure + green energy supply + digital solutions) breaking all the barriers our customers were facing to embrace e-mobility. As a result, ENGIE became the major e-mobility integrated player in Chile with a total investment of ~USD 35.0 million.

HYSTART

Green and local hydrogen to make mobility accessible.

Hystart is a solution providing a hydrogen production and refueling station as a service, over a period of a few years and for a fleet of a few vehicles. With Hystart, ENGIE Cofely supports the zero-carbon transition of its customers by introducing them to hydrogen mobility.

FLEXCO MOBILITY

An easy electric vehicle solution for everyone, everywhere.

Flexco is an innovative front runner end-to-end electric mobility solution integrating our many capabilities and those of car leasing from our strategic partner, Arval (BNPP). Adapted for every client, carried simultaneously by several ENGIE BUs with the same business model architecture and with local adjustments, Flexco ambitions to position ENGIE as a leader in the affordable and competitive energy transition through electric vehicle business.

MOTMOT®

A multimodal mobility startup created by ENGIE Factory to offer shared electric mobility solutions as a Service (MaaS) for B2B and B2C users.

MotMot® is currently under validation phase, launching a fleet of 50 electric kick scooters for micro-mobility and 50 electric mopeds for mid-range mobility in Puebla, Mexico. This will allow the Company to measure the impact of multimodal transportation. MotMot® is also in discussions to integrate their platform with digital public transport services to test commutes.

MOVE IN PURE MOBILITY

How to control the charge of your electric vehicle with your smartphone.

Move in Pure optimizes and supervises the charging of electric vehicles. Unlike the so-called “natural” loads, which are immediate and without control actions, controlled recharges are optimized to follow a tariff signal for example, or a network constraint. In 2019, this solution will be deployed on all CNR terminals, along the Rhone Valley.

DISRUPTIVE E-MOBILITY SOLUTIONS AS A SERVICE IN CHILE

How Engie became the major e-mobility player in Chile.

With 50 e-taxis and 100 e-buses, ENGIE Chile entered the e-mobility market with a complete set of integrated solutions offered as a service (financing of the vehicles and chargers + design, installation and O&M of the charging infrastructure + green energy supply + digital solutions) breaking all the barriers our customers were facing to embrace e-mobility. As a result, ENGIE became the major e-mobility integrated player in Chile with a total investment of ~USD 35.0 million.

HYSTART

Green and local hydrogen to make mobility accessible.

Hystart is a solution providing a hydrogen production and refueling station as a service, over a period of a few years and for a fleet of a few vehicles. With Hystart, ENGIE Cofely supports the zero-carbon transition of its customers by introducing them to hydrogen mobility.

FLEXCO MOBILITY

An easy electric vehicle solution for everyone, everywhere.

Flexco is an innovative front runner end-to-end electric mobility solution integrating our many capabilities and those of car leasing from our strategic partner, Arval (BNPP). Adapted for every client, carried simultaneously by several ENGIE BUs with the same business model architecture and with local adjustments, Flexco ambitions to position ENGIE as a leader in the affordable and competitive energy transition through electric vehicle business.

MOTMOT®

A multimodal mobility startup created by ENGIE Factory to offer shared electric mobility solutions as a Service (MaaS) for B2B and B2C users.

MotMot® is currently under validation phase, launching a fleet of 50 electric kick scooters for micro-mobility and 50 electric mopeds for mid-range mobility in Puebla, Mexico. This will allow the Company to measure the impact of multimodal transportation. MotMot® is also in discussions to integrate their platform with digital public transport services to test commutes.

MOVE IN PURE MOBILITY

How to control the charge of your electric vehicle with your smartphone.

Move in Pure optimizes and supervises the charging of electric vehicles. Unlike the so-called “natural” loads, which are immediate and without control actions, controlled recharges are optimized to follow a tariff signal for example, or a network constraint. In 2019, this solution will be deployed on all CNR terminals, along the Rhone Valley.
ENERGY COMMUNITIES

From self-consumption to the use of vehicles as a means to store energy, Energy Communities continue to invent themselves...

Vehicle 2 Building (V2B)

Use a company fleet of Electric Vehicles as energy storage and power supply for its office.

ENGIE can create a microgrid with EVs by connecting a car battery via a bi-directional charger (charging/discharging) to an office. By using a car battery as energy storage, one can have the benefits of energy storage without the disadvantages of buying and maintaining batteries. It also allows peak shaving at the best possible moment. This concept also enables ENGIE’s smart buildings proposition by integrating the EV charge infrastructure into the building energy management system.

ICO GREEN TERMINAL PROJECT

ENGIE’s integrated approach setting the example in the energy transition.

ICO, a global market leader in the port handling and storage of cars, aspires to become a “Green Terminal”, providing green electricity for the charging of the increasing number of Electric Vehicles (EV) on the terminal and the vessels arriving at the quay. ENGIE was chosen as a partner to develop and operate Belgium’s largest on-shore windfarm (11 wind turbines), largest EV charging island (308 connectors), both combined with ENGIE’s SMATCH cloud application allowing grid balancing possibilities (DSM).

BIG BATTERY BOX

Mobile Green Energy “As a Service”.

Investments in large scale battery storage mostly do not guarantee stable revenues throughout a longer period. The most important markets for batteries, being the ancillary markets, are tendered on weekly or daily basis. On the other hand, the rental market for backup power (construction sites, events) is evolving to more carbon-neutral activities and less noise. Together with our external partner, we developed and invested in 20-foot mobile battery storage containers in which we achieve a viable business case by combining both markets.
THE SIMPLY ENERGY VPPX PROJECT
A "world first" Virtual Power Plant integrated with a market platform for residential "prosumers".
In Southern Australia, Simply Energy has built and launched a "world first" Virtual Power Plant that is integrated with a market platform – DEX. This provides maximum optimization for customers on self-use and makes available their excess energy to the market. Customers will profit from participating in the VPP and monetize the flexibility in their assets (batteries, smart hot water systems and others) whilst at the same time contributing to grid stability and reliability through the market platform (DEX).

BOOSTING THE PERFORMANCE OF LARGE-SCALE SOLAR ASSETS
In moderate climates, Potential Induced Degradation or PID is one of the most common failures in the 3-4 years after commissioning of a PV plant, showing mean annual yield degradation rates of 16 % for affected parts. Thanks to this project, ENGIE is now capable of detecting PID with a high degree of certainty using routine drone inspections, and to install a proven cost-effective regeneration solution, boosting the performance of large-scale photovoltaic power plants at unprecedented speed.

SOLARIMO
Let's make solar energy accessible to tenants.
Solarimo, a one-year old company, plans, builds and operates solar systems on rental properties. We sell cheap green electricity to the tenants directly from their roof in partnership with the owner of the building. We reconcile general interest (green energy) with individual interests (low price energy).

CIRCULAR STRATEGY DIGITAL TOOLBOX
Simulation toolbox to plan the optimal use of local resources to co-construct circular and decarbonized territories
Tractebel and ENGIE Lab CRIGEN have developed a first of a kind simulation toolbox to plan the optimal use of local resources (energy, water, materials), that allows ENGIE BUs to co-construct with potential clients (B2B/ B2T) and partners differentiating value propositions in line with circular economy principles (better local integration, 100%RES...); BE CIRCLE and Prosumer are already part of it.
200 MW BACK-TO-BACK HVDC SYSTEM INCREASES GRID FLEXIBILITY IN SOUTH KOREA

Smart control of power by back-to-back HVDC avoids new transmission lines and cables in metropolitan area near Seoul.

Together with a small, specialized consultant, Tractebel proposed a 200 MW back-to-back High Voltage Direct Current (HVDC) system as a solution for the power problems in a metropolitan area surrounding Seoul. Another project is in the coming, with a 1,000 MW rating. Given the worldwide double-digit growth of HVDC, we can expect more opportunities for Tractebel in this field.

Tractebel / Belgium
Stijn COLE, Dimitri NESTEROV, Steven DE BOECK, Jozef DOMS

NEW VALUE CREATION FROM PUMPED STORAGE PLANTS

The pumped storage plant Pfreimd substantially increased its revenues from Ancillary Services after 2013, due to the innovative solution to combine pumps and turbines in a so-called hydraulic short-circuit, thus enabling a controllable power consumption, and in addition unlimited the time duration of services. Meanwhile the solution has been implemented at Coo and was also studied for the UK pumped storage plan. This flexible storage enables the development of renewables enabling the energy transition and addressing the intermittency of the latter.

NECST – GEM / Germany
Cornel ENSSLIN, Jasmin RAINER, Bernhard DISTLER, Andreas PREM, Ghada SELWAN and Michael FENSKI (GEM)
TURBO COAT
Creative solution for damaged steam turbines.
Do you know that erosion is a silent killer? 50% of all steam turbines worldwide are affected by erosion. Erosion is driven from frequent start/stops and long-term low load operation, directly linked to the new market situation by need of flexible operation mode. TURBO COAT, our ENGIE alternative solution, developed in-house, allows to perform a highly qualitative, fast and low-cost solution without opening the turbines.

INTERNAL SOLUTION TO REPAIR AND UPGRADE KEY COMPONENTS OF GENERAL ELECTRIC AT LOW COST
Marafiq Independent Power & Water Plant is one of the major plants in Middle East, commissioned in 2009 and producing 11% of the water market and 4% power market share of the Kingdom of Saudi Arabia. In Marafiq IWPP, we developed, we implemented and we validated an internal solution to repair and upgrade some key components of General Electric control system, realizing 11.5 million dollars of savings with 99.9% of reliability.

SMALL-SCALE LIQUEFACTION FOR FOS-TONKIN
In the LNG terminal of Fos Tonkin, this natural gas liquefaction facility will be connected to the gas transmission network and will also be able to liquefy bio-methane produced locally. Thus, Fos Tonkin will be a supplier of bio-LNG for the Mediterranean Sea, especially for bunkering. In the long run, it should become a large-scale producer of bio-LNG made in France.

IODA
App that guarantees the operational excellence of biomethane injection.
IODA is a unique web application, developed by ENGIE Lab CRIGEN that centralizes all the data of the biomethane injection stations, thus making it possible to evaluate their performance and to guarantee the operational excellence of GRDF.

PREV’DO
Mobile application for preventing damage to structures.
Prev’DO (Prevention of Damage to Works) gives access to real-time reporting of earthworks in progress to all people concerned (network operators, local authorities, project manager, design offices ...). Through a smartphone application, Awareness-raising visits on the risk of damage to the buried structures are then carried out to diggers. Through its many integrated features (geographical reporting, integrated navigation, real-time information capture, real-time reports to stakeholders ...), this community application aims to significantly increase the efficiency of the site visits activity for less damage to networks and a better security of people and property.
IOT IN THE MACHINE

A bit of intelligence in the machines, a huge quantity of data, and a lot of human intelligence for more efficiency and more services!

ENGIE MAINTENANCE INSIGHTS (EMI) - SMART HEAT PUMP MONITOR

ENGIE Maintenance insights will improve the uptime and performance of your heat pumps.

The traditional way of monitoring heat pumps is based on experience, static alarms, average performance. However, the performance of a heat pump fluctuates over time, so how do you know if a drop-in performance is normal behavior or the first sign of a potential breakdown? A generic algorithm was developed, using neural networks, that enables the unique circumstances to be taken into account. EMI uses these algorithms to monitor the performance and all parameters 24/7, notifying technicians if relevant anomalies in behavior of the heat pump occur.

A DUAL MACHINE-LEARNING APPROACH TO QUANTIFY SOILING

Quantifies, without any hardware, the accumulation of dust on solar photovoltaic installations.

Soiling is the accumulation of dust on solar modules. We have developed a new disruptive solution using two machine learning models in parallel, allowing to detect it directly from standard data monitoring. This avoids expensive hardware installations and systematic inspections, yielding a reduction of operational costs (optimal cleaning planning) and a global increase of panels efficiency.

THE RAFT OF THE MEASURE

A revolutionary floating LIDAR whose stake is acceptability by banks in project finance.

To measure intensity of wind on the sea, a key figure for any off-shore windfarm project, the industry used until now an Offshore Met Mast, a colossal measurement structure fixed on the seabed. Our current projects have turned to a radical innovation with the use of an ultra-discreet floating raft that measures by laser (LIDAR) as an answer to different stakes related to installation, flexibility, cost-cutting and environment. A four-year journey to gain recognition from funders and replicate on other oceans.

SOCRAT

Operational System of Control of Regulation of Auto Tensioning devices “SOCRAT” is a service for railway maintainers, which allows to monitor remotely and in real time the auto tensioning devices of Catenaries & Tramways, switching to less expensive and more preventive maintenance. This digital solution, autonomous in energy (composed of distance sensors, temperature sensor, solar panel and Sigfox relay) that puts data back in real time on a web site is a world premiere. It is unique and patented.
ASSET-INTELLIGENCE

Enrich gas distribution asset databases through Deep Learning.

Asset-Intelligence is a Deep Learning solution developed by GRDF which automatically recognizes the type of regulator in boxes from already available pictures, avoiding inventory field interventions.

So far, 3M regulators have been identified from the pictures, avoiding many field interventions hence saving GRDF nearly 30M€. Deployment of smart meters will last until 2023 and will continue to enrich the database while avoiding substantial costs.

—

GASMART

Gas demand Prediction using Machine Learning

GaSmart, using Artificial Intelligence techniques, forecasts gas demand for residential, industrial and NGV customers for the next 10 days, allowing ENGIE to make decisions on buying operation, approaching to the real consumption of gas. Benefits are: savings on the gas operation; cost reduction in employee turnover; optimizing gas transport, creating new business opportunities.

—

ENGIE CONNECT

The IoT Edge Solution for TFM & Energy Services.

ENGIE Connect provides integration of services under a single FM platform, unifying all kinds of heterogeneous controllers and sensors. It is an “edge computing platform”, able to localize the data processing at the hardware level, minimizing communications’ costs and allowing the implementation of AI and machine learning algorithms.

—

MINIRTU

(Mini Remote Terminal Unit)

Development and implementation of an alternative device to those used as RTU (Remote Terminal Unit) in a SCADA (Supervisory Control And Data Acquisition) system. It allows to reduce high acquisition and replacement costs of each RTU. It doesn’t require expensive hardware to monitor a few process variables, nor does it depend on proprietary licenses of PLC manufacturers... and it works! At present, approximately 25 MiniRTU are already installed. It is estimated to reach 40 units by the end of 2019.

—

TESTER BF

(Low Frequency)

Low frequency tap tester for communicating industrial meters.

The Tester BF (Low Frequency) is a box that facilitates the control of the electrical connections of the various equipment that form the chain of succession/metering of gas consumption in customers. It allows the reliability of a commissioning or a customer troubleshooting while reducing the intervention time. This box contributes to the operational performance of GRDF and of their customers satisfaction. This innovation has been patented, and can be extended to other communicating industrial meters (eg: water meters).

—

SMART-VUE

The ultimate interaction tool.

This multi-award winning platform provides an advanced User Experience for interacting with building hardware and software platforms to deliver a “single control point” for the operators. With over 60 applications, the system covers every aspect within a connected building and is totally “permissions-based” managed, to ensure the user only gets what they need in a simple and intuitive user format.

247
GRDF / France
Sophie GABBAY, Jean DE LA FAYOLLE, Yann-Edern L’HOUR, Stéphane DE MICHELE

226
GRDF / France
Eddy LEVY, Gwenael GUILLOU, Carole VIRRION, Carolyn KOKOCINSKI

226
LATAM / Argentina
Pablo CIANCAGLINI, Diego MALATO, Matias ROMERO, Sergio COZACOV, Carlos CANDSA

215
United Kingdom
Mark DAVENPORT

291
GRDF / France
Nicolas LEROUGE

009
LATAM / Argentina
Pedro CIANCAGLINI, Diego MALATO, Matias ROMERO, Sergio COZACOV, Carlos CANDSA

419
NECIT / Greece
Nikos KOUZINOGLOU, Anastasios MATIKAS, Dimitrios ZACHARIAS, Kostas ALEXIOU, Konstantina PARISSI

024
LATAM / Argentina
Pablo Martin RIVAROLA, Fabian MARCOS, Mauro TAGLIONI, Herman RODRIGUEZ ARAYA, Federico ACLUNA, Sergio SCALERANDI

419
NECIT / Greece
Nikos KOUZINOGLOU, Anastasios MATIKAS, Dimitrios ZACHARIAS, Kostas ALEXIOU, Konstantina PARISSI
Facility Management Excellence through IoT

Our innovation empowers Facility Management activities with a digital layer driving our competitiveness and differentiating us on a tough market. This innovation already contributed to the renewal of 10% of Singapore’s portfolio and will generate up to 10 million euros in revenue in the next 3 years.

Refrigerant as a Service

The security of refrigerant supplies for cold chain actors “as a service”. Refrigerant as a service is an innovative service that responds to the security of refrigerant supplies for cold chain actors and accelerates reconfiguration to carbon-free solutions. Since 2018, 15 key customers have chosen our solution.

Lodge.co

Our co-working solution that feels like home.

Lodge.co is commercializing a co-working solution to companies, in order to monetize their underused spaces, whilst connecting their employees with other people, freelancers and young professionals in an inspiring environment. It is an on-demand workspace provider, its offer is variable in time and volume. The co-working offer compliant with high level corporate constraints (ergonomics, security, IT) relies on a digital platform monetizing in real-time a network of exciting workspaces with a community of users for whom the primary emphasis is on user experience, agility and security are valued.

Avril Digital

Smart Data Centers of the Future.

Internally developed predictive cloud-based platform equipped with sophisticated machine learning algorithms capable of capturing and analyzing large volumes of real-time and historical data from equipment/sensors at high speed to proactively anticipate operational threats and predict future outcomes for data centers. We deliver predictive actionable insights that transform data centers to be Sustainable, Agile and Energy efficient for the future.

In-Night Services

In Night Delivery of Materials and Tools in Vans.

Increase operational efficiency of our technicians by delivering, during the night, directly into the vehicle of the technician or in a safe place close to his residence, necessary parts for their activity (include spare parts/tools/material).

Refrigerant as a Service

New offers “as a service” keep inventing new services in: co-working, logistics, data centers, facility management, and even refrigeration.

100 Innovations 2019

• 21

New offers “as a service” keep inventing new services in: co-working, logistics, data centers, facility management, and even refrigeration.
COOL!

Less energy, less carbon, less impact when looking for the perfect temperature, now, that's cool!

**DATA-DRIVEN ESTIMATION OF POTENTIALS AND BOUNDARIES FOR DISTRICT HEATING/COOLING SYSTEMS**

Using the power of big data collected in urban areas and advanced artificial intelligence algorithms to achieve minimum marginal cost for maximum new business opportunity exploration.

On the basis of urban data, this innovative data-driven solution automatically searches, evaluates, and identifies the boundaries and potentials of district heating and cooling for a city, leveraging the integrated power of big data collected in urban areas and advanced artificial intelligence algorithms to achieve minimum marginal cost for maximum new business opportunity exploration. New business opportunities could be explored through the power of artificial intelligence.

**ENGIE’S FIRST HIGH TEMPERATURE BESPOKE COOLING SYSTEM!**

In collaboration with ENGIE and TfL (Transport for London), we have designed, built and installed the first bespoke, robust, low cost solution to operate effectively in extreme environmental conditions by being able to withstand high ambient temperatures. It is destined to replace the aging, ineffective comfort cooling infrastructure of condensing units and evaporators currently installed on the London Underground network, and other underground networks too.

**NATURAL REFRIGERANT HIGH TEMPERATURE HEATPUMPS : COOL!**

High temperature heat pumps using natural refrigerants offering temperature ranges from 95° to 110°; an efficient solution for hot water for various industrial segments and avoiding CO₂ emissions.

For each use case the optimal high temperature heat pump solution can be proposed, knowing that ammonia offers high efficiency in the range from 0.5 to 10 MW (30-50%), whereas our heat pumps based on CO₂ (Thermeco₂) will be more adequate in cases where specific requirements exist on safety and for installations up to 1,500 kW, presenting high efficiency degrees (COP >7.5) for heating and cooling. 70 units of Thermeco₂ have been sold and the heat pump on ammonia is being tested regarding the oil management together with the manufacturer.

---

**22 • 100 INNOVATIONS 2019**
A ZERO-CARBON solution to traditional installations using polluting refrigerants. This new concept offers a zero-carbon alternative for small and large refrigerating capacities. The synergy of using ammonia with direct expansion (=DX) results in a cost-effective and efficient cooling installation with an exceptional cooled product quality. Additionally, with this type of installation, ENGIE Axima can offer a unique monitoring in real-time of the performance of each cooler.

WEATHER-INDEPENDENT AND ENERGY NEUTRAL STORAGE AGRICULTURE PRODUCTS

A storage solution for agricultural products adapted to climate change and using solar energy. Due to climate change, outside air conditions are unpredictable. This makes the storage of agricultural products challenging and energy-intensive. The ENGIE storage eliminates the use of outside air and gas. It allows farmers to precisely adjust the optimal storage conditions. The system is designed with a heat pump which allows farmers to use the residual heat. The fraction of electricity which is needed is generated with solar panels. The system can be controlled from anywhere using a tablet.

THE NEW AMMONIA DX REFRIGERATION PLANT

The smart and refrigerated box. ENGIE Axima has co-developed Shopping Boxes with WN (formerly Whirlpool Factory in Amiens) that allow to deliver temperate, fresh and frozen products ordered on the Web and meet the customers’ new expectations: need for more flexibility, willingness to consume locally, to limit the intermediaries between the producers and the consumers (farm to fork) and to revitalize the shops in city centers. The challenge is met; ENGIE Axima and WN are currently deploying Shopping Boxes in France.
DATA FOR CUSTOMERS

Do we need to say it? Data is the core of our businesses’ transformation. Today, we are putting it directly into our customers’ hands.

TRADE INNOVATIVE POWER (TIP)

Trade Innovative Power (TIP) is a digital and integrated solution (API-based) that puts the client in the driver seat to balance his power needs on short-term power markets.

Making short term markets accessible to clients and giving them the means to be in the driver seat (cockpit to follow parameters in real-time, combining information from day-ahead, intraday and imbalance markets; i.e. information for which they today use 3 different systems).

The TIP-solution is built with a modular approach to ensure standardization and customization. It can easily be integrated into the client’s application landscape.

Pilot deployed on 3 clients. Fine-tuning ongoing. Feedback is very positive and promising.

SPECTRUM

The ENGIE Italy API-driven Digital Ecosystem.

ENGIE Italy is the “first mover” within ENGIE Group in the creation and management of an API-driven Digital Ecosystem based on a “business-first” approach. The main ingredients to govern Spectrum – deriving from the application of the multi-dimensional approach – are a “Relationship Environment” and a Digital Environment providing an APIs catalogue, showcasing apps “powered-by” the APIs and enabling the publication of the APIs after a validation process and a compliance agreement for usage. This Governance Model can be easily replicated in other Business Units and countries within ENGIE Group.

TRADE INNOVATIVE POWER (TIP)

Trade Innovative Power (TIP) is a digital and integrated solution (API-based) that puts the client in the driver seat to balance his power needs on short-term power markets.

Making short term markets accessible to clients and giving them the means to be in the driver seat (cockpit to follow parameters in real-time, combining information from day-ahead, intraday and imbalance markets; i.e. information for which they today use 3 different systems).

The TIP-solution is built with a modular approach to ensure standardization and customization. It can easily be integrated into the client’s application landscape.

Pilot deployed on 3 clients. Fine-tuning ongoing. Feedback is very positive and promising.

YEM

you’re energy manager


YEM is a platform to make small and medium enterprises in Europe autonomous in the management of their energy supply contracts. Thus, they could avoid going through intermediaries brokers and/or consultants. Pan-European tenders are managed in a few clicks and the energy bills significantly reduced thanks to purchasing strategies adapted to each profile.

YEM will be present on the Italian market from July 2019 and will extend its services to the rest of Europe in the course of 2020.

SPECTRUM

The ENGIE Italy API-driven Digital Ecosystem.

ENGIE Italy is the “first mover” within ENGIE Group in the creation and management of an API-driven Digital Ecosystem based on a “business-first” approach. The main ingredients to govern Spectrum – deriving from the application of the multi-dimensional approach – are a “Relationship Environment” and a Digital Environment providing an APIs catalogue, showcasing apps “powered-by” the APIs and enabling the publication of the APIs after a validation process and a compliance agreement for usage. This Governance Model can be easily replicated in other Business Units and countries within ENGIE Group.

TRADE INNOVATIVE POWER (TIP)

Trade Innovative Power (TIP) is a digital and integrated solution (API-based) that puts the client in the driver seat to balance his power needs on short-term power markets.

Making short term markets accessible to clients and giving them the means to be in the driver seat (cockpit to follow parameters in real-time, combining information from day-ahead, intraday and imbalance markets; i.e. information for which they today use 3 different systems).

The TIP-solution is built with a modular approach to ensure standardization and customization. It can easily be integrated into the client’s application landscape.

Pilot deployed on 3 clients. Fine-tuning ongoing. Feedback is very positive and promising.
COZIE.ME DIGITAL SERVICE PLATFORM FOR DELIGHTED CUSTOMER AND EFFICIENT FIELD OPERATIONS

Customer self-care appointment taking & automatic real time planning optimization.

Cozie.Me is a unique end-to-end digital service support platform that enables important efficiency gains and a flawless customer experience with field service operations for B2C customers in the heating & cooling service business through the combination of automation and customer self-care. It reaches from the self-care appointment taking until the automated billing of the performed services.
Be it for Industrial Customers, local governments, professionals or individuals, we offer new services, new approaches to renew our customer relationship and engage with them.

COAST TO COAST SUSTAINABILITY TOUR

Learning and amplifying the current state of sustainability in the U.S. through 10 days, 10 cities, learning expedition.

The Coast to Coast Sustainability Tour was a 10-day, 10-city, market disrupting experience where ENGIE Insight executives traveled across the country in electric vehicles to engage with clients, partners and industry experts to learn and amplify the current state of sustainability in the U.S. By decentralizing the typical client conference, they were able to reach nearly 3 times the number of clients and prospects we have historically engaged directly by meeting them where they were at and reduce their overall impact on the environment.

The team also focused on leveraging media coverage, new client testimonial content and relationships with clients’ contacts and prospects to continue to drive awareness and results.

CRYSTAL BALL

A data management & portfolio analysis framework to aid the growth of advisory services at ENGIE Insight.

Crystal Ball will leverage the enormous amount of data collected via ENGIE Insight’s Utility Expense Management service to offer our clients additional services related to sustainability. It allows easy access to the information required for data-driven decisions, customer segmentation, and the derivation of missing data. This will enrich pilot projects and new feature offerings and serve as a unified resource for users across Marketing, Sales, Strategy, R&D, and other teams to size markets and find the specific opportunities within those markets.

QWEST ENERGY

A decentralized, low carbon local energy and services brand launch.

A “white-label” partnership between ENGIE and a Local Government Authority to provide a tailored energy and services offer to the residents. Local Authorities have challenging targets in reducing fuel poverty and carbon, with decreasing budget and resource. Qwest Energy helps the Local Authority to deliver their targets whilst enabling ENGIE to grow a long-term profitable energy and services relationship.

STORYTELLING TO SERVE BUSINESS

In this innovative approach, it is a question of addressing the client through his/her points of interest and to make him/her live an experience, by provoking emotions by the theatricalization of the support. Between 2015 and 2018, we have renewed 197 M€ in maintenance contracts for Nuclear Plants. We are looking forward to prospective new markets.
Guaranteed Savings Product


ECO ÉNERGIE

An innovative information campaign to raise awareness about energy savings among professionals by offering personalized and free advice: this information campaign is an innovative method of collecting EWC at a lower cost.

EIDERIS

The first ENGIE boiler, remotely monitored for more serenity and comfort. ENGIE Home Services is the French leader for the maintenance of heating systems. The Eideris offer is an innovative solution for private customers which enables remote and real-time monitoring of the boiler by heating experts.

Joel ELKINS, Julian MITHANI, Niel MCKELLAR, Greg DEASARO

395  NORAM / USA

Camille MAINJUENAUD, Laurent COSSON, Amayry LAMARCHE, Fabien MARGUERON, Thierry DEVANT

492  France BtoC / France

Géraldine CADIER-MIRALLES, Laura SARAGA, Sarah SURANYI, Br Axel PARDISSIEN, Soheil KACHANI, Marie PAYA, Olivier CAMELENA, Maxence CLLOT, Marie-José DEROBERT-MASURE, Matthieu MAURICE, Marc DERRIÈRE, Corine PROUT, Anne DERIBAUD, Robin DOREMUS, Michael BLANC, Olivier CAMELENA, Audrey DARMON, Alain MARCOU, Vincent REBUT, Nicolas LEBEYRE, Faïma HAMDI, Jonas CACHAU-HERRELLAT

492  France BtoC / France

Camille MAINJUENAUD, Laurent COSSON, Amayry LAMARCHE, Fabien MARGUERON, Thierry DEVANT

002  France BtoC / France

Géraldine CADIER-MIRALLES, Laura SARAGA, Sarah SURANYI, Br Axel PARDISSIEN, Soheil KACHANI, Marie PAYA, Olivier CAMELENA, Maxence CLLOT, Marie-José DEROBERT-MASURE, Matthieu MAURICE, Marc DERRIÈRE, Corine PROUT, Anne DERIBAUD, Robin DOREMUS, Michael BLANC, Olivier CAMELENA, Audrey DARMON, Alain MARCOU, Vincent REBUT, Nicolas LEBEYRE, Faïma HAMDI, Jonas CACHAU-HERRELLAT
Caring about safety and protection for our employees, but also for our customers. We dream of predicting work-related accidents before they arrive, of operating swimming pools at low energy cost and good air quality, and of preventing industrial hazards.

**SAFETY BY THE SIGN: CREATING A SIGN LANGUAGE ADAPTED TO AN OPERATIONAL TEAM**

To improve safety in boiler rooms, a tailor-made language has been created and adopted. By creating a dedicated sign language to allow communication in noisy or dusty environments without removing personal protective equipment, a jump has been made to improve health and safety in boiler rooms. This new language required the support of an association for a real “tailor-made” and participative creation of nearly 70 signs, in two site visits and three working sessions. This initiative brought teams together through games and an extraordinary sharing of experience. The requested association usually working for people with disabilities was happy to work this time in disability prevention!

**ENGIE CONNECTED CUSTOMERS**

First Smart solution for gas detection.

In the context of an increasing digitalization on all device markets, which ENGIE adheres to, we consider joining the gas detection solution to a smart remote alert. There are no certified SMART devices for gas detectors on the Romanian market; this solution will be the first of this type. It is a simple system that only requires previous installation of the detector and an optional connection to the automated shut-off valve. The customer is instantly aware there is a gas leakage at home and can therefore promptly act in order to mitigate the risks (considering the gas has already been shut-off from the automated valve when the leak had been detected). As another benefit we mention the independence to the WIFI router, since the relay directly sends the signal to a GSM network.

**CYRIL**

Overseeing your health in the comfort of your own home!

Cyril uses passive movement sensors around the home to advise carers about patient movements and health status. Specifically, it intends to prevent avoidable pressure sores by embedding pressure technology to provide further detail into the patient’s condition. Preventing bed sores from occurring can prevent admission into hospital, thereby improving patient care quality and minimizing the burden on the UK National Health Service (NHS) resources.

**THE AIR HANDLING SYSTEM FOR POOLS BY ENGIE**

An offer at the service of the Energy Transition of territories.

By designing the Air Handling System for Swimming Pools by ENGIE, we have created a unique offer available for our commercial development in the swimming pool and municipality market segment. This offer guarantees a maximum level of energy performance, combined with an optimal level of Indoor Air Quality.

**RADFICATION PROTECTION AREA 4.0**

Preventive & autonomous active safety. 0 accident in radiation protection.

Our patented solution eliminates risk of accidental exposure to X-rays or gamma radiation during industrial X-ray (non-destructive testing) via the analysis of the speed and trajectory of the intruder. Thanks to co-development between TENED and ENGIE Lab CRIGEN, Smart Home and Lidar technologies have been successfully implemented 6 times in EDF in 2018. Our innovation will provide a competitive advantage on the NDT market and save lives!

**DATASECURE**

Data analysis for the safety of our employees.

DATASECURE project analyzed crossed data related to 582 work accidents with machine learning techniques correlating 64 different criteria to establish correlations between the characteristics of the accidents, the profile of the victims and the circumstances of their occurrence. The results were inconclusive which demonstrates the difficulty of conducting a Data Science project when input data are heterogeneous and complicated to harvest… as is still often the case in our business!
Of course, it’s about connectivity, but not only…
It’s really about working together to find unexplored new solutions.

PROJECT MEGAWATT
Let’s mobilize ENGIE to keep the lights on in Belgium.
After being faced with an unprecedented low availability of our nuclear capacity this winter in Belgium, ENGIE took its responsibility and mobilized 3 BUs: Generation Europe, GEM, and BENELUX. Together, we set ONE GOAL and put in all effort to find in less than 3 months a new portfolio of 1,273 MW of additional capacity to help the Security of Supply in Belgium. This general mobilization was made possible thanks to the trust from management and to our people’s involvement. It required unseen efforts on project management/realization, contracting of external parties, stakeholder relations and a continuous quest to challenge the “unfeasible”.

308 Generation Europe, GEM & BENELUX / Belgium
Frank VAN DEN SPIEGEL, Niels SMOLDERS, Paul-Étienne VERHEVEN, Vincent VERBEKE, Christophe BAUCNET
EDENBOX

In the Fos-sur-Mer LNG terminals, the Edenbox project is a multi-technical maintenance contract with performance targets. During 11 months, the teams of Elengy, ENDEL ENGIE and ENGIE Ineo have negotiated and gathered 40 activities in one single multi-technical maintenance contract covering 60% of the maintenance costs.

EPPAS

A mobile rounds management application tailored to Plant Operators requirements.

First printed high-temperature component implemented in the field. First installation of a fully 3D printed complex component from a pressure regulation valve at the Maxima Power Plant in the Netherlands. Component was printed at ENGIE Laborelec 3D Printing Lab in Belgium, and is considered to represent the first step towards the dream of a digital warehouse, since the part is now available to be printed on request.

EDENBOX

In the Fos-sur-Mer LNG terminals, the Edenbox project is a multi-technical maintenance contract with performance targets. During 11 months, the teams of Elengy, ENDEL ENGIE and ENGIE Ineo have negotiated and gathered 40 activities in one single multi-technical maintenance contract covering 60% of the maintenance costs.

EPPAS

A mobile rounds management application tailored to Plant Operators requirements.

First printed high-temperature component implemented in the field. First installation of a fully 3D printed complex component from a pressure regulation valve at the Maxima Power Plant in the Netherlands. Component was printed at ENGIE Laborelec 3D Printing Lab in Belgium, and is considered to represent the first step towards the dream of a digital warehouse, since the part is now available to be printed on request.

EDENBOX

In the Fos-sur-Mer LNG terminals, the Edenbox project is a multi-technical maintenance contract with performance targets. During 11 months, the teams of Elengy, ENDEL ENGIE and ENGIE Ineo have negotiated and gathered 40 activities in one single multi-technical maintenance contract covering 60% of the maintenance costs.

EPPAS

A mobile rounds management application tailored to Plant Operators requirements.

First printed high-temperature component implemented in the field. First installation of a fully 3D printed complex component from a pressure regulation valve at the Maxima Power Plant in the Netherlands. Component was printed at ENGIE Laborelec 3D Printing Lab in Belgium, and is considered to represent the first step towards the dream of a digital warehouse, since the part is now available to be printed on request.

EDENBOX

In the Fos-sur-Mer LNG terminals, the Edenbox project is a multi-technical maintenance contract with performance targets. During 11 months, the teams of Elengy, ENDEL ENGIE and ENGIE Ineo have negotiated and gathered 40 activities in one single multi-technical maintenance contract covering 60% of the maintenance costs.

EPPAS

A mobile rounds management application tailored to Plant Operators requirements.

First printed high-temperature component implemented in the field. First installation of a fully 3D printed complex component from a pressure regulation valve at the Maxima Power Plant in the Netherlands. Component was printed at ENGIE Laborelec 3D Printing Lab in Belgium, and is considered to represent the first step towards the dream of a digital warehouse, since the part is now available to be printed on request.
We transform ourselves from within, we train ourselves, we explore, we experiment and... we share to serve our customers better and look to the future.

CULTURE TRANSFORMATION

ENGIE TECHNICIANS AMBASSADOR COMMUNITY

Promote the technical sector and its professions to encourage vocations internally and externally. Volunteers who share a passion for their profession and express their pride, through their experience and their vision to make technical jobs better known and recognized, in a community created in April 2018. This community counts more than 130 members from 16 entities of ENGIE. They should become more than 500 at the end of 2019. They represent their trade and the company at job fairs, vocational days in schools...

New Corp / France
Véronique HUCHET, Gabriel VARACHAUD
An innovative training to enable the agile paradigm shift in GEM.
School of Agility is a tailor-made innovative training. It enables GEM shifting from “here is a perfect plan, let’s follow it” to “let’s experiment, get regular feedbacks, learn and adapt” (the agile paradigm shift). All along the teaching journey, it allows trainees to feel and experiment the agile way of approaching complex problems.

LEARN-HEAT
A simulator adapted to different real-life scenarios that offers a unique experience in the management of a district heating network.
LEARN-Heat is part of a process of knowledge management in a funny, interactive and digital format to increase the teams’ skills in the management of district heating systems. The moderator chooses a scenario, then the gamers must, within the allotted time, make the right settings at the right time to improve the energy performance of the networks. Deployed within ENGIE Networks, this simulator allowing learning by doing is becoming increasingly popular.

TILT.IP
An action-training to boost the creation of value by anchoring “intellectual property” pro-active attitudes through emotion.
Through an action-training based on gamification and focused on collective intelligence, emotional intelligence, and role games, which can be played in 2 to 6 hours to adapt to the audience and their stakes. It simplifies the concept of Intellectual Property and allows to anchor pro-active attitudes in each participant:
TILT, I identify my intellectual property!
TILT, I protect it!
TILT, I create value with it!

LET’S CODE
Anybody can code.
A volunteer-based peer-to-peer coding training program for beginners, providing the tools to automate simple tasks and the freedom to be creative, innovate, and create value.

MOOC EXPLORE
Let’s learn about the offers dedicated to the general public in France and share them.
The “Explore” MOOC aims to inform all ENGIE employees about the offers and services dedicated to the general public in France, so they can promote them around them.

LIVE MY LIFE
Create an environment of continuous learning to gain new perspectives, by “living the life” of another colleague for a couple of days.
The “Live My Life” Program is where a BU GEN employee (“guest”) temporarily “shadows” another employee (“host”) within BU GEN or elsewhere in ENGIE in order to gain insight into his/her role. This program is about creating meaningful exchanges between people, enabling them to explore different business realities, whilst, at the same time, strengthening their collaboration, broadening their network, increasing their know-how, expertise and best-practices sharing. It’s a means to explore new ways to develop themselves, their employability and the business.'
UP!
The program dedicated to the BUs’ Talents.
Up! has the ambition to prepare the Future of ENGIE and of our BUs entities (France BtoB, France BtoC, France Renewable Energy, France Networks), through the identification and the development of a diversity of talented people. Talent as a service / Better meet the expectations of the "client collaborator", to build loyalty, giving him the means to be a player in his own career.

YesWeCoopt to recruit the talents of tomorrow with a creative and innovative co-op approach.
YesWeCoopt is a solution for sharing job offers and news via social networks (LinkedIn, Twitter, Facebook, WhatsApp...). Available on mobile and web, it makes each employee the ambassador of ENGIE IT by participating in building a greater visibility with potential candidates. A win-win scheme with the organization of challenges and associated rewards for employees and an effective recruitment system for the company. YesWeCoopt is also a bold, fun and offbeat communication campaign that actively involves employees. YesWeCoopt is finally full of challenges and competitions to maintain the momentum.

STORINDUSTRY 4.0
Develop an intrapreneurial digital culture to meet the challenges of the industry of the future.
Storengy is revolutionizing its operations and maintenance activities by developing its own digital ecosystem around the roll out of an ATEX tablet on its industrial sites, thus opening the door to Industry 4.0.

ENGIE UK’S CAPABILITY MAP
A unique "map" of ENGIE UK & Ireland’s 140 capabilities.
ENGIE Capability Maps has digitized knowledge management to create an invaluable tool for business growth and scalability across ENGIE. It offers a single source of information providing insight into the vast and varied services we deliver. Each segment of the map is linked to a Business Activity, providing an overview of that Capability – describing what we do, with details of the SME & hyperlinks for further information.

CUSTOMER JOURNEY MAPPING
HOW IT HAS TRANSFORMED OUR CLIENT-ORIENTED ORGANIZATION
Customer Journey Mapping has been a powerful source of inspiration for our company to redesign its organization. It has been a key factor in our ability to translate customer feedback into management insights: eliminating our organizational barriers, leading to smoother relationships with our clients. Our learnings have allowed our people, not just senior management, to think about their roles and impact in helping to create satisfied and loyal customers.
50 years ago, Niel A. Armstrong, the first man ever to set foot on the Moon, said “one small step for man, one giant leap for mankind”. This is what our innovators strive to achieve every day.
GENERAL INDEX

073 Livin’ // p.10
Vincent VANDENBERGHE, Roman PETIT, Eamon DURRUM and more than 40 staff of ENGIE Digital, ENERGE Yves, ENGIE Brazil, ENGIE, NEST, Météo France, Siradel

105 Circular economy of biomass ashes // p.8
Christophe PASQUAL, Michel BOYADJIAN, Raphaël GENIN, Christelle BRIDEY, Thomas TREGOAT, César TEJERINA

326 Wind Track // p.8
Sophie GUILLON, Thomas DUC, Damien BRUYÈRE, Thomas MUSEUR, Mar VAN GAILLIE, Nicolas GIRARD, Cédric DE LA HOUSAYE

418 KAIROS // p.10
Laurent GUSSE, Jean-Marc DJI SAILLANT, Christophe ANSEL

846 Creating smarter and more sustainable cities while improving urban mobility // p.10
Leonardo DA SILVA MATTOS, James MABANG, Flavio VERA S, Météo France, La Houssaye

200 Reducing the lighting footprint on Territories // p.11
Jean-Claude PHILIPPE, Caroline DE ZUTTER, Denis LECA, Les THONAT, Alexandre DELBE, Malys DEWILDE, Anne FRIEUR

211 Newcastle Regenerative Partnership // p.12
Richard LONG, Ben WATTS, Hamah KEMP, Xavier DUAULT, Andrew NORTCLIFFE

436 ENGIE Zero // p.12
Andy MERRIN, James COOK, Ben HOW, Stuart MOORE

487 An innovative model of energy transition in a rural area // p.12
Thomas TREGOAT, César TEJERINA, Bernard LAURENT, Christelle BRIDEY, Nicolas GIRARD

503 SPEED // p.12
Sandrine HOUSTYN, Isabelle SCHUN, Marie-Laure DAUMAS, Aurélie VALADE, Mélody GEHIN, Patrick DELAIRE, Jean-Michel CORMIER, Gil DUBERNARD, Florence BIRAUD

830 Terr’n’r // p.11
Delphine GODEY, Camille MARCHAND, Sébastien HÉBERT, Marine LE GUILLOU, Laurence RAU-TUDAL, Laurent REMARS, Sérène LEBEL, Karine PATIN, Thierry LANDAIS

015 Social Footprint // p.11
Philippe PERRET, Thierry PONASSE, Béatrice PLUVIER, Véronique HUCHET, Benjamin DELOISIN, Joel CASTAGNET, Laetitia MACE

069 Zero Emission Valley // p.12
Marjorie BROWN, Thierry RAEVEL, Franck LE BARON, Julien CHAUVET, Jérémie FOGLIA, Florian TILLOUS-BORDE, Frédéric ROUECHE

489 FenixGO // p.13
Terry KARUNG, Albert LUMU, Andrew WEDSEA, Gilbert TURYABASA, Paul RWEMALLA, Bineyam AFEWORK

534 Sustainable Solutions for Homelessness // p.13
Caris HENRY, Sam HOCKMAN, Hayth SCRABOROUGH, Karl LIMBERT, Dan GERMANN

010 Disruptive e-mobility solutions as a service in Chile // p.14
Dimitri LEFÈVRE, Rodrigo SANCHEZ, Sebastian FERNANDEZ, Laurent FUREDI, Louis PHILIPPERON, Andres PIZARRO, Léa THONAT, Alexandre DELBE, Caroline DE ZUTTER, Denis LECA, Les THONAT, Alexandre DELBE, Malys DEWILDE, Anne FRIEUR, Vincent VANDENBERGHE, Roman PETIT, Eamon DURRUM and more than 40 staff of ENGIE Digital, ENERGE Yves, ENGIE Brazil, ENGIE, NEST, Météo France, Siradel

To find any file on the ENGIE intranet, use the full file number preceded by 2019 i.e.: 2019-0000489.
ACKNOWLEDGEMENTS

GRAND JURY MEMBERS:
Richard BIAGIONI (Inno Energy France), Cyril BOULARD, Pierre DEHEUNYNCK, Denis DUMONT, Valérie GAUDARD, Luc GOOSSENS, Martin JAHAN, Csilla KOHALMI-MONFILS, Shankar KRISHNAMOORTHY, Yves LE GELARD, Éric LESTANQUET, Guillaume TOUBLANC (EIT Digital France), Hendrik VAN ASBROECK.

2019 INNOVATION TROPHIES TEAM:
Mathieu BAISEZ, Pierre BAUMANN, Valérie BEAUDICHON, Léo BENICHOU, Laurent BERTHIER, Manon BOUYALA, Florence CARIQU, Maria CASTILLO, Rebecca CHEN, Frantz DANYACH, Gaëtan DECKERS, Christophe DEVOILLE, Razvan DORDEA, Isabelle DROCHON, Marie-Perrine DUROT, Carole FILHOL, Madeleine FUTTERMANN, Étienne GEHAIN, Raphaël GENIN, Stephan GOBERT, Jean-Luc GODON, Ann GOOSSENS, Carlos GOTE, Hubert GREIVELDINGER, Laurene GUSSE, Alexandre HAREL, Lucile HOFMAN, Vincent JAMBLIN, Natalia KIENITZ, Christine LEROY, Catherine LEVY, Jérémy LO, Sophie MALGA, Xavier MALLET, Selina Marie Carmen GARNIER, Carlos MARTINEZ GONZALBO, Ana MEYER, Pascal N'DIAYE, François-Xavier OLIVIERI, Yasir PATEL, Frédéric PORQUET, Caroline RENIER, Jean-Michel REYNAUD, Radovan ŠAJBEN, Pierrick SAURET, Chris SAUNDERS, Ingrid SAVORNIN, Samuel SAYSET, Guillaume SOUDAN, Florence STAHL, Holly STOCKBRIDGE, Raphaël TILOT, Sandra TORRES, Michal TRNOVSKÝ, Olivier TURC, Marie-Laurence WACQUEZ, Ben WATTS, Philip WERNLI, Michelle WOO, Xi YAO, Mures ZAREA
The four coaches: Aviva BROOKS, Charlie FARGIALLA, Adrien RIVIERRE and Martin SCHMIT, and the 275 file reviewers!

FOR THE DESIGN AND PRODUCTION OF THE TROPHIES, ENDEL ENGIE:
Léo CHANTREL, Pierre-Antoine DAUMOINX, Emmanuel GIBAULT, Jean-Pierre LAURENT-MENNESSON, Stéphane LUCAS, Cassandra MATIGNON, Michel RIDOUX, Mehdi YAHIAOUI

The present document was produced by an eco-responsible printer on paper of certified origin.
One week to mobilize, promote, discover, discuss, showcase and communicate on the ENGIE Group’s innovations and partners all over the world.

5 days, from June 17th-21st 2019 to make a common project be real: “We are Imaginative Builders”.

MORE THAN 80 EVENTS AND INITIATIVES IN 23 COUNTRIES

ENGIE OPEN-INNOVATION ECOSYSTEM

MORE THAN 100 STARTUPS CALL FOR PROJECTS

4,400 STARTUP PROJECT APPLICATIONS AND SOLUTIONS IN INNOVATION DATABASE

42K @ENGIEINNOV FOLLOWERS ON TWITTER

23K ENGIE INNOVATION COMMUNITY MEMBERS

500 EXPERTS

250 INNOVATION AMBASSADORS