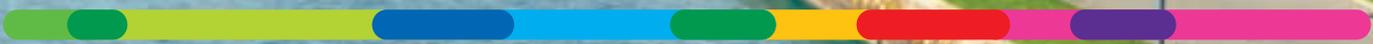




Cities of tomorrow



Group — profile

ENGIE develops its businesses (power, natural gas, energy services) around a model based on responsible growth to take on the major challenges of energy's transition to a low-carbon economy: access to sustainable energy, climate-change mitigation and adaptation and the rational use of resources.

The Group provides individuals, cities and businesses with highly efficient and innovative solutions largely based on its expertise in four key sectors: renewable energy, energy efficiency, liquefied natural gas and digital technology.

ENGIE employs 154,950 people worldwide and achieved revenues of €69.9 billion in 2015. The Group is listed on the Paris and Brussels stock exchanges (ENGI) and is represented in the main international indices: CAC 40, BEL 20, DJ Euro Stoxx 50, Euronext 100, FTSE Eurotop 100, MSCI Europe, DJSI World, DJSI Europe and Euronext Vigeo (Eurozone 120, Europe 120 and France 20).

KEY FIGURES AS OF DECEMBER 31, 2015

- **154,950 employees throughout the world**
 - inc. 57,750 in power and natural gas,
 - and 97,200 in energy services.
- **€69.9 billion in 2015 revenues.**
- **Operations in 70 countries.**
- **€22 billion of investment**
over 2016-2018.
- **1,000 researchers and experts at 11 R&D centers.**

Energy services

- **N°1 supplier of energy efficiency services in the world.**
- **228 district cooling and heating networks operated in 13 countries.**
- **140 million m² managed in the tertiary sector.**

Power*

- **N°1 independent power producer (IPP) in the world.**
- **N°1 independent power producer (IPP) in the Persian Gulf countries, Brazil and Thailand.**
- **N°7 supplier in Europe.**
- **117.1 GW of installed power-production capacity inc. 21.5 GW (18.3%) in renewable energy.**
- **8.1 GW of power-production capacity under construction.**

* Including 100% of capacity of the Group's assets regardless of actual holding rate.

Natural gas

- **A supply portfolio of 1,132 TWh (105 bcm).**
- **N°3 seller in Europe.**
- **N°1 distribution network in Europe.**
- **N°2 transport network in Europe.**
- **N°1 vendor of storage capacity in Europe.**
- **343 exploration and/or production licenses in 13 countries.**
- **699 mboe of proven and probable reserves.**

LNG

- **N°1 importer of LNG in Europe.**
- **N°5 LNG portfolio in the world.**
- **N°2 operator of LNG terminals in Europe.**
- **A LNG supply portfolio of 245 TWh (16.4 mtpa) from 6 countries.**
- **A fleet of 14 LNG tankers inc. two regasification vessels.**

“ENGIE IS READY to be the architect of urban transformation”

THE WORLD IS CHANGING faster than ever, and global challenges in climate, natural resources and demographics increasingly play out in cities. To address these issues, the world’s cities are becoming drivers of the energy transition. ENGIE’s goal is to be a leading architect of this transformation. To do so, the Group is making its diverse capabilities available to cities with custom-made, comprehensive solutions that integrate a wide range of services, from decentralized renewable energy production to green mobility, security, e-citizenship, e-government, and more. Working with local ecosystems, ENGIE helps design the Cities of Tomorrow, which are not only smarter and more efficient than they are today, but also safer and more sustainable.

ENGIE has changed how it is organized to better address cities’ needs. With a new, regional structure, we are closer than ever to the issues on the ground, to local authorities and to our customers. To ensure a truly global reach, a core team specializing in Decentralized



Solutions for Cities and Regions is now dedicated to helping local representatives bring you the best of ENGIE, wherever you are.

The world is changing, **AND SO IS ENGIE.**

Gérard Mestrallet
President and CEO

Isabelle Kocher
Chief Operating Officer and Deputy CEO



Cities and regions are key stakeholders for ENGIE

The world is changing faster than ever. The energy transition – the shift towards new, sustainable ways of producing, using, saving and paying for energy – is gaining momentum, everywhere. This transition is itself part of a broader societal transformation that goes well beyond energy. Emerging technologies are fundamentally changing the way we live, and people are developing new expectations for how goods and services should be owned and used. These changes reflect a profound shift in our societies.

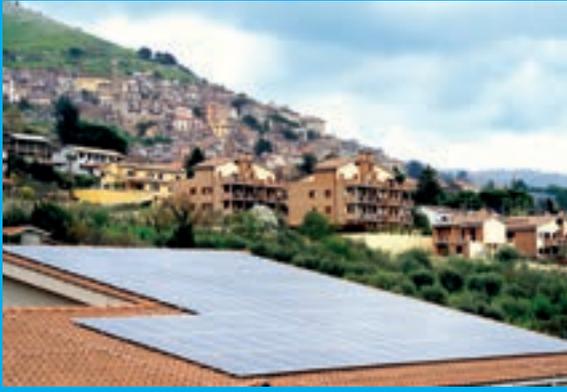
ENGIE's goal is to be a leading architect of this transformation, and cities and regions have emerged as some of its key drivers.

With the ongoing decentralization of decision-making processes, a focus on “decarbonizing” the economy and the growing prominence of digital services and data, many local authorities are looking to increase their control over energy supply and land use, and to provide different and higher quality services. Emerging digital technologies strengthen their ability to do so, allowing them to offer services that are fully customized to specific and even individual needs.

One consequence of this is that the energy transition is happening at different speeds worldwide and taking forms that vary based on local conditions (resources and constraints, culture, climate, etc.).

Overall, however, cities collectively are more than ever the places where global challenges in demographics, natural resources, and climate play out. For example, cities represent 54% of the world's population today – a proportion that will grow to 70% by 2050 – as well as 75% of total energy consumption and 80% of global greenhouse gas emissions. Cities must therefore also be part of the solution to these issues, and reducing urban emissions will be pivotal for reaching global CO₂ emissions reduction targets.





YOUR PREFERRED LOCAL PARTNER, EVERYWHERE

ENGIE has changed how it is organized in order to become a leading architect of the energy transition and better address the needs of its stakeholders. With a new, regional structure, we are closer than ever to the issues on the ground, to local authorities and to our customers. And to maintain our truly global reach, ENGIE has created a worldwide business line for Decentralized Solutions for Cities and Regions focused on accelerating the development of integrated infrastructure, services and smart digital solutions. It consists of a core team of experts and business developers dedicated to helping local teams bring the best of ENGIE to their customers, wherever they are. These include:

- Cities (both existing and new, ranging in scale from mega-regions to smaller towns, and covering new districts in urban areas as well as older ones, etc.)
- Other local areas (islands, remote zones, semi-rural districts, etc.)
- Semi-autonomous and self-contained areas (airports, ports, industrial complexes, university and tertiary campuses, etc.)

OUR PURPOSE

to innovate
with cities
and regions
to make them
safer and more
sustainable,
efficient and
vibrant



ENGIE helps cities and regions become more sustainable, attractive and vibrant communities. To do this, we collaborate with them to provide customized, outcome-based solutions that address their most pressing needs: how can we reduce urban CO₂ emissions? How can we reduce traffic congestion? How can we make our city centers greener, friendlier and healthier places to live? How can we help communities optimize their use of scarce resources and deliver their services more efficiently? How can we provide affordable energy to inhabitants of rural and remote locations who live off traditional grids? How can we make the energy supply for islands greener, more competitive, and more secure, all at the same time? And even: how can we strengthen the links between citizens and local authorities? How can we best care for our most vulnerable citizens?



OUR APPROACH

The solutions we deploy are always unique, designed with customers to meet their specific needs and the context of individual cities and regions. We listen to and work closely with our stakeholders, including local authorities and innovative players from ecosystems in the area (startups and established



companies, universities, civil society, etc.) to develop solutions focused on the delivery of desirable outcomes. The responses we help create rely as much on technological advances (digitalization, miniaturization) as on listening to needs and an iterative process that ensures each step is in the right direction.

Together, we design innovative, cross-cutting solutions to address complex issues and maximize benefits for customers, based on the unique depth and breadth of ENGIE's capabilities in infrastructure, services and smart digital solutions, and on our ability to package

them together in bundled, integrated offers. Our skills include:

- District energy (heating and cooling) solutions, which are the most efficient way to massively substitute, in city centers, fossil fuels by low- and no-carbon renewables [see examples 1, 2];
- Local, decentralized energy generation, using cutting-edge technologies (micro-grids, combined solar and battery storage solutions, etc.) [see examples 3, 4];
- Green mobility solutions ranging from fuel substitution to multi-modal transportation infrastructure design and information systems [see examples 5, 6, 7];
- Digital systems and platforms including city dashboards, traffic management systems and e-health [see examples 6, 7, 10, 12, and 13];
- Many other services provided by the Group in the fields of energy, public lighting, facilities management, security, and more [see examples 8 to 11].

These integrated offerings deliver tangible, measurable outcomes for cities and regions at optimal cost generating savings for the customer [see example 10]. If our clients need narrower solutions for specific situations, we provide a catalogue of services and technology solutions, which can be picked individually and still ensure delivery of the desired outcome.

Since we always look for the solution that delivers the most value for the customer, we take a pragmatic approach to integrating services provided by other partners into our own designs, and equally provide services for projects coordinated by others.



OUR AMBITION —

within 5 years, for ENGIE to be recognized as a world leader of the energy transition and decentralized solutions for cities and regions



The city, an ecosystem of high-performance solutions

OUR SKILLS

ICT NETWORKS

Secure, high-throughput telecom networks.
Video-monitoring of buildings and public spaces.

ENGINEERING

Via Tractebel Engineering, a world leader in engineering for energy, water and infrastructure projects, a comprehensive approach to energy and environmental performance approach for current and planned facilities and equipment.
Consideration of technical, economic, financial, and social aspects.
Offers that promote the growth of the circular economy and "usage value".

ENERGY GENERATION AND SUPPLY

Distribution of natural gas and electricity: custom-made service offers for individuals, local authorities and businesses (feasibility studies, financing, installation, etc.).
Low-CO₂-emissions power generation from renewable sources: photovoltaic solar power, thermal solar power, wind power, heat pumps, geothermics, biomass, heat recovery from air extracted from buildings.
Multi-energy systems based on natural gas/electricity/renewable energy.

SMART ENERGY GRIDS

Full smart grid offering, including decentralized production of electricity (photovoltaics + wind), battery and flywheel storage, energy management systems (EMS), smart meters, electric vehicles.

SECURITY

Management platforms for urban security.
Security for major events.
Digital crisis prediction and management.
Cybersecurity.
Flood and natural risk assessments and action plans

DISTRICT HEATING AND COOLING NETWORKS

State-of-the-art, high efficiency heating and cooling networks fueled principally by renewable energy.
Tri-generation units (heat, power, cooling).
Energy recovered from waste and wastewater.
High-efficiency boilers.
Multi-technical maintenance.

RESPONSIBLE MOBILITY

Digital support systems for transportation operation and traveler information.
 Smart traffic management systems.
 Development of intermodality.
 Soft mobility (people movers, bicycles, etc.) and shared mobility (carpooling) offers.
 Energy mixes suited to different types of mobility: natural gas, electricity, hybrid vehicles, alternative fuels, etc.
 Reduction in travel needs thanks to urban mixed mobility and remote services.

SMART BUILDING MANAGEMENT

Overall services management (water, heating, cooling, safety, upkeep, etc.).
 State-of-the-art digital technologies for measuring, monitoring and influencing consumption.
 Management of indoor air quality.
 Energy performance contracts.
 Retrofitting for energy efficiency.

DRINKING WATER AND WASTEWATER (with partners)

Distribution of drinking water.
 Improving the quality of the water supplied.
 Treatment plants for drinking water from rivers, lakes and water tables.
 Seawater desalination by reverse osmosis.
 Wastewater recovery.
 Treatment of wastewater by ultrafiltration to be reused for urban, agricultural and industrial purposes.
 Making water drinkable using suitable treatment methods.
 Heat recovery from wastewater networks for producing heat and refrigeration in towns and cities.

GARDEN CITY

Eco-maintenance of green areas.
 Maintaining biodiversity
 Landscaped gardens.
 Shared gardens.

WASTE COLLECTION AND RECOVERY (with partners)

Urban waste management.
 Selective sorting and recycling of waste.
 24/7 pneumatic waste collection.
 Methanization of household waste (production of renewable biogas).

PUBLIC LIGHTING NETWORKS

Streamlined management of lighting to reduce energy consumption.
 Solar panels on lampposts.
 Stage-setting of monuments and outstanding spaces.
 Video-protection linked to public lighting.

ENERGY MANAGEMENT

Energy and environmental efficiency solutions.
 Energy performance consultancy and contracts.
 Energy procurement rationalization programs.
 Positive-energy buildings.
 Influencing consumer behavior through applications.
 Digital energy management platforms.
 Metering and remote monitoring.

OUR REFERENCES

District heating and cooling

01

DISTRICT COOLING NETWORKS

Climespace in Paris is one of the most efficient cooling networks worldwide, avoiding the equivalent of 20,600 tons of CO₂ emissions in 2014 (equivalent to 162 million fewer km driven by cars).

Key figures

- 600 customers
- 5 million m² air-conditioned
- 72km of underground networks
- 412GWh of cooling energy supplied
- Responsible cooling
- ISO 50001, OHSAS 18001 (Health and Safety) and ISO 14001 certifications

In Paris, compared to an equivalent fleet of standalone installations, the CLIMESPACE system allows for:

- +50% of energy efficiency
- -35% of electricity consumption
- 50% reduction in CO₂ emissions
- 65% reduction in water consumption



02 DISTRICT HEATING NETWORKS AND SMART FACILITIES MANAGEMENT

An “Olympic” heating network: a highly efficient tri-generation unit (heat, cooling, power) built for the London Olympic Park and surrounding area, resulting in 24% reduction of CO₂ emissions.

As part of its policy to make the 2012 Olympic Games a driver of sustainable development in London, the British capital assigned ENGIE a 40-year concession to build and operate a heating and cooling network to serve the “Queen Elizabeth II” Olympic Park and new development areas in the town of Stratford.

Two ultramodern power plants equipped with a trigeneration system – heating, cooling, and electricity – were installed along with underground storage capacity at King’s Yard and Stratford. The boilers are powered by natural gas and biomass and provide energy to 477,000 m² of office space and housing via a 16km-long network, which will later be expanded to neighboring districts.

The benefits of this include:

- 75% of area electricity needs covered.
- 40% savings in energy consumed, equivalent to a reduction of 2,900 metric tons of CO₂ emitted, compared with conventional facilities.



Decentralized renewable and low-carbon energy generation and distribution

03 INTEGRATED MICROGRIDS

A Smart Economic Activity Zone (EAZ)

in Toulouse: a full-scale demonstrator showcasing the Group's know-how in multiple aspects of micro-grids (solar panels, windmills, batteries, flywheels, energy management systems, and more).

In Toulouse, a 1.5-hectare business park with a working population of 230 is successfully experimenting with a new way of sharing power networks thanks to a smart grid run by ENGIE Ineo. It pairs facilities that consume energy with those that generate and store power.

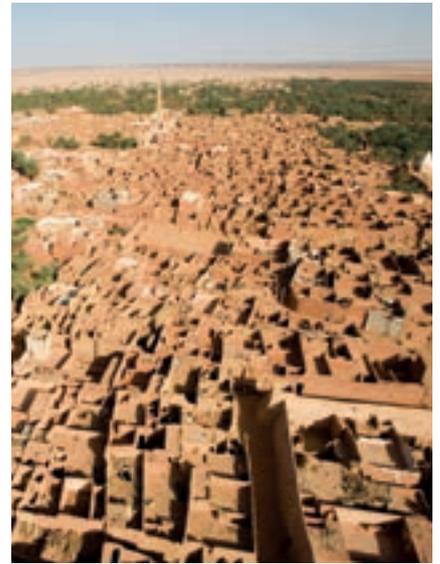
Full-scale smart grids

The Smart EAZ includes renewable energy generating systems, a 300kWp solar panel array and a 60kW wind power installation. The energy generated is either consumed or stored on-site in lithium-ion batteries (1.5MWh) and flywheels (100kWh) to optimize the economic and environmental balance of the business park site. Also, more than 100 sensors provide real-time measurement of power supply and

demand at different points in the grid. The smart energy management system developed by ENGIE Ineo gathers and centralizes all this data as the basis for matching energy generation to consumption.

Via this system, all on-site electrical systems communicate with each other continuously, enabling the generation/consumption balance to be optimized at all times. The building manager can control the facilities and balance priorities by deciding, for example, to shut down heating or air conditioning at times of peak consumption without compromising office comfort levels. Similarly, at lunchtime or during low points in consumption, the solar energy generated can be stored for later use. Consumers therefore become active contributors to maintaining the balance of the power supply grid.

This project is being run as a partnership with the power electronics company CIRTEM, the Laplace energy conversion laboratory (INP Toulouse) and Levisys, the pioneer in flywheel energy storage.



04

RURAL MICROGRIDS

In November 2015, Orange and ENGIE signed an MOU for a partnership for rural electrification through microgrids and energy optimization of telecom structures in Africa.

ENGIE currently supplies 760MW of power in Africa and aims to become one of the major energy leaders on the continent by 2025 with several major projects planned. The partnership will test a range of domestic power supply solutions for rural populations including individual solar kits and small-scale, local electricity networks. Orange and ENGIE are keen to play their role as socially responsible players in Africa, where an estimated 69% of the population in sub-Saharan Africa and 90% of the rural population in the same region have no access to the electricity grid.



Green mobility

05 ALTERNATIVE FUEL RECHARGING STATIONS

ENGIE has installed more than 5,000 vehicle charging stations in Europe, including a network of 200 CNG stations for heavy duty vehicles (a 15% expansion of which is planned, mainly in the Ile de France area).

The City of Paris is strengthening its commitment to sustainable mobility and in the fight against air pollution, developing charging stations for electric vehicles in the capital. ENGIE and its partners were tasked with the design and installation by mid-2015 of 180 innovative charging stations known as "Urban Pulse" in 60 different terminals throughout the French capital. With 3 charging points for electric and hybrid vehicles, these terminals provide two

charging options depending on the vehicle model. By participating in this new project, ENGIE Ineo accompanies the evolution of uses and needs of citizens, and strengthens its commitment to innovative urban mobility, environmentally friendly and durable.

Urban Pulse is just one of the latest of more than 1000 electric vehicle charging infrastructures in France, covering smaller municipalities, offices (including ENGIE's head office in Paris, with a car sharing system for employees), the Compagnie Nationale du Rhone in Lyon, Aéroports de Paris, several départements, etc. The projects integrate a number of different bricks : design, choice of equipment, installation, commissioning, maintenance, operation and in-house tailor-made information systems (monetization, charging control eco-driving, etc.).



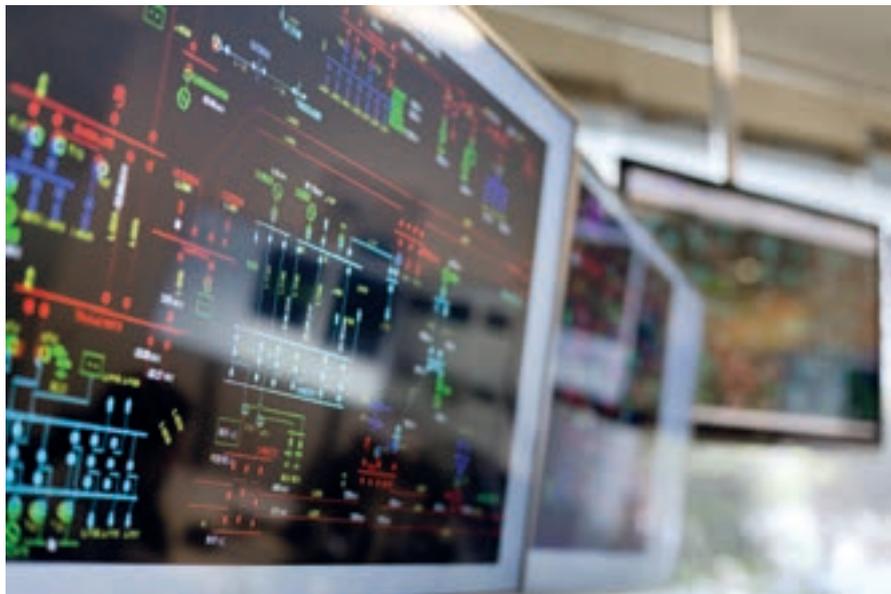
06

INTELLIGENT TRANSPORTATION SYSTEMS

130 public transportation networks worldwide use our computer-aided dispatch and passenger information systems. With 5500 buses, Bus Rapid Transit lines and 6 tramways, we are the largest provider of this service for the Paris RATP. We are also present in Québec, Brussels, Edinburgh, Dubai and Morocco.

For over 30 years, ENGIE has designed, deployed and maintained passenger information and operational support systems to help dispatchers operate buses, Bus Rapid Transit (BRT) lines and light-rail systems. Passengers are informed in real-time of every schedule or service modification.

Key examples include Quebec City, where 640 buses and BRT vehicles use ENGIE systems; Brussels, with 630 buses and trams; the Greater Paris region with 5500 buses and BRT vehicles and 6 tram lines; Edinburgh, Dubai, Algiers, the high-speed line between Rabat and Casablanca, and more.



07 INTEGRATED TRAFFIC CONTROL CENTER

The Maestro City Control Center in Rio de Janeiro uses our custom traffic management platform, incorporating CCTV, automatic incident detection, fleet geo-localization and other plug-in services. More than 20 city agencies are integrated into one central command center where they can see in realtime what's happening around the city and find solutions to problems quickly - the result is a 30% drop in emergency response times.

ENGIE Ineo (via Ineo do Brasil) implemented a number of solutions for this major project, including:

- installing a 300 km fiber optic telecommunications network
- deploying 170 cameras
- data migration for a control center and 18 operational sites
- designing a digital records system with a permanent incident report record
- developing a platform for surveillance monitoring
- integrating existing systems into the INEO-designed platform
- setting up a 24/7 maintenance service

Lighting and security



09 SMART SECURITY

In Paris, ENGIE designed, financed, installed, operates and maintains 1106 security cameras. We also operate the interconnection with systems from different partners, including the SNCF and the RATP.

The French capital's videoprotection plan provides services for better traffic management, increasing security in public space, and facilitating emergency service and first-aid operations. The video system is based on a network infrastructure of 450km of optical fiber in the city's sewage system.

Access to photos from partner systems (Paris Town Hall, the SNCF and the RATP transit authorities, etc.) strengthens the operational capacity of the Police Department, which owns the system.

ENGIE is in charge of carrying out the design, installation, technical operation, maintenance, renewal, and of financing the set of video cameras and the related system. The 17-year contract is a national benchmark in the field of videoprotection.

08 SMART LIGHTING

In Avignon, France, ENGIE replaced 20.000 lights with LEDs and an integrated security system that improved safety and induced overall energy savings of 39%.

In its 15 year PPP with the City of Avignon, ENGIE is responsible for renovating, operating, maintaining and funding the city's public lighting system and for providing new solutions to promote Avignon's cultural heritage.

Increasing the quality of lighting and energy efficiency and ultimately reducing overall energy consumption by 39%, ENGIE Ineo also designed a permanent light trail that illuminates 20 symbolic buildings and squares in historical center. ENGIE is also sensitive to quality of life and economic development for the city: operations are conducted via electric vehicles at night to reduce noise pollution and lower the operation's carbon footprint, and 20% of initial work was entrusted to local businesses and craft producers.

Integrated offerings for the city of tomorrow

10 INTEGRATED CITY SERVICES

The North East Lincolnshire Regeneration Partnership was signed between North East Lincolnshire Council (NELC) and ENGIE in 2010.

ENGIE employees deliver operational frontline services to NELC, including full facilities management, development and property-related advice for council-owned assets worth £1.12 billion pounds. But the partnership also goes well beyond traditional FM and services outsourcing, incorporating a groundbreaking set of

societal and operational objectives. These include investing £0.5 billion in sustainable economic growth and regeneration; a 33% reduction in the number of people killed and seriously injured in road traffic accidents; securing 4,000 jobs in the local area; creating 60,000 square meters of new office, commercial, retail and industrial space; and delivering multi-million pound savings to the council over the term of the partnership to reinvest in frontline services for residents. These ambitious goals and the achievements thus far were rewarded by the 2015 British Institute of Facilities Management Societal Impact Award.



Digital services for urban management

11 DIGITAL CITY SERVICES

Cit'Eazen is an application that lets citizens direct report incidents and get responses from the city services; it is used in Croix, Edinburgh and other cities.

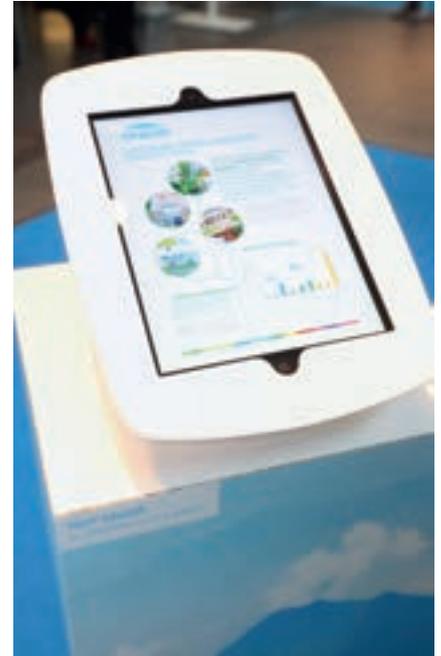
The City of Croix (France) opted for Cit'eazen to strengthen its relationship with citizens while enhancing its ability to manage public services. With 20,664 citizens and potential users of the application, 83 municipal officials, and leadership by the General Services Department at City Hall, Croix has opted to let citizens signal issues with green space, roads (excessive puddles, debris, potholes), traffic signaling, degradation of public facilities and street furniture, public transit, graffiti, and trash bins.

When citizens indicate an issue, the app automatically georeferences it and provides a real time response to the user when it is resolved. This brings citizens closer to their municipal services, and allows providers and elected officials to assess where problems are concentrated and how citizens react.

12 E-HEALTH

ENGIE INEO currently provides support to over 350 health complexes, including an offering that allows patients, doctors and hospitals to share information via a digital terminal and online telemedicine platforms.

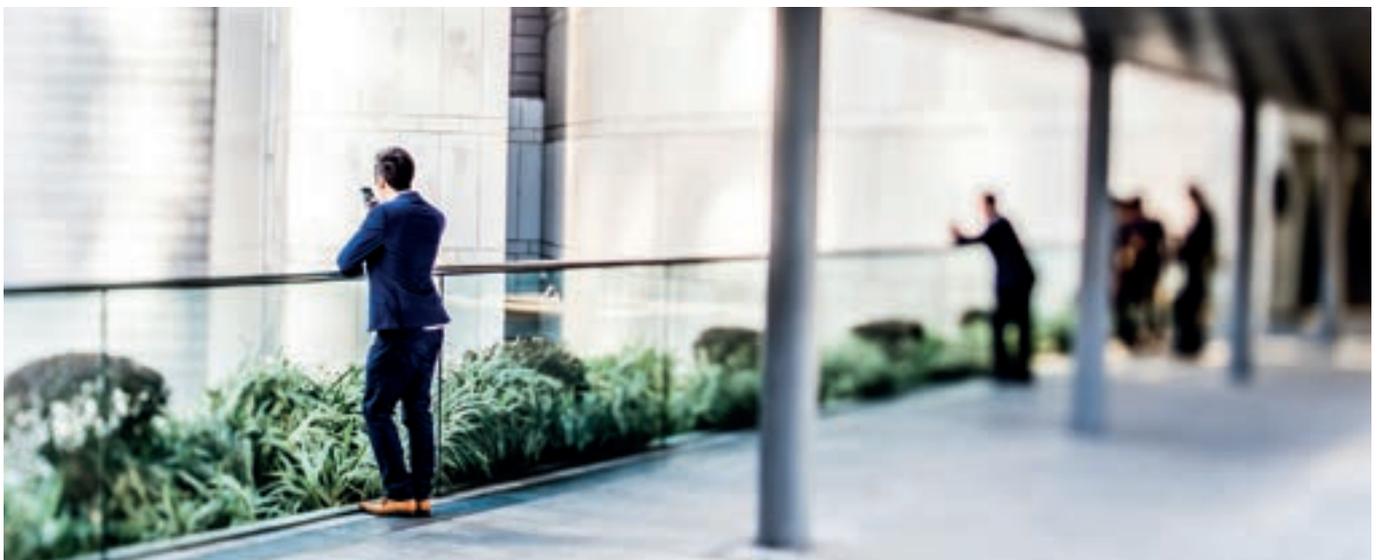
ENGIE Ineo's digital platform, patient terminal and software help its clients geolocate patients (using a badge system) to help prevent falls and escapes; detect changes in behavior by monitoring energy consumption; providing telesurveillance for chronically ill patients and online doctor's visits to help keep patients out of the hospital unless needed.



13 DIGITAL CITY SERVICES

Cit'Ease is a digital tool for cities that lets them manage a range of city services.

The tool centralizes and cross-references a range of territorial management data, providing a real-time display of information about a city and allowing you to coordinate and adjust parameters. The ultimate goal is to achieve a balance between available resources and citizens' needs, to reduce water and energy consumption, to improve waste management and enhance social welfare. For example, it allows municipalities to address fuel poverty by identifying urban zones where households spend more than 10% of their income on their energy needs, thus paving the way for intervention, assistance or support policies.





Your local partner, everywhere

The world's cities are key players of the energy transition: ENGIE's goal is to be a leading architect of this transformation. To do so, ENGIE is working with local ecosystems to design the Cities of Tomorrow, smarter, safer, more efficient and sustainable than today.

The world is changing, and so is ENGIE.



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