



ACTIVITY REPORT

2016

TIGF

TRANSPORT ET
INFRASTRUCTURES
GAZ FRANCE

TIGF

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INFRASTRUCTURES
GAZ FRANCE

EDITORIAL



**ENERGY
IS THE
FOUNDATION
OF ALL
HUMAN,
ECONOMIC
AND SOCIAL
ACTIVITY.**

INTERVIEW

DOMINIQUE MOCKLY CEO of TIGF

You started your tenure as CEO this year, what convinced you to take up this challenge?

The first reason is that TIGF is a player in the energy sector, and that is a world of challenges which inspire me a little bit more every day. Energy is the foundation of all human, economic and social activity, and is a sector that is currently experiencing the kind of changes not seen in 150 years: changes to make energy cleaner and more local, and to ensure that its production, transportation and use are not unsustainable, but on the contrary positive for the planet. These are thrilling challenges, and my deeply-held belief is that gas should be at the central to this progress.

The second reason is that TIGF does not yet enjoy the recognition it deserves. When I see the professionalism and dedication of all the teams, their determination to keep moving forward, innovate and place their skills and imagination at the service of the company, I tell myself that I made the right choice and that together we are capable of building a stronger TIGF for tomorrow.

What changes do you want to inspire in the company?

I want it to address its future without the slightest taboo or fear. I want it to become a national and European player that counts, without ever forgetting the fundamentals of the group that shape its identity, meaning its regional base and the energy which is at its heart: gas. I am convinced that gas is an energy of the future, no matter what some people might think. This is because it is the only type of energy to make the link between the past, with its largely fossil fuels, and a future aiming for "100% renewable energy". To continue on this road, we will need gas to evolve and innovate to reduce its impact on the environment. It is what I call a doubly positive impact.

Gas is a form of energy which is intrinsically cleaner than coal and oil. It is also plentiful, which is essential for a successful energy transition. In addition, at TIGF we know how to ensure that gas has a positive effect on the environment, especially with our ambitious policies of offsetting all our carbon emissions, or our policy of rebuilding the ecosystems affected by our work sites. The proof is the many species which find ideal habitats in which to settle and thrive on our infrastructures that create ecological corridors.



WE ARE CONVINCED THAT THE FUTURE OF OUR SECTOR WILL BE EUROPEAN.

What are the events of 2016 which point to this future you are describing?

There are many of them and they touch on different areas of the business. For example, the opening of the Adour Artery, the result of a great adventure for our teams who demonstrated all their technical and relational skills. Completing a project like this is a technical feat, while gaining the acceptance of the people who live in these beautiful regions is a human challenge, and one that was achieved with great success.

It is also another symbol, that of the European dimension which TIGF must gain in the years to come. We have linked France and Spain, which is a start, and we have other ambitions as we are convinced that the future of our sector will be European. Another success in 2016 was that of our sales teams. They showed their efficiency, agility and ability to react in a context that was not always easy. The results are there and with such a strong team, TIGF can go even further in the future.

Ultimately, these two noteworthy events of the year are symbols of a company which is determined to forge ahead, and which has the means to do so, thanks to its good results, its investments and its shareholders. It is because TIGF enjoys these extraordinary advantages that I wanted an ambitious strategic plan. I am sure that the company and its men and women are more than capable of carrying out this IMPACTS 2025 plan and making TIGF a key player in the European energy sector, a powerhouse of the energy transition.



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GOVERNANCE

AT THE HEART OF A POSITIVE PROCESS

TIGF IS A PRIVATE LIMITED COMPANY
WITH A BOARD OF DIRECTORS
REFLECTING ITS SHAREHOLDERS

BOARD OF DIRECTORS



ANDREW DENCH

Chairman of the Board of Directors
GIC



DOMINIQUE MOCKLY

CEO
TIGF SA



FRANCO PRUZZI

SNAM



GIUSEPPE PELUSO

SNAM



EXECUTIVE COMMITTEE



FROM LEFT TO RIGHT:

Ingo SCHÄFER
Director Finance and Purchasing,

Dominique BOQUILLON
Director Communication
and Institutional Relations
(named on March 20, 2017),

Bruno TOSTAIN
Director Health, Safety,
Environment & Sustainable Development,

Valérie LE GARS
Secretary General,

Dominique MOCKLY
CEO,

Paola BONANDRINI
Deputy CEO for Techniques and
Operations in the Operations Division,

Lionel THOMAS
Deputy CEO for Storage Activities
in the Operations Division,

Daniel WIDERA
Director Information Systems and Digital,

Jean-Loup MINEBOIS
Director Commercial Development.

TRANSPORT GAS
STORAGE TERRITORY
LINK ENERGY SUPPLY
EUROPE EXPERTISE
ADAPTATION MOBILITY
VISIONARY
CONNECTION PRECISION
RELIABILITY SECURITY
ENVIRONMENT
PERFORMANCE
BIOMETHANE CONNECTION
HUMAN DIMENSION
INVESTMENT

KEY-FIGURES

5,134 km
of pipelines

14%
of France's
gas transport
pipeline
network

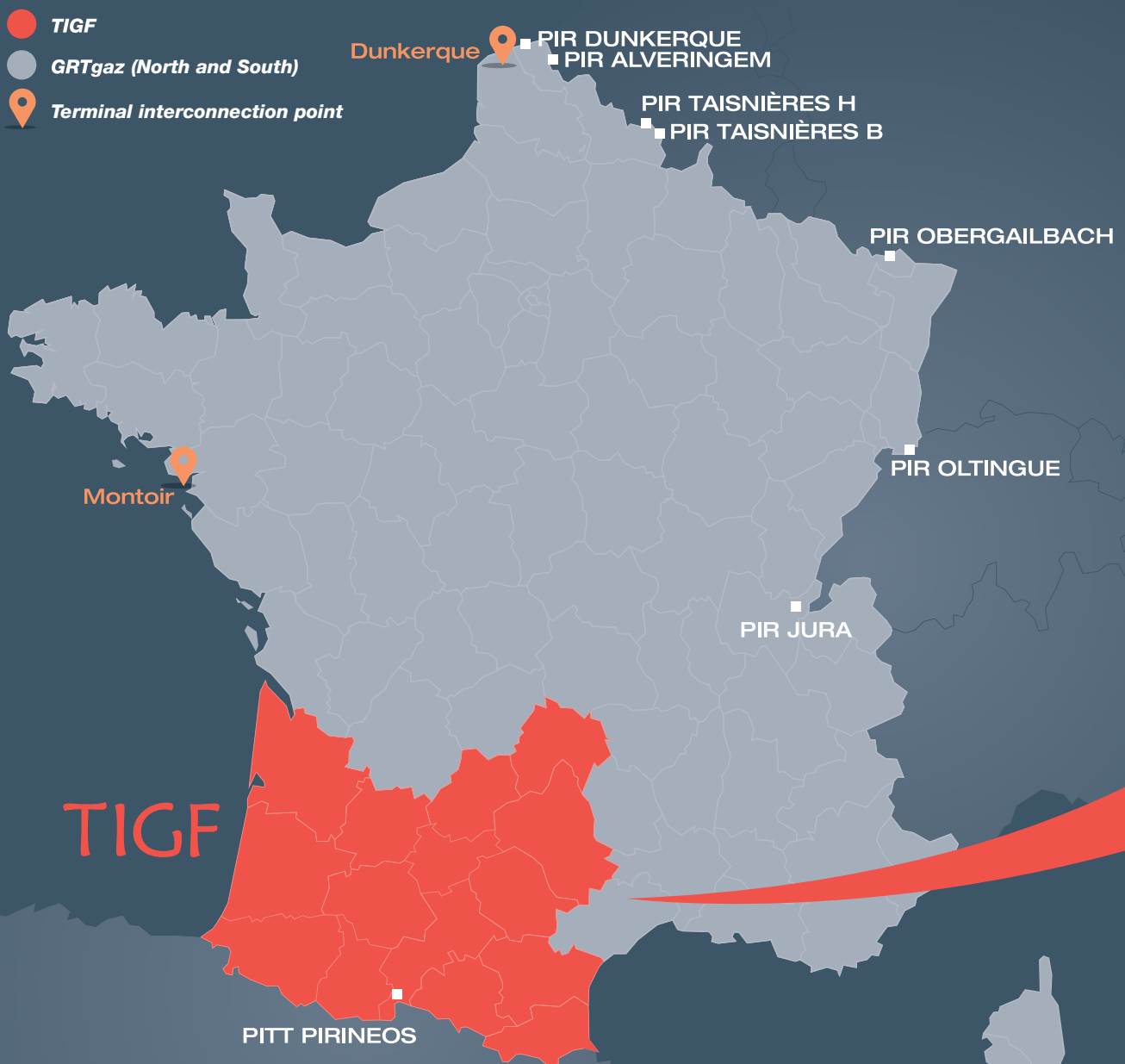
16%
of French gas
transiting
through
the TIGF grid

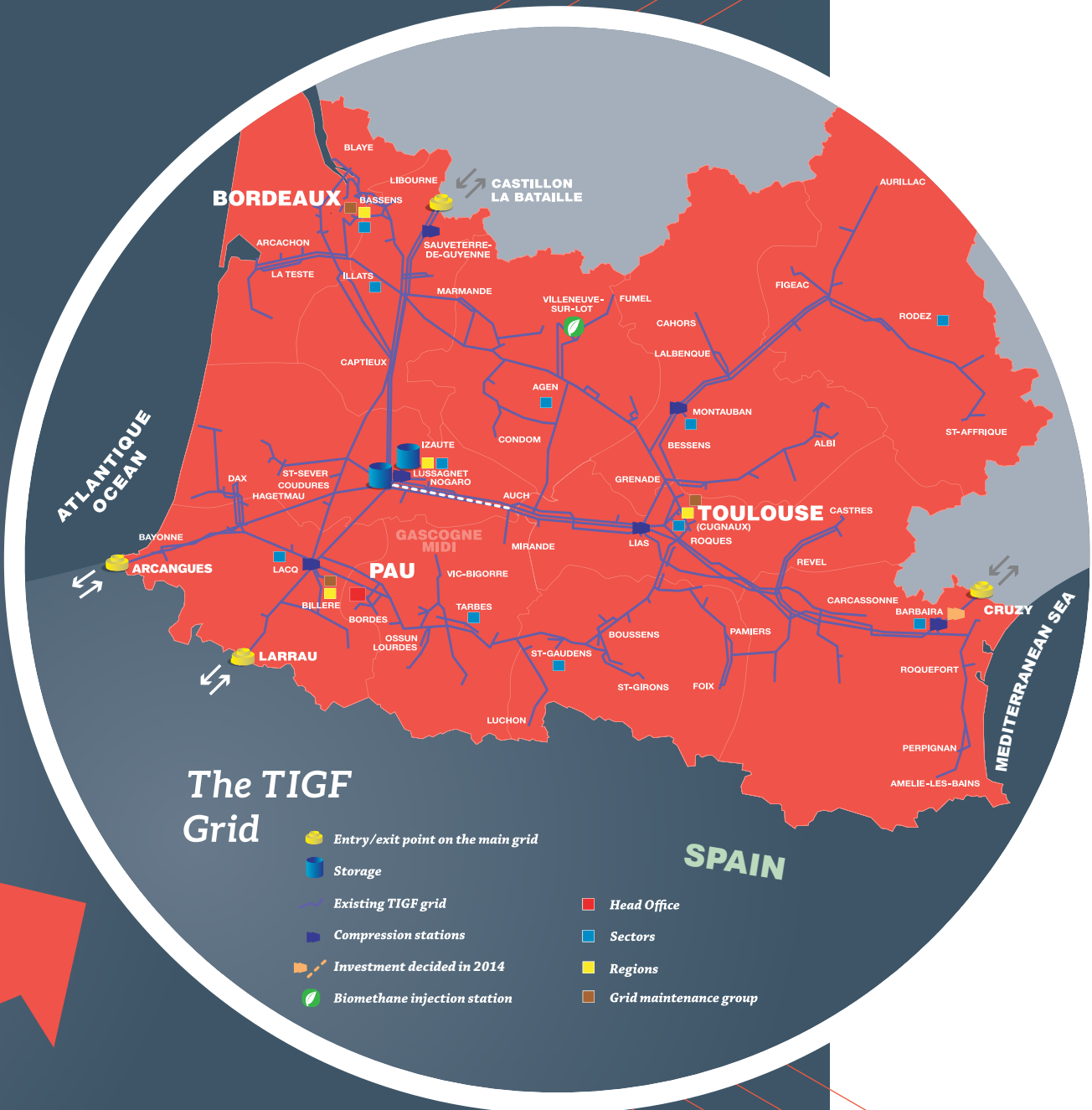
6.5 Gm³
of total gas storage
capacity

24 %
of French gas
storage capacity

2.80 Gm³
of tradable
volume

The TIGF Grid





The TIGF Grid

- Entry/exit point on the main grid
- Storage
- Existing TIGF grid
- Compression stations
- Investment decided in 2014
- Biomethane injection station
- Head Office
- Sectors
- Regions
- Grid maintenance group

The place of gas in the Energy transition

TIGF DRIVES THE GREEN REVOLUTION

Gas is a clean, renewable, abundant and competitive source of energy. Primarily composed of CH₄ (more than 97%), natural gas is the fossil fuel with the lowest carbon footprint. It generates 35% less CO₂ when burned than coal and does not release any particles. Gas also has the advantage that it can be of renewable origin from the Biomethane or Power to Gas sector. This green gas can be transported throughout the territory via the same transport infrastructures as natural gas.



OBJECTIVES OF THE ENERGY TRANSITION LAW FOR GREEN GROWTH IN 2030 :

- 40% REDUCTION IN GREENHOUSE GASES IN COMPARISON TO 1990,
- 32% INCREASE IN RENEWABLE ENERGY CONSUMPTION, INCLUDING 10% RENEWABLE GAS.

OBJECTIVES OF THE ENERGY TRANSITION

The Energy Transition is a profound structural change in energy production and consumption methods. The principal objectives are as follows:

- Reduce the impact of human activity on the environment (Greenhouse Gases).
- Secure supplies, with the decline in fossil fuels gradually being offset by renewable energies.
- Make energy accessible to everybody.



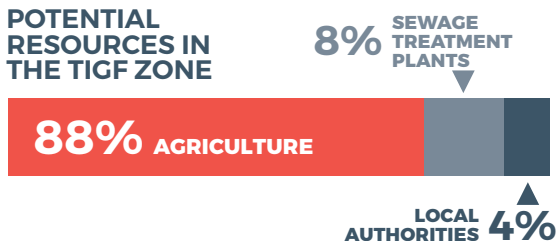


TIGF INTENDS TO PLAY A KEY ROLE IN DEVELOPING THE METHANATION SECTOR.

BIOMETHANE

Methanation is the process of breaking down organic substances in an environment without any oxygen. It provides a way of recycling certain waste products, (i.e. agricultural waste, organic products, food industry waste etc.) by exploiting the potential of the local territory and driving a circular economy. The dynamic performance of the sector over the past few years is being driven by the objectives of the Multi-Year Energy Programme (PPE) which requires the injection of 8TWh of biomethane into the grid by 2023. In the TIGF zone, the potential for methanation is essentially agricultural, but only 6% of the available waste resource is exploited at present, so the remaining potential is substantial. TIGF intends to play a major role in developing the methanation sector and recycling these resources.

POTENTIAL RESOURCES IN THE TIGF ZONE



The place of gas in the **Energy transition**

SECOND-GENERATION BIOMETHANE

Second-generation biomethane allows the recycling of waste from lignocellulosic biomass, (wood, straw etc.) or refuse-derived fuel (RDF). RDF is a dry, clean fuel produced from un-recyclable waste. This waste is heated to a high temperature without oxygen. This pyrogasification process produces methane and hydrogen which can then be injected onto the natural gas transport and distribution grid.

Second-generation biomethane units are much larger in size than those of first-generation methanation and will play a leading role in achieving the objectives of the Energy Transition Law for Green Growth.

NGV (NATURAL GAS VEHICLES)

While gas is the first alternative fuel in the world, France needs to foster its development to catch up with its European counterparts. While Italy and Germany have close to 1 million gas-powered vehicles, France has barely reached 14,000 vehicles and most of them are in private fleets. The advantages of gas-powered mobility no longer need to be proved: no particle or SOx emissions, a reduction of nearly 80% in NOx and 25% in CO₂ compared to diesel.

TIGF is a partner in studies for the installation of NGV stations within its territory and sees itself as a facilitator for the sector.

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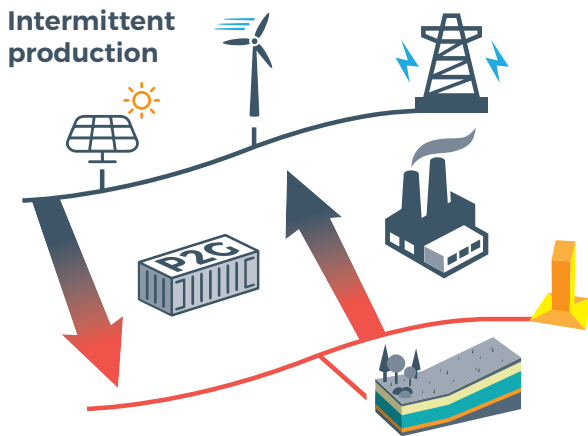
2G BIOMETHANE UNITS WILL PLAY A LEADING ROLE IN ACHIEVING THE OBJECTIVES OF THE ENERGY TRANSITION LAW FOR GREEN GROWTH.

”

THE ADVANTAGES OF GAS-POWERED MOBILITY NO LONGER NEED TO BE PROVED: NO PARTICLE OR SOX EMISSIONS, A REDUCTION OF NEARLY 80% IN NOX AND 25% IN CO₂ COMPARED TO DIESEL.

NETWORK INTEGRATION

Network integration is a way of fostering the development of renewable electric energy by making use of production during periods when it is in plentiful supply. Gas infrastructures serve as a balance for the electricity grid. Surplus electricity is converted into hydrogen by electrolysis of water. The hydrogen that is obtained can be injected directly into the network or transformed into methane by methanation. The technical feasibility of what is commonly known as Power to Gas is currently at the validation phase on an industrial scale through the Jupiter 1000 pilot project, for example.



**GAS INFRASTRUCTURES
SERVE AS A BALANCE FOR
THE ELECTRICITY GRID.**

Project supported by:



Partners of the project:

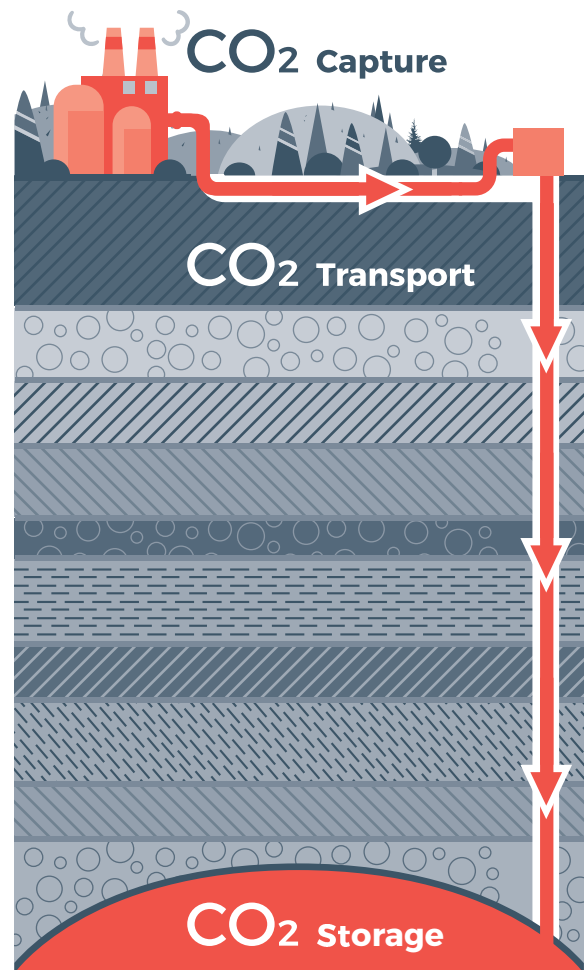


GEOLOGICAL CO₂ STORAGE CO₂ RECYCLING

Geological storage of CO₂ is currently the only technology that can reconcile controlling greenhouse gas emissions and continuing use of fossil fuels within the framework of the transition towards a greener energy mix. The principle is simple: it consists in capturing CO₂ at its emission source to route it to an adequate geological structure where it can be sequestered.

The economic situation is not conducive to the emergence of this sector on an industrial scale, but that is not the only obstacle to this technology. Its status as waste under the European regulations is limiting the growth of this market.

TIGF is conducting intelligence on the subject and studying the possibility of positioning itself as a key player in this sector. TIGF has also undertaken an active programme of transforming the CO₂ once it has been harvested into methane, showing that it can come full-circle.



CO₂ injection wells

BE POSITIF

A positive commitment to the environment

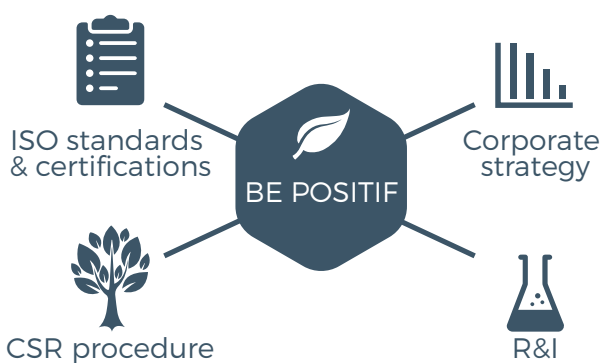


TIGF'S AMBITION IS TO ACHIEVE CARBON NEUTRALITY BY 2020.

BE POSITIF (POSITIVE Environmental Appraisal) is an ambitious environmental program which is an integral part of the business plan. It is also one of the mainstays of TIGF's Corporate Social Responsibility process. Through this collaborative program, TIGF's ambition is to achieve carbon neutrality by 2020 and then to generate environmental value with a view to making our impact positive.

A BROAD, COLLABORATIVE APPROACH

The process is comprehensive and encompasses all the sectors in which TIGF activities (transport and storage, worksites and operations) are likely to have an impact (air, water, biodiversity, soil, subsoil, noise, landscape and stakeholders...). It is also based on a collaborative, functional and transversal approach with a view to consolidating the environmental culture that is already present at TIGF.



PREVENT, REDUCE AND OFFSET

The BE Positif programme is defined in accordance with the Prevent-Reduce-Offset method which is already used with expertise on our pipeline projects. The first step, an evaluation of the overall impact of TIGF, was constructed on the basis of the fundamental documents for our ISO14001 and ISO 50001 management systems (notably an environmental review and energy review), under which the company is certified.

The programme takes the form of a set of projects and practical actions which are already underway or planned for the future, making a major contribution to reducing these impacts.

In addition, the management systems on which this process depends must go hand in hand with continuous improvement. This collaborative programme will therefore be fed by the following contributions:

- TIGF employee ideas and initiatives
- Changes in the business plan,
- Research and development projects,
- Changes in environmental regulations driving sustainable development,
- Communication with our stakeholders and shareholders...

The environment is already very present in our corporate culture and this program will serve to reinforce this existing indicator. Combined with a significant digital transformation, it will facilitate proactivity and the expression of all its contributors. BE Positif considers TIGF and all of its staff as committed players and drivers of the energy transition.



Air



Water



Biodiversity



Noise



Society



Soils



Waste



Landscapes

MAIN IMPACTS FOR WHICH POTENTIAL QUICK WINS APPEAR POSSIBLE:

AIR

Emissions linked to works venting, turbo-compressor emissions, diffuse emissions, CO₂ equivalent of our electricity consumption, and emissions linked to mobility, etc.

WATER

Consumption, potential impact of our activities on water resources (storage, works, etc.)

BIODIVERSITY

Disruption of flora and fauna during projects or during network operation.





PROSPECTS

#TRADING REGION FRANCE

#STORAGE PERFORMANCE

#WORK METHODS

#SAFETY

#DIGITALISATION



From TRS (Trading Region South) to TRF (Trading Region France)

”

**TIGF IS A KEY PLAYER
IN THIS CHANGE AND
INTENDS TO MAKE TRF
AN OPERATIONAL AND
COMMERCIAL SUCCESS.**

On 1st April 2015, TIGF and GRTgaz created a common market area for the two operators in the south of France: the Trading Region South. Three years later, on 1st November 2018 to be exact, the TRS will merge with the PEG Nord, the market area which currently covers the northern part of the country. There will therefore be a single trading area in France, the TRF (Trading Region France), combined into a single marketplace.

TOWARDS A SINGLE PRICE FOR GAS

Like the TRS, the TRF will be operated jointly by the two transport operators, while maintaining two interdependent balancing zones, one for TIGF and the other for GRTgaz. It is therefore evolution rather than a revolution, as the Trading Region (TR) model is maintained. The TRF has long been keenly awaited among customers and authorities, as it will finally open up the possibility of a single price for gas in France, where today there is one price in the north and another in the south with great disparities between the two.

TIGF is a key player in this change and intends to make the TRF an operational and commercial success, as was the case with the TRS when it was created and as is still the case in its operation phase.

In line with the strategy drawn up by the national regulator (French Energy Regulatory Commission), TIGF has undertaken and continued major construction works in 2016:

- **Infrastructure works:** €150 million is being invested in the transport network through the Midi Gascogne Reinforcement Project (RGM). The objective is to allow quantities of gas to be transported from the TIGF zone towards the south-east of France where supplies are not sufficient. These works will benefit from significant financial incentives from the regulator.
- **Price adjustments following** the simplification of the trading environment (a reduction in the number of trading points where income from transport is collected): the prices for access to our network must be controlled to allow our customers to continue making the

best use of our service. For example, the circulation of gas between France and Spain should not be impeded by a tariff barrier. This is one of the issues TIGF is defending with the regulator.

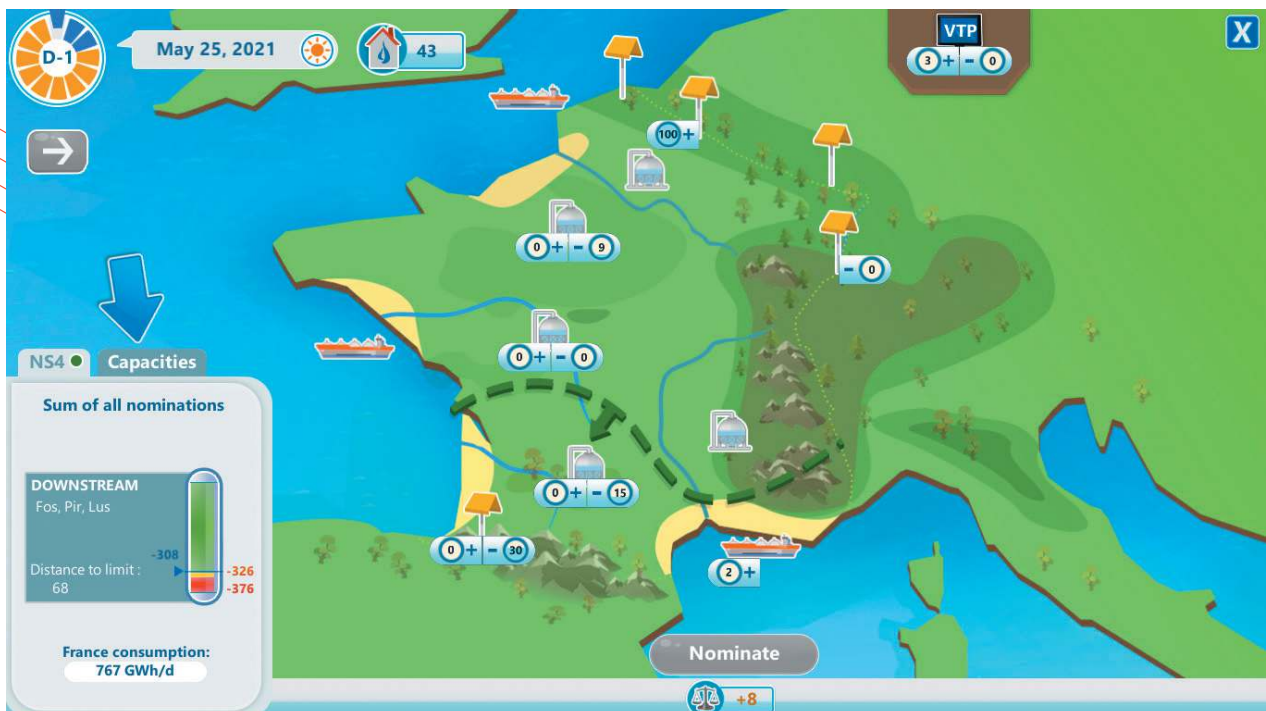
- **Commercial offering:** new products must be developed to remove the remaining operational limits of transport networks (with the infrastructural investments that have been granted, there may remain the possibility of some physical congestion on the network), but also to preserve the attractiveness of our storage facilities within a national rather than a regional zone.

Through its involvement in the development and operation of the TRF, TIGF is reaching outside its traditional geographical area and raising its profile in the eyes of customers and the regulator on a national level.

NATIONAL VISIBILITY BRINGS NATIONAL RESPONSIBILITY

This paradigm shift is reflected in the increasing involvement of TIGF in several trade initiatives. The development of the "Game of Flows" application in partnership with GRTgas is one such example. TIGF contributed jointly to the development of this software

designed to accompany customers and the regulator in the choice of congestion management mechanisms within the TRF. A great challenge indeed.



Midi Gascogne Reinforcement

A RESPONSE TO THE SINGLE FRENCH MARKET PLACE

The current architecture of the French network causes divergence in the market prices of natural gas between the north and the south of the country. In order to address this issue, it is necessary to increase the fluidity of transport between the northern and southern gas zones of France by developing infrastructures to resolve the identified bottlenecks and transport the necessary gas volumes to the South in particular.

The optimal technical-economic investment scheme chosen by the CRE (Commission for Energy Regulation) in its deliberation of 7 May 2014 includes the Val de Saône project in the GRTgaz and the Gascogne-Midi project in the TIGF zone. By decongesting the area, these investments will make it possible to merge the North and South markets together by 2018.



A LOCAL PROJECT OF NATIONAL IMPORTANCE

With the Midi-Gascogne Reinforcement project, TIGF is enhancing its large-scale natural gas transportation network and allowing an increase in the transit capacity at the entry and exit point at Cruzy (Herault).

The "Midi-Gascogne Reinforcement" (RGM) project consists in:

Reinforcing the Gascogne Artery by

- The construction of a pipeline of some 61km between Lussagnet (Landes) and Barran (Gers) with a diameter of 900mm and a relative maximum service pressure (MSP) of 85 bars.
- The construction and supply of a new "Midi-Gascogne" interconnection grid (300m connection of DN600 pipes with the storage centre and link to the Lussagnet interconnection grid).
- The creation of two intermediate block-valve stations in Sion (Gers) and Castillon-Debats (Gers).
- Modification of the existing block-valve station in Barran (Gers).

Reinforcing the Midi Artery by the addition of a compressor at the Barbaira site (Aude).

Modifications on the compression station are subject to a specific administrative instruction.

Commissioning of these facilities is scheduled for the end of October 2018.



61

**KM BETWEEN
LUSSAGNET
AND BARRAN**



2

**INTERMEDIATE
BLOCK-VALVE
STATIONS**

STEP

South Transit East Pyrenees

A EUROPEAN PROJECT BRINGING OPPORTUNITIES TO THE REGION

STEP is an energy solidarity project that offers mutual benefits for France, Spain and Portugal by promoting South / North and North / South gas trading. Spain will benefit from more secure supply with easier access to resources from Northern Europe and Russia.

As for France, it can benefit from more diversity in its supply with easier access to Mediterranean gas and to Liquefied Natural Gas via Spain.

STEP IN FULL

STEP, South Transit East Pyrenees, means a cross-border gas interconnection project, more specifically between France and Spain.

STEP IN GENERAL

- A major transport link via a 120km DN 900 pipeline linking the Barbaira compression site (Aude) to the border at Le Perthus (Pyrénées-Orientales), to be commissioned in 2022.
- Study of a regional link to strengthen and secure supply to the Pyrénées-Orientales and Aude.

A MAJOR EUROPEAN PROJECT

STEP is part of a European process and therefore meets the European Union's objectives:

STEP Security: STEP will contribute to securing Europe's gas supplies by promoting access to a variety of sources and supply routes (via interconnections, LNG terminals and storage centres).

Market integration: STEP will allow market integration, improving the ease of energy trading and will contribute in particular to breaking the isolation of the Iberian Peninsula.

Competitive edge: STEP will allow access to gas at a competitive price. The creation of gas interconnections – by facilitating access to a greater number of sources of supply – automatically fosters healthy competition.



**A PROJECT UNDER STUDY!
THE DESIGN STUDIES
COMMISSIONED IN APRIL 2016
BY EUROPE WILL BE ENDING IN
Q2 2017. TIGF THEN PLANS TO MAKE
A VOLUNTARY REFERRAL TO THE
CNDP (NATIONAL COMMISSION FOR
PUBLIC DEBATES) IN ORDER TO PUT
THE OUTLINE OF THIS PROJECT OUT
FOR PUBLIC CONSULTATION AT THE
END OF 2017. TIGF SHALL TAKE ALL
NECESSARY MEASURES TO ALLOW
THE AREAS CONCERNED – AND
THE PEOPLE WHO LIVE THERE –
TO EXPRESS THEMSELVES ON THE
SUBJECT, BY ADOPTING AN OPEN
APPROACH.**

STEP A PROJECT USEFUL FOR THE TERRITORY

STEP will bring many advantages to the region. Firstly, it will accelerate the implementation of projects to improve the gas supply to the regional grid serving the Aude and Pyrénées-Orientales areas. The benefits of STEP for the regional network are the creation of an interconnection between the two networks (regional and large transport) south of Perpignan.

STEP will help to encourage the emergence of local biomethane projects, as well as digital access in the territories thanks to the provision of fibre optics along the route.

Finally, the project will generate strong benefits for the local economy of the territory. TIGF's similar projects usually represent between 15% and 20% of the total investment.

TIGF intends to establish a close relationship with local players to identify the opportunities at each stage, to make this project a driver of growth in the local area.



REINFORCE AND DEVELOP

TIGF is becoming an active player that is central to the energy transition and committed to its region, but also open to Europe. In order to do this, the company must continue to develop and improve the reliability of the distribution of all sources of gas.

The distinctive feature of TIGF also resides in its capacity to store, and so to regulate the market more effectively. Storage is another major strategic focus of the company.

Lussagnet

Two more wells

TIGF currently operates 15 and 10 injection / production wells at its two storage sites of Lussagnet and Izaute respectively. In order to handle maintenance and secure storage performance, TIGF decided in 2015 to add two additional wells to Lussagnet. These wells will be drilled in Q2 2017.

STORAGE, A KEY LINK IN THE GAS CHAIN

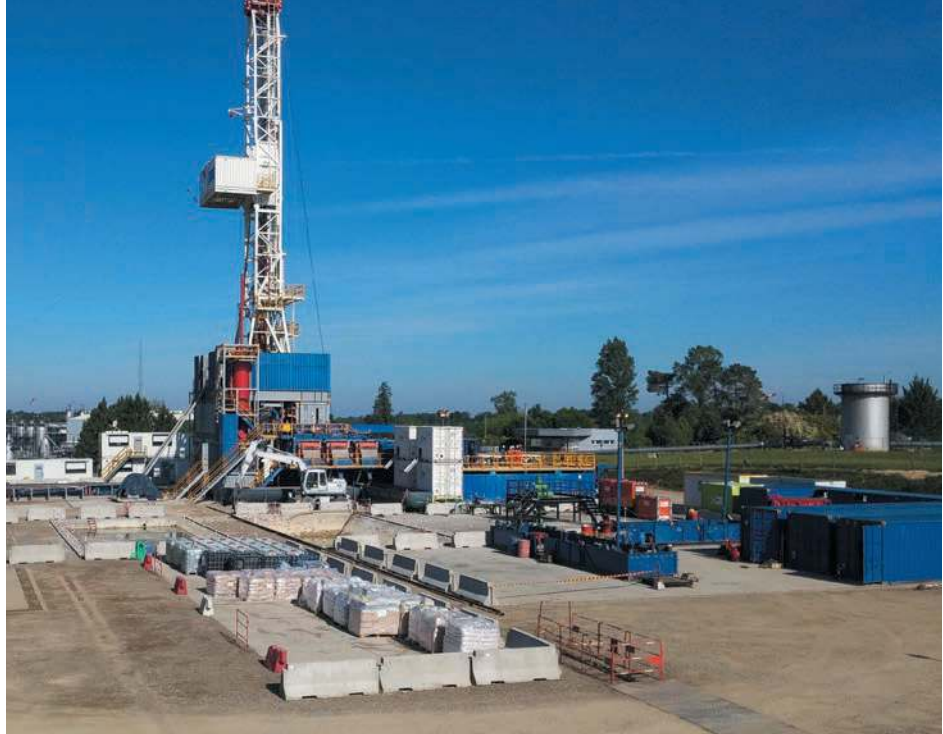
The two additional wells are expected to meet demand from shippers for ever-more flexibility and to allow for potential downtime on certain wells while covering customer needs in terms of speed and volume. This secured offering of storage services will enable shippers to regulate and adapt the gas supplies of the French TIGF network more effectively, and even that of the European network. Underground gas storage constitutes one of the key links in the gas chain for TIGF.



**SHARED ENERGY
FOCUSED ON A
CONSTANT PRIORITY :
SECURING THE NETWORK.**

HIGH-SPEED DRAW-OFF AND INJECTION

These two wells have an identical structure to that of the well that was drilled in 2014, with a large-diameter completion enabling high-speed draw-off and injection. Given the lifespan of these wells, their equipment such as the pipe linings, machinery and completion tubes will be subjected to strict quality controls prior to on-site acceptance. The drilling rig used came into service in 2010 and is therefore state of the art. It is over 44 meters in height with a hook capacity of 250 tonnes. Assembly at cluster D will take about ten days, as will dismantling at the end of operations. This apparatus also offers the possibility of being moved from one well to another between the various drilling sequences. This makes it possible to optimize the equipment and the management of drilling sludge.



NO SERVICE INTERRUPTION DURING DRILLING!

The new wells are being drilled in cluster D where 4 injection / production wells were already present. Drilling will be done on an "enclosed work site", meaning that drilling operations will be separate from storage operations. To avoid all inherent risks associated with simultaneous operations, all the wells in cluster D will be available and drawn off during all drilling operations.

SCHEDULE

Drilling work is expected to begin in mid-April 2017 and last for about three months. The work will be done on an ongoing basis, 24/7. Traditionally, all injection / production wells are drilled at this time of year (after the winter drawing-off period) because the reservoir pressure is at its lowest. The wells are scheduled to be in service in October 2017 after the injection period with tank pressure at the highest level to facilitate the cleaning operations.

ACTING FOR AND WITH THE DRIVING FORCES OF THE REGION

Some 30 external companies will be involved in the work on this project. Some of these are regional companies with offices in the Pau region. This illustrates TIGF's determination to forge strong links with local businesses.

Safety is of course of the utmost importance for this project and all the selected external companies share the same values as TIGF in this respect. Due to the type and nature of equipment used, drilling operations are deemed to be very risky, and it is therefore most important to ensure that everything is done to ensure no accidents occur. Everything is being put in place for this new drilling project which will help to maintain Lussagnet's draw-off capabilities while providing more flexibility to TIGF teams for the regulatory maintenance of the various wells.



COMMIT AND INNOVATE

Because of its size, TIGF is adopting more reactive, transversal working methods, with the aim being to listen, exchange and be more daring.

This common energy is turned towards a constant priority objective: securing the network.



AN EFFECTIVE ACCIDENT PREVENTION COMMUNICATION POLICY

Work by third-party contractors constitutes the main risk of damage to pipes that can lead to gas leaks. A policy of prevention of accidents caused by third parties has therefore been put in place:

- Constant public outreach and awareness campaigns, training sessions and access to information, distribution of brochures and safety pamphlets to companies (public works, farming) and to individuals and administrative services (town halls and local authorities).
- Organisation of specific training drills with firefighters and with GrDF intervention services.

SYSTEMATIC INSPECTIONS OF THIRD-PARTY WORK

When works that may create risks on the pipelines are carried out by third-parties, the company will be required to carry out the work in the permanent presence of TIGF personnel.

In the event of non-compliance with this obligation, TIGF will systematically require the reopening of the excavations in order to check that no structures have been damaged.

Network Safety in 7 Key Points

TIGF has always been a company with the highest safety standards, going further than even French regulations.

To ensure that there are **ZERO ACCIDENTS**, TIGF has put in place a series of resources and systems.

- La mise en place systématique de mesures de sécurité supplémentaires lors de la pose des canalisations, avec une épaisseur de tube ou une profondeur d'enfouissement supérieure aux demandes réglementaires, ainsi que par exemple des protections particulières sur l'ensemble des voies de circulation.
- The systematic introduction of additional safety measures when laying pipes, with tube thickness or depth of burial exceeding the regulatory requirements, as well as special protections on all traffic routes, for example.
- Testing new and innovative protections to evaluate them and implement them if they prove to be effective.
- Conducting a General Hazard Study on the entire network on a periodic basis, every 5 years, to ensure regular monitoring of all the human and environmental issues around its facilities and set up any compensatory measures necessary to reduce the risk.
- Actions to prevent and treat accidents through an effective Safety Management System (SMS).
- An organisation by regions with experienced participants to monitor, operate and maintain facilities with increased efficiency.
- The implementation of a Surveillance and Maintenance Plan (SMP) which is constantly being improved. This is TIGF's organisation for the monitoring of its networks, determines the frequency of maintenance of the equipment in delivery and block-valve stations, and of inspections of the whole TIGF network as well as the frequency of monitoring from the air.
- Accident prevention with annual crisis drills to enhance our Safety and Intervention Plans and train employees continuously.
- Roll-out of additional monitoring methods.

In addition to the means put in place to prevent any possible incidents that may occur on the network, a targeted and thorough surveillance policy is carried out regularly by the TIGF teams.

- 1** Ground, pedestrian or car monitoring carried out along the route of all pipelines to detect any environmental issues that could affect the integrity of the pipeline.
- 2** Flyovers by plane or helicopter at intervals adapted to the type of pipelines and their environments.
- 3** Periodic (semi-annual or monthly) inspections of block-valve, pressure-reducing and delivery stations.
- 4** Specific monitoring at declared third-party worksites reported near the infrastructures.
- 5** Specific monitoring at appropriate intervals for sub-river crossings or civil engineering structures.
- 6** Periodic testing of safety devices (valves and gates, etc.).
- 7** Quasi-permanent monitoring of cathodic protection devices.

A digital enterprise

2016 marks a turning point for TIGF in its approach to IT projects. In an innovative approach and in keeping with the construction of an efficient information system, TIGF is focusing primarily on online tools made available by the digital revolution.

TOWARDS COLLABORATIVE WORK

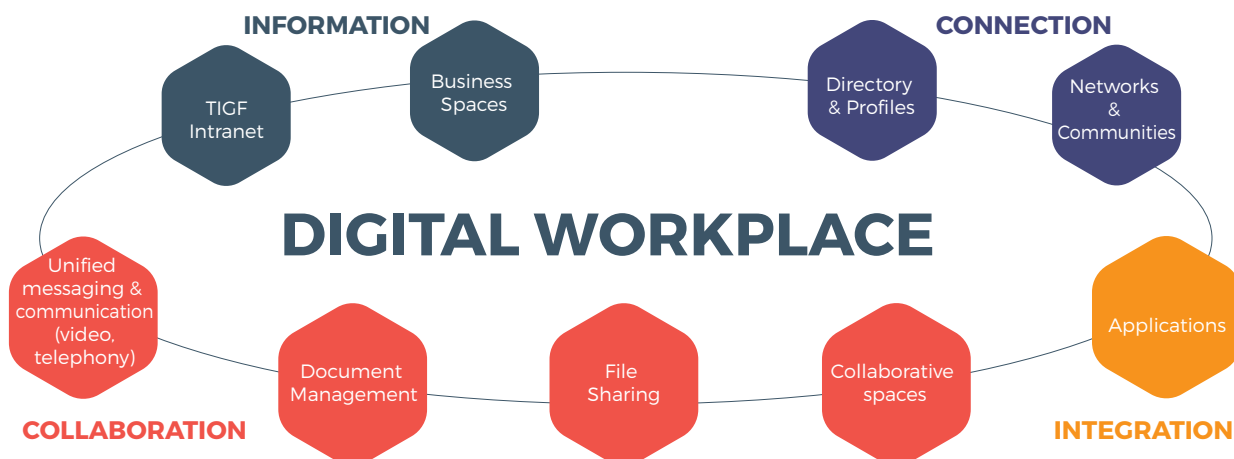
To begin with, in 2016 TIGF launched the implementation of a "Digital Workplace" (diagram below). These new tools were rolled out at the beginning of 2017 and will give a new dimension to collaborative work. They will allow access to collaborative applications from different types of device (computers, mobiles, tablets and connected objects) from any location with network coverage. Depending on their nature, field operations can be carried out with the use of the most appropriate computer equipment. Correspondence on projects will be facilitated both internally and with our stakeholders.

TRYING OUT THE BEST TOOLS

Beyond the digital workplace, TIGF relies on a range of digital tools that have reached maturity, allowing a new way of carrying out IT projects. TIGF's business lines will be playing a central role in choosing the solutions, and will be able to experiment with the best tools available on the market without necessarily going through a phase of detailed needs specifications.

FLEXIBILITY, REACTIVITY AND SIMPLIFICATION

By using services available via the cloud that meet the technical and security requirements of the company, roll-out lead times will be significantly reduced. Users will be able to benefit from a "native" and transparent scalability based on feedback from the different user companies sharing common issues. By choosing tools that meet Web standards, the complexity of switching to a new solution that gives rise to gains for the company will no longer be a hindrance. These simplifications in the approach to IT projects will allow TIGF to concentrate its efforts on responding in the most appropriate way to the realisation of specific applications essential to carrying out our core activity of the transport and storage of gas.





Revised working methods

COLLABORATIVE SPACES

As the business has evolved, influenced by the new communication and management methods, the world of work has changed greatly. The work environments at the disposal of the teams on the ground and at headquarters have therefore been reviewed. Working in collaborative spaces coupled with IT is, without doubt, a source of productivity gains, all in a framework where the employee decides their own working environment according to their mood and needs. These new spaces allow a new approach for the employees of TIGF, but also for our partners and stakeholders.

REPRESENTATION

TIGF has begun the renovation of all its tertiary sites all over the south-west and adapted them to the real needs of its partners, stakeholders and customers. To strengthen the local and national representation of TIGF, new offices have been opened in Neuilly-sur-Seine (92).



The background of the page is a photograph of a construction site. On the left, a tall, thin pine tree stands against a clear blue sky. In the foreground, large, dark-colored pipes are being laid out on the ground. A yellow excavator is visible in the middle ground, and a white truck is partially visible behind the pipes. The right side of the image is darkened with a blue-grey gradient. A large, white, rounded hexagonal shape is centered on the page, containing text. This shape is surrounded by several concentric, thin orange lines that follow its outline.

LOOKING BACK ON 2016

HIGHLIGHTS

CONTROL

SUSTAINABLE DEVELOPMENT

MAJOR PROJECTS

HIGHLIGHTS

2016

FEBRUARY

A new Secretary General

Ms Valérie Le Gars was appointed TIGF Secretary General on 1st February 2016.

2016 CLIENT CONVENTION

On 18 March, TIGF welcomed its shipper clients for its annual client convention at the Palais Beaumont.

MARCH

Cooperation

Signing of a framework agreement between TIGF and the University of Pau and the Pays de l'Adour.

Jupiter 1000 project / Power to Gas pilot project

Signing of two partnership agreements with GRTgaz. The inauguration ceremony for the project launch was held in Fos-sur-Mer on 30 March with the objective of a 2018 commissioning. In view of its commitment to the emerging "Power To Gas" field, TIGF is looking to the future by making its infrastructure an indispensable link in the energy chain of the future.

Ariane

Development of the Ariane application, a tool for the management and traceability of inspection and surveillance results.

APRIL

Appointment

Mr Ingo Schäfer was appointed Finance and Purchasing Director on 1st April 2016.

MAY

Inauguration of the first biomethane injection

TIGF joined forces with Fonroche Biogaz for the inauguration of the first and largest biomethane injection plant in France, in Villeneuve-sur-Lot (Lot-et-Garonne) in the greater South West region.

2016...

...was another year of change, as has often been the case for TIGF. It was also a year of major works underway and completed, demonstrating that the company is an even more active, committed player on its market than ever before

JULY

Third-party works

On 12 July, TIGF celebrated 10 years without an accident with leak.

APPOINTMENT

Mr Dominique Mockly was appointed CEO of TIGF SA from 31 July 2016.

AUGUST

1,234 DAYS WITHOUT A LOST-TIME ACCIDENT AT THE LUSSAGNET STORAGE CENTRE

SEPTEMBER

“WORKPLACE AND ACTIVITIES” 1st prize for the Espace Volta.

The “Architecture and Contracting Authorities” (AMO) association awarded the AMO 2016 “Workplace and Activities” prize to TIGF for its head office, “Espace Volta”.

The prize was awarded to Dominique Mockly and Jean-Philippe Donato on Thursday 15 September 2016 at the Louis Vuitton Foundation in Paris in the presence of the Minister for Culture and Communication, Mrs Audrey Azoulay.

In addition to the building itself, the prize rewards the quality of communication between contracting authorities and architects.

NOVEMBER

30 NOVEMBER 2016

Inauguration of the Adour Artery pipeline

DECEMBER

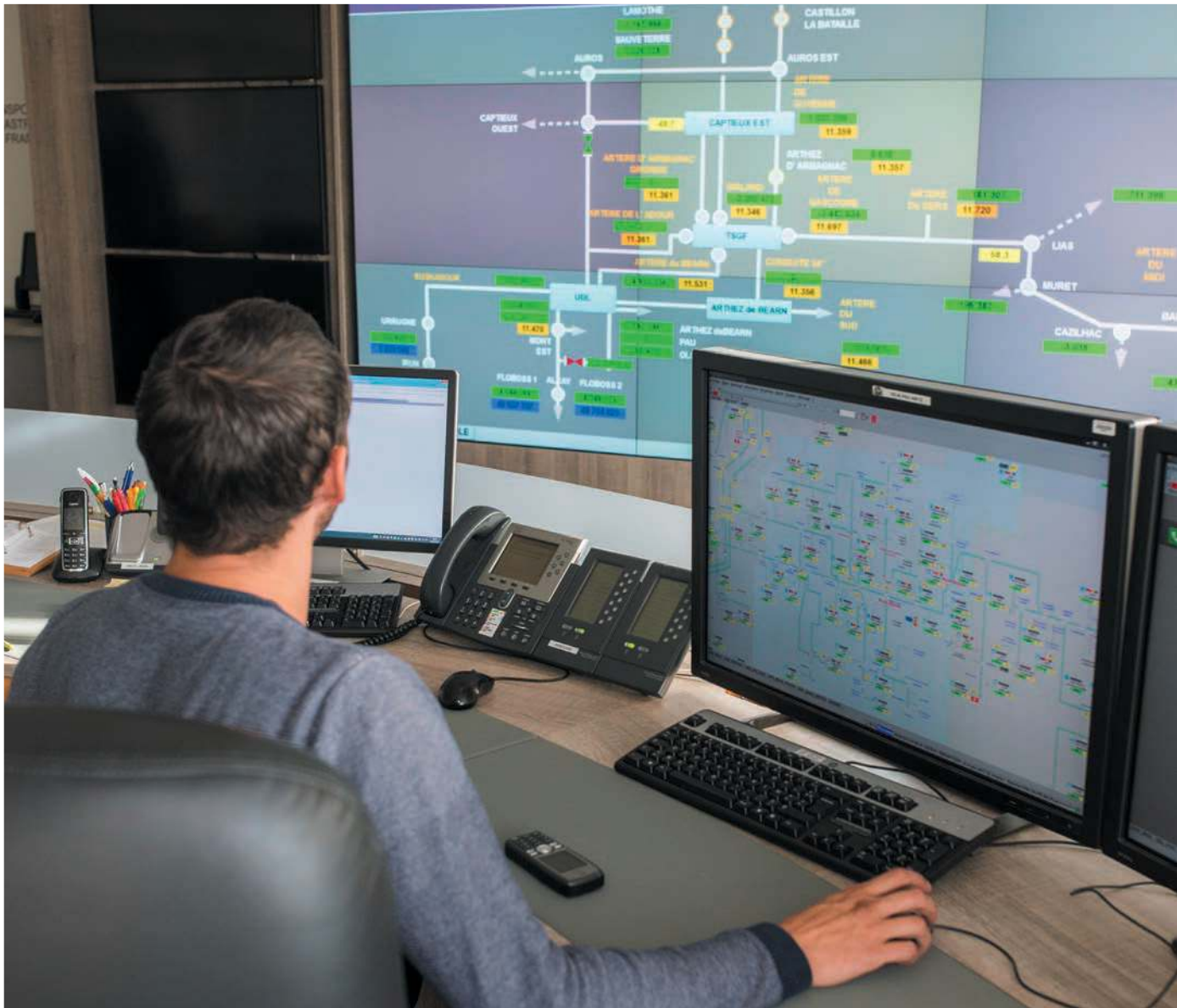
Launch of the TIGF4U application

TIGF4U is a mobile application that enables shippers to consult a large amount of data published in real time on Datagas: capacity and maintenance, allocation, consumption forecasts, balancing and storage.

TIGF



**TIGF PLACES INNOVATION
AND CLIENTS AT THE HEART
OF ITS BUSINESS PLAN.**

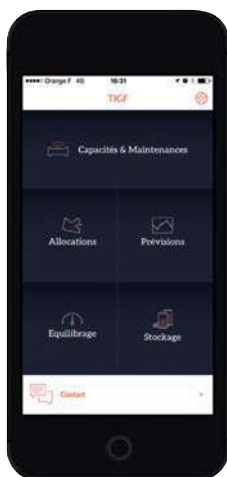


Enhanced customer relationships

TIGF is adapting its services to the growing challenges and expectations of a changing national and European market. TIGF therefore places innovation and clients at the heart of its business plan, and aims to broaden its range of services on a regular basis, particularly through the digitisation of its IT systems.

A TIGF APP FOR YOU

In April 2016, TIGF therefore launched its mobile application, TIGF4U, a visible milestone in the IT interface digitisation plan, with the aim of anticipating its clients' expectations. Available for smartphone download (iOS and Android), TIGF4U offers direct and simplified real-time access to the public gas data of TIGF's infrastructure, therefore meeting the needs of shippers and stakeholders (network availability, maintenance, reductions, allocation, area consumption forecasts, estimated imbalance, settlement price, linepack and shipper stocks, etc.). Further functionality is already under study for the months and years to come.



TRAINING SESSION

TIGF also pays constant attention to its stakeholders and to strengthening its client relations. With this in mind,

TIGF invited them in 2016 to the first « **Training Session** » in Paris, a training day in the form of themed workshops with the aim of closely supporting clients and providing them with concrete elements to help them with daily management (programming, allocation, balancing, invoicing, etc.).

This new bespoke and innovative format aims to strengthen the close connection between TIGF and the operational representatives of its shipper clients, and helps achieve TIGF's ambition of confirming its Parisian presence and identity with stakeholders.

Following the success of this first edition, TIGF has chosen to renew and intensify this approach and will be organising two new Training Sessions in Paris in 2017. These training days help complete the convention schedule and are a great opportunity to communicate with clients in a privileged way.



INVEST AND ASSERT

Choosing performance and client satisfaction requires significant investment in the development of TIGF's own infrastructure. The company has spared no effort on its infrastructure. 2016 was a busy year!

NEW DEHYDRATION COLUMN IN LUSSAGNET A REMARKABLE PROJECT



DIMITRI LE SCEL & JULIETTE DURAND

In charge of the Operations/Works Coordination at Lussagnet

WHAT WAS THE REASON BEHIND THIS NEW FACILITY?

In addition to meteorological causes and the seasonal cycle, the demand for gas is influenced by factors such as fluctuations in its price and supply conditions. Therefore, the market is now focussing on draw-off speed, that is to say the ability to return gas that is stored underground to the transport network rapidly. Déshy54 rose up to the challenge with the installation of an additional dehydration unit, commissioned in November 2016. We have since gained a capacity of 1 million Nm³/day of gas. And that's only the beginning. In order to guarantee full capacity in the future, the Déshy54 project revolves around several other areas for development, such as new wells and the installation of compressors and TEG regeneration units.

“ THIS 88-TON, 15-METRE-HIGH COLUMN BLENDS IN PERFECTLY AMONGST THE OTHER INSTALLATIONS. ”



THE CHALLENGE WAS TO PREPARE FOR FUTURE DEMANDS WHILE MEETING PRESENT NEEDS.

WHAT CHALLENGES DID YOU FACE?

The choice of location for the new unit was strategic and took into consideration both construction constraints and feedback from other sites. We also had a very tight schedule. The deadline was very short; we had just over a year for the whole production phase, which, for us, is very little. These constraints couldn't be detrimental to site safety, or penalise the operation of storage facilities. It was remarkable example of teamwork. This 88-ton, 15-metre-high column blends in perfectly amongst the other installations. To meet the deadline, the site had to proceed alongside operational units whilst maintaining draw-off, which is a rather unusual practice. The connection work, which would affect the site's operation, were planned so as to be transparent for our clients.

WHAT SATISFACTION DID YOU TAKE AWAY FROM THIS PROJECT?

Firstly, we had no accidents. The preparation and involvement of the project's players, both within TIGF and our partners, were exemplary. Secondly, we were able to carry out this project with no service interruption for our clients. The challenge was to prepare for future demands while meeting present needs. These were all reasons for satisfaction for us and all of the TIGF teams.



Western Corridor (Adour Artery)

WORKS COME TO AN END, OPERATIONS BEGIN

Because of its geographic position, the development of the Western Corridor was one of TIGF's top priorities and achieved two key objectives: to improve the transit of natural gas through the reinforcement of the transport network, and to ensure a secure supply, by promoting access to the storage of natural gas: a programme voted in by TIGF's clients during the various Open Seasons.



WITH THE COMMISSIONING OF THE “ADOUR ARTERY” PIPELINE, TIGF INCREASES GAS TRANSIT CAPACITIES BETWEEN FRANCE AND SPAIN BY 2 BILLION M3 PER YEAR, OR THE EQUIVALENT OF THE CONSUMPTION OF MORE THAN 1.5 MILLION HOUSEHOLDS.

THE WESTERN CORRIDOR...

The Western Corridor is made up of several major natural gas transport arteries, between the town of Castillon-la-Bataille in the Gironde and the two interconnection points with Spain, namely Larrau and Biriadou in the Pyrénées-Atlantiques. This programme includes the construction of compression plants that supplement the linear infrastructures.

... AND ITS FINAL LINK: THE ADOUR ARTERY

In 2016, after its commissioning, TIGF inaugurated the Adour Artery, the last Corridor infrastructure. This link between Coudoures (Landes-40) and Arcangues (Pyrénées-Atlantiques-64) helps increase transit capacities to Biriadou, the border point between France and Spain, and directly connects Spanish operators to the French storage site. With the commissioning of the Adour Artery pipeline, TIGF increases gas transit capacities between France and Spain by 2 billion m³ per year, or the equivalent of the consumption of more than 1.5 million households.

WORKING IN CONCERT WITH SPAIN

The fruit of close collaboration between French gas transporters, particularly TIGF, and Spanish transporters, Enagás and Naturgas Energía, these infrastructures enable Iberian operators to benefit from better fluidity upon entry and exit of their zone, from a connection to the French storage in Lussagnet, and therefore from better access to the gas market. In total, between 2012 and 2016, almost €400 million will have been invested by TIGF in the major project that is the Western Corridor. These investments significantly contribute to the integration of Iberian markets into the European network, to flow reversibility between countries, and to ensuring a secure supply.

Finally, this project is a great example of regional cooperation between regulators, governments, the European Commission, transporters and gas shippers-suppliers.



IN FIGURES

Infrastructure length :

**96km between Coudures (Landes - 40)
and Arcangues (Pyrénées-Atlantiques-64)**

Nominal diameter: **600 mm**

Departments crossed: **2**

Maximum pressure: **85 bars**

Towns crossed: **33**

Road and railway infrastructure crossings: **180**

Waterways crossed: **133**

Block-valve stations:

**6 new stations and 2 redeveloped existing
stations**

Natura 2000 zones: **4**

ZNIEFF zones: **7**



REINFORCE AND DEVELOP

TIGF is efficiently running core projects that support regional economic growth and development. However, its role is much broader. Bringing existing stations up to standard, extending the network, and innovating in the energies of the future are only some of the facets of the major projects of 2016.

PARENTIS EN BORN : A PROJECT UNDER STRICT SUPERVISION



JEAN-CHRISTOPHE ROUSSEAU

Project Manager

WHAT ARE THE REASONS BEHIND THESE MAJOR WORKS?

There has been a significant increase in demand for gas over the last few years in Parentis-en-Born, from private individuals but also from companies and various industries. The pipelines laid down in 1984 were now too small and no longer sufficient to supply this urban area properly.

WHAT TECHNICAL SOLUTION WAS CHOSEN?

The works involved doubling the pipeline over 10km and creating two block-valve stations to connect this new pipeline to the existing one. The commissioning in November 2016 marked the end of an important project for the area's economic activity.

IN WHAT WAY WAS THIS PROJECT REMARKABLE?

We truly had to come to terms with the elements. First of all, with fire. Because of the nature of the environment (the Landes forest) and of our work (particularly the welding stations), the risk of fire was high. In order to lower it, we were supported and trained by firefighters who gave us advice and on-the-ground exercises.

Then, with water, as we were very close to the water table. 17 pumps helped suck up 180,000 m³ of water to drain the bottom of the trench, as required for the installation of the pipeline. The pumped-out water was later returned to its original location.



**THE COMMISSIONING
IN NOVEMBER 2016
MARKED THE END OF
AN IMPORTANT PROJECT
FOR THE AREA'S
ECONOMIC ACTIVITY.**

AND WHAT ABOUT THE ENVIRONMENT?

We worked in collaboration with wood producers, and took the initiative of protecting the base of the pine trees with felt to a height of 2 metres. The displaced sand can become embedded in the bark and therefore hinder the trees' healthy development. It can also cause problems when it comes to felling.

Finally, we tried, as far as was possible, to follow the fire department's firebreak roads in order to minimise the felling of trees in the area.

Salies du Salat reconnected



**MANY TIGF TEAMS
WERE INVOLVED IN
THIS PROJECT WHICH
WAS COMPLETED
ON TIME AND WITH
NO INCIDENTS.**

AN EXAMPLE OF ACTION FOR THE COMMUNITY

The pipeline that supplies the town of Salies-du-Salat in the Haute-Garonne (31), which is 16km long and was built in the 50s, connected two disused industrial branches. This section crossed over multiple civil engineering structures and railways, and supplied only the public distribution of Salies-du-Salat.

In order to continue to supply the village, the installation of a new station was studied. The solution retained was to create a DN 100 branch, approximately 4-km long, connected to the DN 200 Labarthe-Inard/ Castagnède. This new branch required the construction of two new block-valve stations: at the start, in the town of Figarol, and at the end, with the new Salies-du-Salat delivery station.

The project was carried out between April and October 2016, and was commissioned on 11 October. The pipeline route as well as the block-valve and delivery stations are located in a rural area. Many TIGF teams were involved in this project which was completed on time and with no incidents.

The abandonment of the BousSENS-Castagnède DN 100 was dealt with after and completed in January 2017.

Biomethane

BIOVILLENEUVOIS BIOMETHANE PLANT ONE YEAR ON

To this day, Biovilleneuveois is the largest methanation plant in France. Following the production start-up phase at the end of 2015, all TIGF teams gradually made this injection station their own throughout 2016. It was a year of knowledge acquisition and skill improvement for the teams, not only with regards to methanation processes, but also in terms of the specific technique we use for the injection of biomethane into our network. The challenge was taken up in 2016 while maintaining the availability of the injection station. We continue to strive to meet the expectations of our clients, and to ensure our service quality becomes a reference in this new niche, but also to help achieve TIGF's ambition of kicking off one project per year.

BIOVILLENEUVOIS: LARGEST BIOMETHANE PRODUCTION PLANT IN FRANCE, TIGF WAS THERE!

CLÉMENT MADIER

Biomethane Injection Project Manager
Fonroche Biogaz



BIOGAS IS INJECTED INTO THE NETWORK IN THE FORM OF PURE METHANE VIA A STATION INSTALLED AND MANAGED BY TIGF.

COULD YOU REMIND US OF YOUR CORE BUSINESS?

Fonroche Biogaz develops, builds and operates methanation plants. BioVilleneuve is our first achievement. It is located in Villeneuve-sur-Lot, in the Lot-et-Garonne (47), and has been producing biomethane since the end of 2015. We recover organic waste produced by the agricultural and food-processing industries. This matter produces biogas thanks to a natural fermentation process. Biogas is injected into the network in the form of pure methane via a station installed and managed by TIGF. We are the largest plant in France, both in size and in volume. Indeed, we represent 20% of the production of injected biomethane in France.



HOW DID THE COLLABORATION WITH TIGF GO?

Initial discussions started back in 2012. TIGF was immediately involved in this project and contributed to its smooth progress up until the installation of the injection station. The objective of the latter is to control both the quality and the quantity of injected biomethane.

AND TODAY?

TIGF learnt a lot through this project. It was a first for them. Today, after the installation, their teams handle the preventive and curative maintenance. We are refining our collaboration with regards to technical, organisational and financial aspects. TIGF is also going to set up a 24/7 monitoring system to reinforce the injection device's reliability and its availability over the year.

ANY OTHER PROJECTS?

The directors of both our companies have met to review the completed work, but also to consider other projects such as a new biomethane plant in the Aquitaine which could also be connected to the existing network.

Avoid, Reduce Offset

The “Avoid, Reduce, Offset” doctrine appeared as early as 1976 in the French legal landscape with the law on the protection of nature. Nevertheless, it was not until 2008 and 2010, thanks to the Grenelle laws, that the application of these regulations became effective.

TIGF'S COMMITMENT

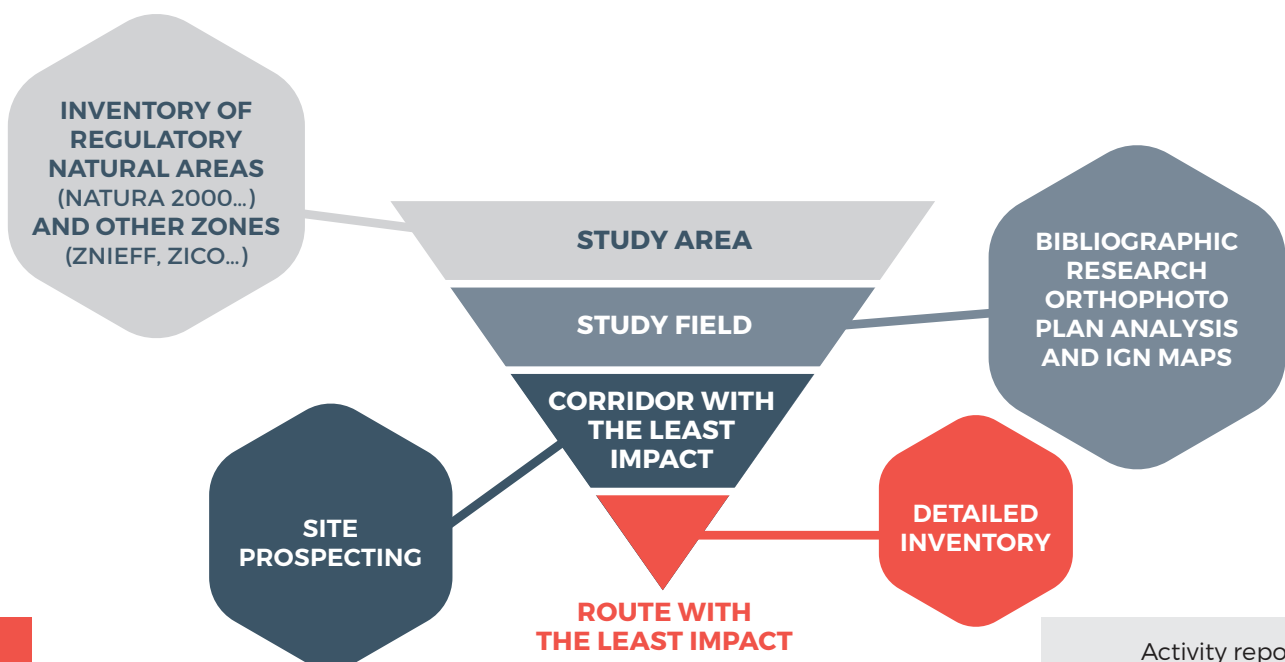
TIGF, as part of its construction of infrastructure activity, includes environmental aspects from the very first project milestones. Avoidance of the main issues occurs during the design study phase following an analysis of the vast amount of input data (regulatory zoning, inventory data collected from various bodies or associations, aerial photos) which is the beginning of the “funnel” process (see figure below).



THEY INCLUDE FAUNA AND FLORA INVENTORIES CARRIED OUT DURING A FULL BIOLOGICAL CYCLE.

STUDIES COMPLETED THROUGH THE SEASONS

This data, supplemented by targeted site scouting, is cross-referenced against the results of technical and safety studies in order to locate the corridor with the least impact. Detailed studies (known as “FEED” studies) are undertaken in this corridor. They include fauna and flora inventories carried out during a full biological cycle (four seasons) in order to obtain as exhaustive an analysis as possible. During this phase, and depending on the challenges inventoried, the project team may set up final diversions or, in the event of technical incompatibility, impact-reduction measures.



INDISPENSABLE FEEDBACK

These measures that are adapted to every type of challenge draw on feedback from previous projects. They can include, for example, transplanting protected plant species, or moving piscifauna away from the works zone. Multi-year post-project monitoring helps to ensure a good recovery of temporarily disrupted habitats.

Despite all these measures, when the residual impact is not considered negligible, the contracting authority must come up with offsetting measures proportional to the challenges. The areas to be offset are calculated by multiplying the real area impacted by a coefficient (between 1 and 10) that depends on the rarity of the species in the area, on their ability to repopulate the area, on the nature of the measures, etc. In 2016, TIGF protected more than 100 ha out of the 190 ha that the company had to offset following the last structuring projects.

This major step helps achieve the objective which the company set itself of a positive global ecological footprint. On the acquired sites, priority is given to the improvement or recreation of the natural environment, since these operations provide true ecological added value.

PRIORITY TO THE IMPROVEMENT OF THE NATURAL ENVIRONMENT

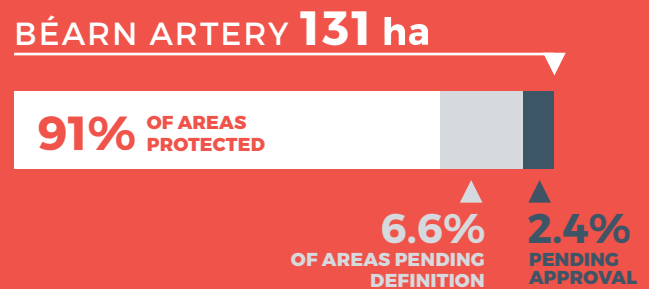
This year is marked by the first significant results on the sites acquired since 2012: numerous species (mammals, insects, amphibians, etc.) were inventoried. For example, it is worth noting the successful triggering of our photographic traps more than 1,200 times on one single site. These results show strong cross-sector cooperation between teams within TIGF (the company does not outsource the project management of compensatory measures), with the support of our local partners: Natural Area Conservatories and the League for the Protection of Birds, who help us in this process.

TOMORROW

Since 2016, TIGF has set itself the ambitious target, for future projects, of limiting the offsetting area/total project area ratio to under 20% in order to promote the avoidance and reduction of impact.

This target was fully achieved in the Gascogne Midi Reinforcement project, in which the derogation request for the destruction of protected species was granted with only 5.9 ha of offsetting measures (i.e. a ratio of 3.6%).

RATIOS IN PREVIOUS PROJECTS



Support every step of the way

For the benefit of all its employees, TIGF is developing a powerful and dynamic HR policy, similar to that of the largest industrial groups. The company's human dimension is a real asset and enables it to deal with a whole range of subjects (mobility, individual support, and skill development) rapidly and efficiently, and to be astonishingly adaptable, something which encourages employee initiative and boldness. The Human Resources Development Department is an attentive partner. In addition to technical knowledge, it also wishes to take into consideration candidate personality in order to create cohesion and interaction between teams for the purpose of project success. Members of the project team - in all their diversity - can be exposed to new experiences and enjoy those of others throughout their career. TIGF will support them in their development through a privileged relationship.

PROJECT STEERING LISTENING AND COMMUNICATING ABOVE ALL ELSE

”

OUR ROLE INVOLVES ANTICIPATING HUMAN AND TECHNICAL RESOURCES IN ORDER TO INVEST IN TRANSPORT AND STORAGE.

HOW WOULD YOU DEFINE YOUR WORK AND YOUR DEPARTMENT?

I manage a team of more than 45 people who work on operational projects and major structuring projects requested by Senior Management and Shareholders. Our role involves anticipating human and technical resources in order to invest in transport and storage. This involves all areas related to safety, the environment as well as to innovative energy and technological solutions. With that in mind, we must mobilise and unite the efforts of all internal departments as well as those of external partners. We truly must create an expertise network that will support the project until its completion and its technical and financial success.

HOW DO YOU SEE THIS ROLE?

A project is a schedule, a budget, an organisation, contracts you need to manage in order to control, the anticipation of risk and the adjustment of discrepancies. It's about having a very broad vision based on our ability to listen and to understand the issues at hand, whatever their origin or nature. It's about teamwork with our experts, as well as with our providers and suppliers. It's about listening to communities, the administration, associations and residents to obtain the broadest consensus possible on the acceptability of a project... A common-sense attitude which has always served



MICHEL LAGACHE

Construction Projects Department
Manager at TIGF

our thoroughness and our image. As a result, TIGF has always been recognised as a reliable and trustworthy partner. We also know how to surround ourselves with experts whose know-how complements our own.

WHAT IS A TYPICAL PROJECT WORKFLOW?

A project starts with a design study. It is a question of organising the project around one or more subjects identified by the operator and Sales Management, and considering technical, business, environmental, societal and safety constraints. At the end of this essential phase, which defines the scope, budget and schedule, the project must be approved by our decision-making bodies before going into production. The project can then start taking shape with in-depth studies across all fields. These must aim to obtain all required authorisations, to negotiate with all stakeholders, to supply the required materials, to organise the works, to implement human resources, and to choose external partners. It is an important task, which can take - including the works phase - several years.

General inspection of the network carried out

...BUT TIGF IS ALREADY PREPARING THE NEXT INSPECTION

In accordance with the “multi-fluid” decree of 5 March 2014, the entire 5,134km of gas networks were inspected and analysed between 2007 and 2016.

MAINTAINING SKILLS FOR THE SAKE OF THE INFRASTRUCTURES

2016 marked the completion of a ten-year campaign of inspection, control, excavation and reconditioning. This allowed TIGF to assess the situation, understand and control the entirety of its network’s integrity, and therefore ensure skills are maintained for the sake of the infrastructures (pipelines, surface facilities, crossing of civil engineering structures and waterways). All the personnel of the Central and Regional Inspectorates, the Work Group, the Operational Divisions and the External Providers were highly involved in these activities with a view to meeting the objective that was set: to inspect the entirety of the 5,134km at least once during this ten-year period.

A NEW STRATEGY IS IN PLACE

On the basis of an assessment of the last ten years, in 2017 TIGF will implement a new inspection strategy with the same objectives of preventing major accidents, complying with regulatory requirements, and optimising inspection activities, in order to meet the company’s objectives in terms of integrity, safety and efficiency. A new inspection by Multi-Criteria Analysis will supplement those by Piston or Direct Current Voltage Gradient (detection of coating defects, excluding metal, by surface electric measure). The objective of this formalised Multi-Criteria Analysis is to adjust, as much as possible, the frequency of inspections (measured by piston or DCVG) to the threats and risks the



**OBJECTIVES:
PREVENTING MAJOR
ACCIDENTS, COMPLYING
WITH LEGAL REQUIREMENTS
AND OPTIMISING INSPECTION
ACTIVITIES.**

pipeline is exposed to. All these inspections (Piston, DCVG, Multi-Criteria Analysis, etc.) are incorporated within the surveillance and maintenance activities, and are monitored within the framework of the Integrity and Operational Performance Management.



**DEFINITION:
MULTI-CRITERA ANALYSIS
IS AN EXERCISE BASED
ON THE TRACEABILITY
OF OPERATIONS AND
THE SYNERGY OF SEVERAL
TEAMS.**

SHARED ONLINE MANAGEMENT

This system is shared between teams, and hinges on trade-focused, computer-based, interfaced tools (SAP, ARIANE, OGIC, GIS, etc.), which therefore allows for the management or monitoring of inspection operations at any time. Moreover, the Ariane software offers access to our external providers in order for them to input CP (Cathodic Protection) control or inspection data, either from the field or from home. The application also allows standardised reports to be edited.

With the implementation of a new version of OGIC (Pipeline Integrity Management Tool) in 2016, based on the DNV - Synergi Pipeline software, TIGF can now load all the data required for the analysis of every infrastructure in one go. Integrity (Surveillance and Inspection), construction and environmental data is now automatically updated and allows for a global and detailed analysis of the levels of threat and integrity of the infrastructures.

CONTROL AND TRACEABILITY

Today, thanks to a robust Geographic Information System (GIS), TIGF ensures the control of surveillance and inspection operation traceability, and adjusts its inspection activities online using its new strategy.



**INSPECT DIFFERENT
INFRASTRUCTURES
AT LEAST ONCE DURING
THIS 10-YEAR PERIOD.**



1234 DAYS WITHOUT A LOST-TIME ACCIDENT



JEAN-MARC GREGORIS

Head of Operations
of the Lussagnet site

1,234 DAYS WITHOUT A LOST-TIME ACCIDENT, HOW DO YOU EXPLAIN THIS RESULT?

The attention paid by TIGF to personal and material safety is the fruit of a strong cultural legacy. This legacy lies in the very structure of the company's organisation. The Lussagnet site is classified as a sensitive site. As such, safety at work is governed by very rigorous procedures. This result is also down to the involvement of partner companies that accept these demanding working conditions and strictly comply with our prevention and training protocols. We are thankful to them!

HOW DO YOU ORGANISE THIS SAFETY?

Partner companies must, above all, obtain an HSE authorisation to operate on sites such as ours, which is classified as SEVESO 3 high-tier. That is the first condition. Then, they must attend specific preliminary HSE training. For each site, a Prevention Plan is drafted, and the risk analysis defines the preventive measures to implement.

LILIAN BERNHARD

Head of the Storage HSE
Coordination Hub

Finally, the contractor must request a Work Permit from the TIGF Works Supervisor, that is co-signed by three TIGF bodies: the Surface Operations Supervisor (the operator), the Health and Safety (HSE) Hub and the Head of Site Safety and Environment (RSES). This Permit analyses the procedure-related risks and certain obligations such as, for example, additional protective equipment. The provider cannot access the site without this approved Work Permit. Within the site area, we also carry out safety audits with the various companies to check the proper application of safety rules. In the event of an important deviation from said rules, a site shut-down is requested and communicated to everyone in order to raise the awareness of all contractors. This happened to us just one time in 2016!



WE WORK BASED ON A GLOBAL VISION OF THE SITE FOR A BETTER UNDERSTANDING OF ALL PROJECTS.

HOW DO YOU WORK?

We meet daily to analyse the next day's procedures and the risks involved in joint activity. We work based on a global vision of the site for a better understanding of all projects. Weekly and bimonthly meetings supplement this sharing of information between the site's management, our departments, employees, and companies. We also go to meet companies on their own premises with the aim of continuing to raise awareness.

IS FEEDBACK IMPORTANT TO YOU?

It is essential. We use events that have occurred, or that could have occurred, to improve our safety vision and anticipate risks. We also pay very close attention to what can happen on other sites.

AND TOMORROW?

Risk assessment is a major area of focus for the management of Work Permits on our sites. In order to be more reactive, and to constantly improve our HSE performance, we are planning to dematerialise our information material and work authorisations.

A day for safety

Developing a Safety Culture for TIGF employees and contractors is a priority for TIGF. One of the highlights, each year, in the achievement of this priority is the safety forum which brings together TIGF personnel and contractors. In 2016, this annual forum took place on 16 June across several sites, particularly Lussagnet and Pau. Several workshops were hosted on themes such as major risks, site safety, safety culture and health. This event was also the opportunity to highlight contractors' good practices during an awards ceremony.

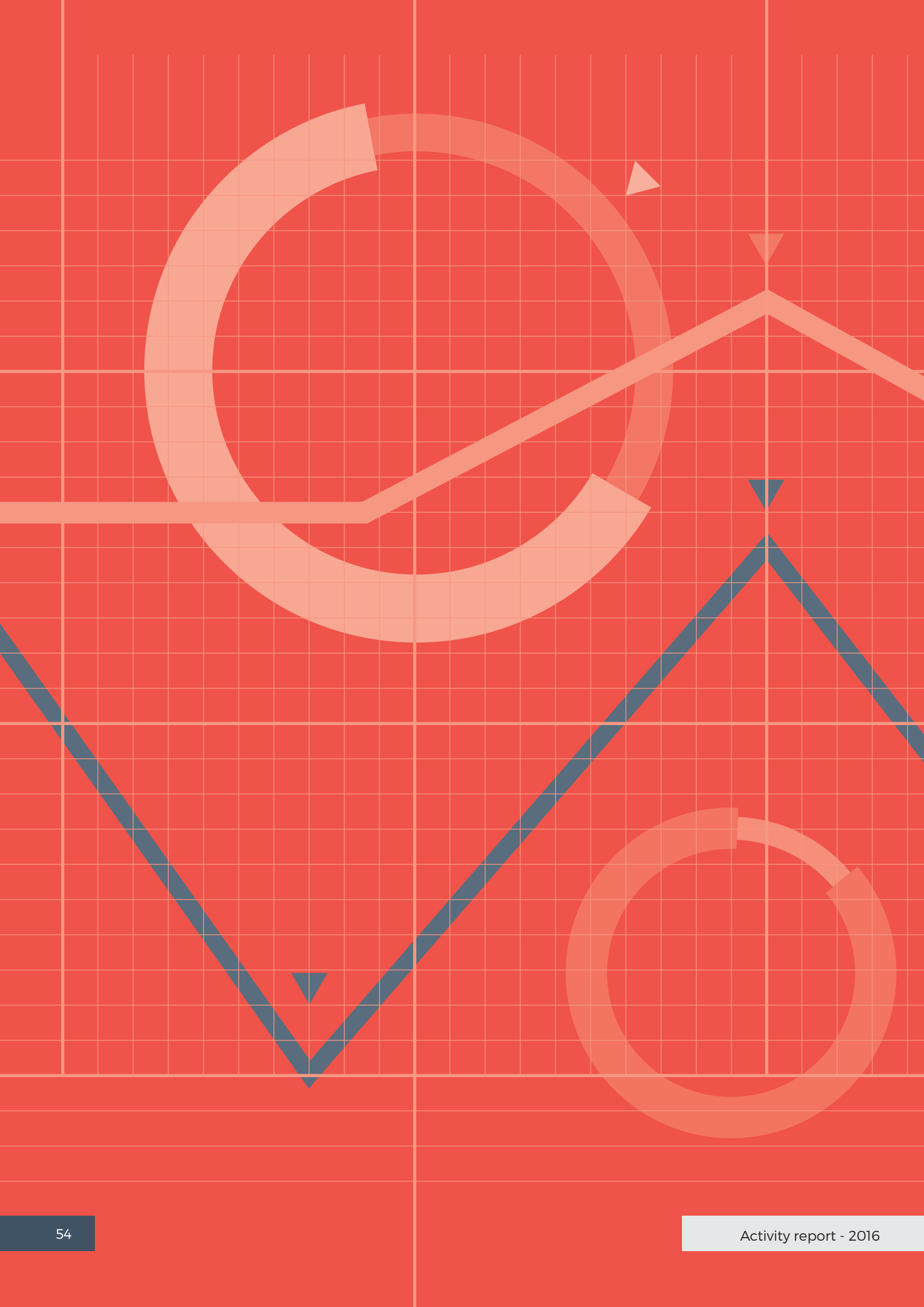


RAISING AWARENESS OF RISKS FOR BETTER PREVENTION AND RECOGNITION ARE THE TWO MAIN AREAS OF FOCUS OF THE STRATEGIC ACTION PLAN TO REACH THE ZERO ACCIDENT OBJECTIVE.



PROTECT AND PROMOTE

Safety is part of the company's DNA. Our industry requires it, in the same way that it also has a responsibility to protect the environment, which is inevitably affected by works on the grid. In this field also, TIGF is exemplary and is - on a national level - a true reference on the subject.





INDICATORS

FINANCIAL INDICATORS

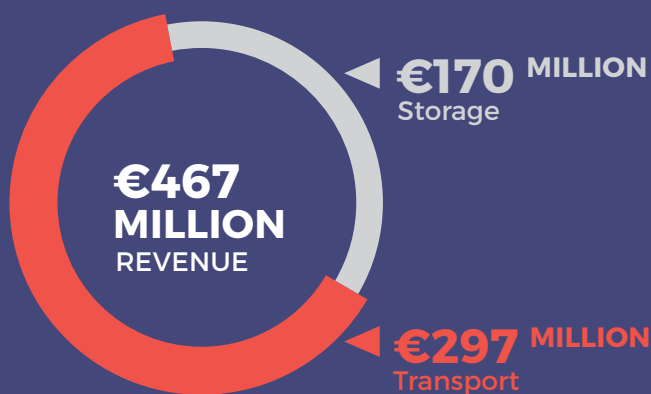
2015

€441 MILLION

2016

€467 MILLION

TIGF's 2016 revenue amounted to €467 million compared to €441 million for the 2015 financial year



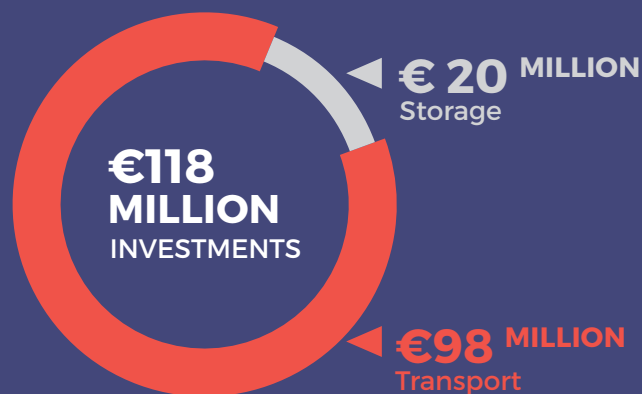
REVENUE FIGURES

TIGF's 2016 revenue amounted to **€467 million** compared to **€441 million** for the 2015 financial year.

Revenue for the **transport activity, amounting to €297 million**, was up on 2015, when it amounted to €278 million. In particular, this increase is attributable to the commissioning of the Adour Artery project during 2015.

Revenue for the **storage activity, amounting to €170 million***, was up on 2015, when it amounted to €163 million. This increase is explained by improved sales generated during the 2016/2017 marketing campaign.

*€ 179 M including intercompagny sales to transport.



INVESTMENT FIGURES

Total investments for the year amounted to **€118 million**.

Representing **€98 million**, transport investments mainly consisted of development investment, notably with the Gascogne Midi Reinforcement project, and of upgrade, safety and maintenance investments.

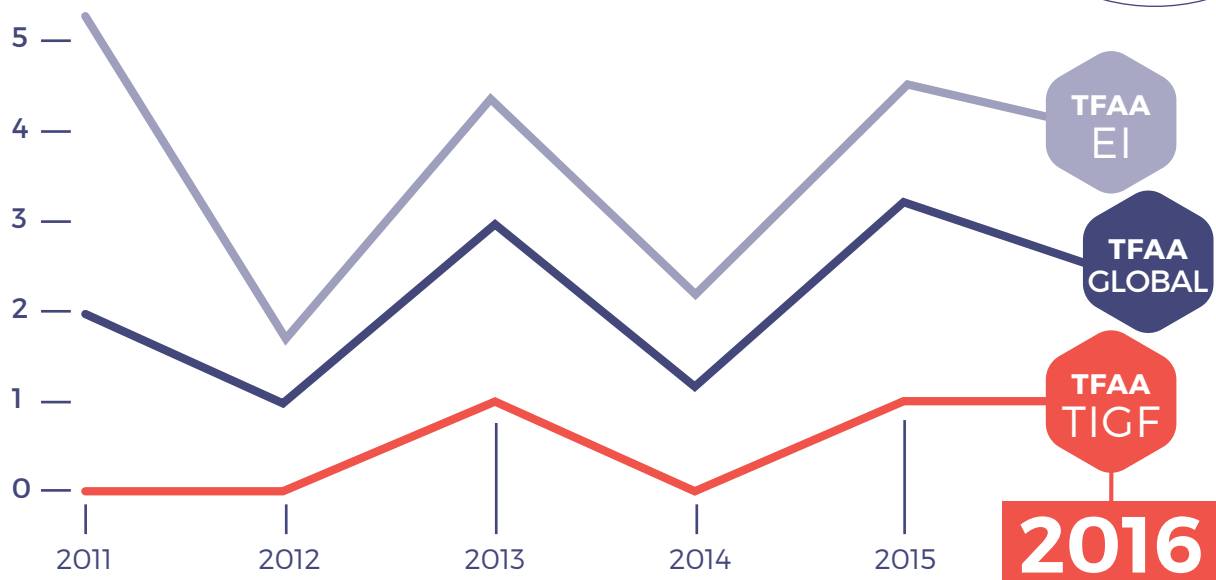
Investments relating to the storage activity amounted to **€20 million** with investment in a dehydration unit in particular.

SAFETY INDICATORS

In 2016, TIGF counted 3 lost-time accidents, 2 of which involved the personnel of our Contractors.



TIGF REAFFIRMS ITS DESIRE TO REACH ITS ZERO ACCIDENT OBJECTIVE.



Progression of the Lost-Time Injury Frequency Rate (LTIFR)

LTIFR*: (Number of lost-time accidents / Number of hours worked) * 1,000,000

If we look at these figures in light of the hours worked by calculating the global Lost-Time Injury Frequency Rate (LTIFR*) for TIGF and Contractors, we observe a slight decrease in the LTIFR compared to 2015 (2.2 in 2016 compared to 3.3 in 2015).

However, we have not achieved our objective, in 2016, of reducing by half our Frequency Rate for the personnel of Contractors (4.1 in 2016 compared to 4.6 in 2015).

TIGF reaffirms its desire to reach its zero-accident objective in its Strategic Action Plan and wishes to continue to reinforce the Safety Culture for TIGF personnel as well as for Contractor personnel.

An action plan reinforcing safety organisation, preventive measures, on-the-ground presence, and control, and highlighting appropriate behaviours was drafted over several years to achieve this ambitious objective.

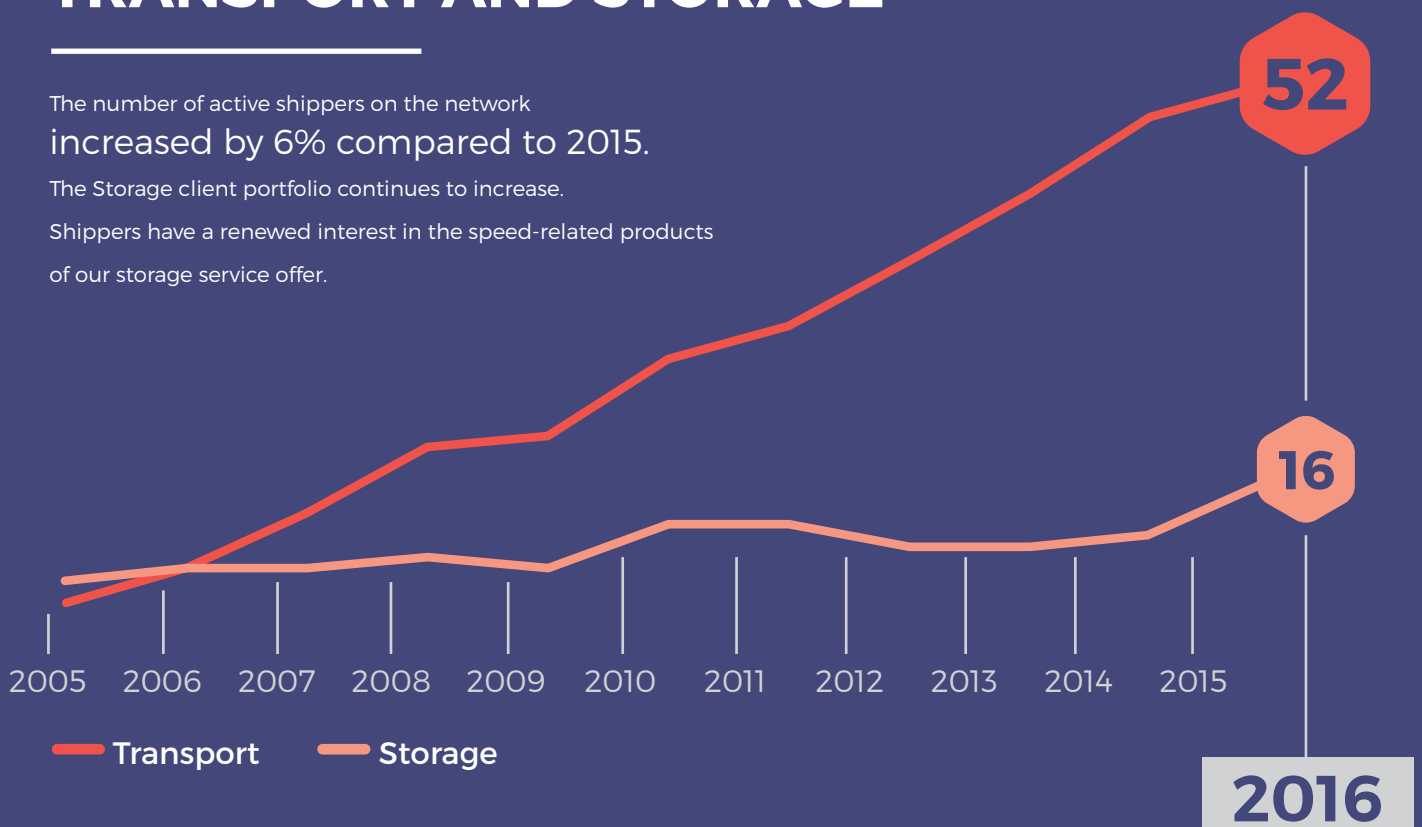
MARKET INDICATORS

CLIENT PORTFOLIO TRANSPORT AND STORAGE

The number of active shippers on the network increased by 6% compared to 2015.

The Storage client portfolio continues to increase.

Shippers have a renewed interest in the speed-related products of our storage service offer.



QUANTITIES TRANSPORTED ON THE NETWORK

The quantities transported on the network are stable at 106 GWh compared to 2015.



ANNUAL TRANSIT AT VIP PIRINEOS

The main flow of gas towards Spain remains stable at **37.5 TWh**. It is worth noting a strong renewal of interest, at the end of the year, in the capacity at PITT towards Spain, owing to market conditions that were particularly favourable to exports to the peninsula in December 2016.

As for gas imports from Spain into France, they continue their multi-year progression and are **18% up** on 2015.

CONSUMPTION IN THE ZONE (TWH) IN 2016

Over a historically mild winter, the consumption of natural gas in the TIGF zone is **overall on a par** with 2015, thanks to the continued consumption of public distribution systems.

It is worth noting a slight dip in delivery to industrial customers owing to the closure of several end consumers in 2016.

	2015	2016
Industrial customers	5.3 TWh	4.9 TWh
Public distribution systems	22.7 TWh	22.8 TWh
Total	28 TWh	27.7 TWh

GAS TRADED ON THE MARKET WITHIN THE SCOPE OF THE TRS VIA POWERNEXT*

An increasingly fluid TRS marketplace with a major increase in the quantities traded via Powernext: more than **50%** compared to 2015, year of its creation. An attractive TRS marketplace with **a growing number of players**, and that contributes to the fluidity objectives of the French natural gas market.

	2015	2016
Number of transactions	31,932	42,430
TWH traded	31.4 TWh	47.6 TWh

* Total trade on TIGF PEG + GRTgaz Sud from 1st January to 31 March 2015 and subsequently within the scope of the single TRS marketplace from 1st April.

** including transactions on the PEG NORD-TRS spread.

OPERATING INDICATORS

Over the course of 2016, great efforts were made by TIGF to enforce regulations, through individual actions with neighbouring residents, but also through involvement in collective actions within the framework of the DT/DICT Observatories.

In 2016, a decrease in undeclared works was confirmed. This positive development is consistent with national accidentology statistics regarding sensitive networks: a significant improvement for local authorities and the construction industry, and a stagnation for residents. In this same year, there were **12,851 Works Declarations (DT)** or Declarations of Intent to Commence Work (DICT). Third-party works in the vicinity of TIGF infrastructures were subjected to approximately 6,600 site surveillance procedures. In terms of instructing parties, almost 70% of works are initiated by residents (private individuals, farmers).

In 2016, still in the interests of further reducing the percentage of Undeclared Works (TND), TIGF took action and, in particular, wrote to each of the **28,000 owners of plots of land crossed by its infrastructures** in order to remind them of their obligation to declare their works in the vicinity of infrastructures before proceeding. This significant task

was made possible thanks to the development of a specific database. A tangible decrease in undeclared works on private property is expected in 2017. All cases of recorded non-compliance (missing DICT or failure to keep appointments) were the subject of a site report, and a letter sent to the heads of companies and the contracting authorities.

MANAGEMENT OF WORKS IN THE VICINITY OF INFRASTRUCTURES

In 2016, with regards to the Operational Divisions and Regions, 137 information actions intended for stakeholders and third parties (including industrial clients) were taken, either following Undeclared Works (TND) or in the course of targeted themed actions. Aerial surveillance contracts were renewed, in keeping with the newly defined TND prevention policy, and roll-out started in January 2017. On-the-ground visits of 50% of the network were also carried out, in accordance with defined objectives. The particulars of the cover measurement campaigns were defined and approved: implementation is planned for 2017.

It is worth noting that, in 2016, TIGF obtained the AIPR (Authorisation to carry out procedures in the vicinity of networks) for 13 of its operators in the Work Group.

TIGF classifies those behind Undeclared Works into 3 categories (undeclared works within 50m of our pipelines):

	2012	2013	2014	2015	2016
Local authorities	26	19	12	17	8
Construction industry	78	61	56	54	49
Residents	28	31	33	24	27
TOTAL	132	111	101	95	84
Undeclared/Declared	1.74%	1.42%	1.18%	1.09%	0.93%

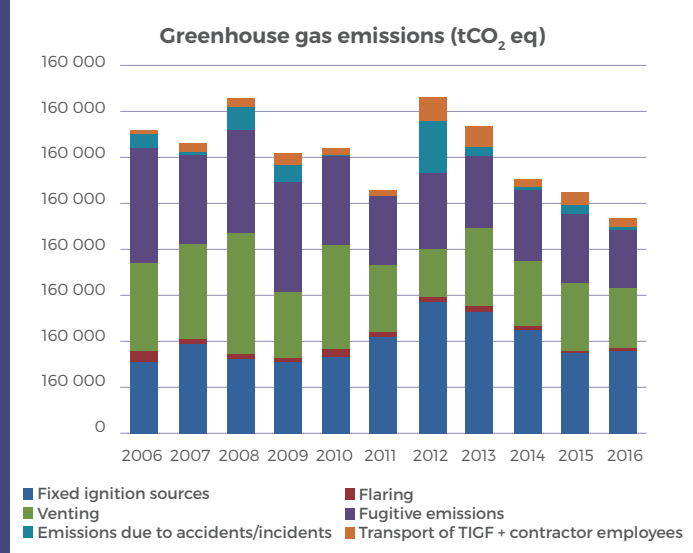
ENVIRONMENTAL INDICATORS

The decrease in greenhouse gas emissions observed over the last 3 years is confirmed once again in 2016 and falls below 100,000 tons equivalent CO₂.

TIGF has therefore reduced its emissions by more than a third since 2012.

This historically low level is explained by the combination, in 2016, of:

- A level of dispatched gas lower than that of a few years ago. There is therefore less need for compression in order to transport this gas, leading to lower levels of combustion emissions and fugitive emissions.
- Works on our network involving lower volumes of gas, combined with the pursuit of our efforts to minimise associated venting as much as possible (gas released into the atmosphere).

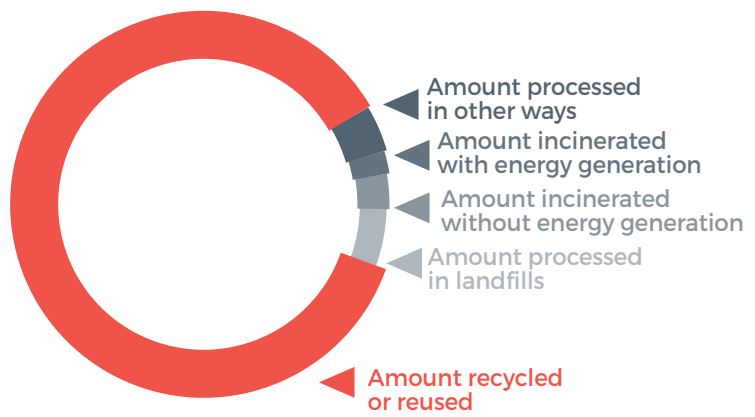


VENTING BREAKDOWN



TIGF WASTE

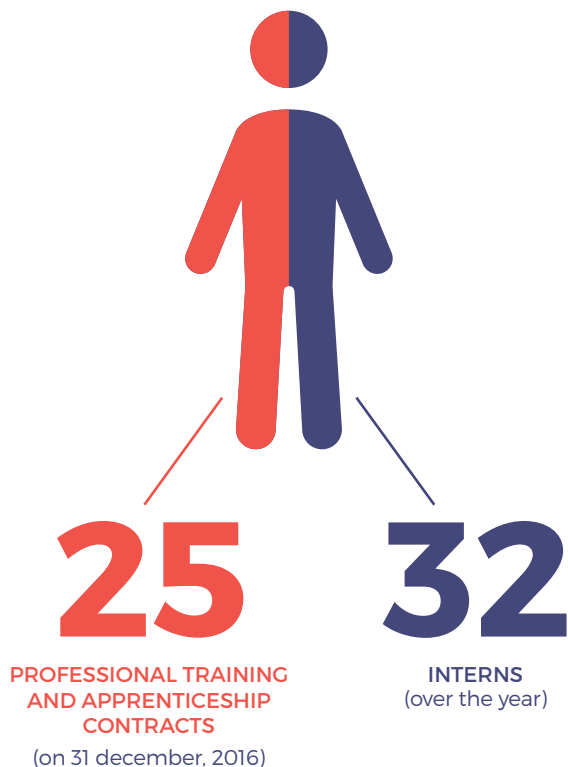
In 2016, TIGF reused and recycled 88.6% of its waste: 86.1% of waste was reused and 2.5% was incinerated with energy generation.



HUMAN RESSOURCES

Professional training remains a main thrust of TIGF's HR policy, with a view to maintaining and developing skills, and also to assisting employees with their career development.

Professional training and apprenticeship contracts



TRAINING

6.45%

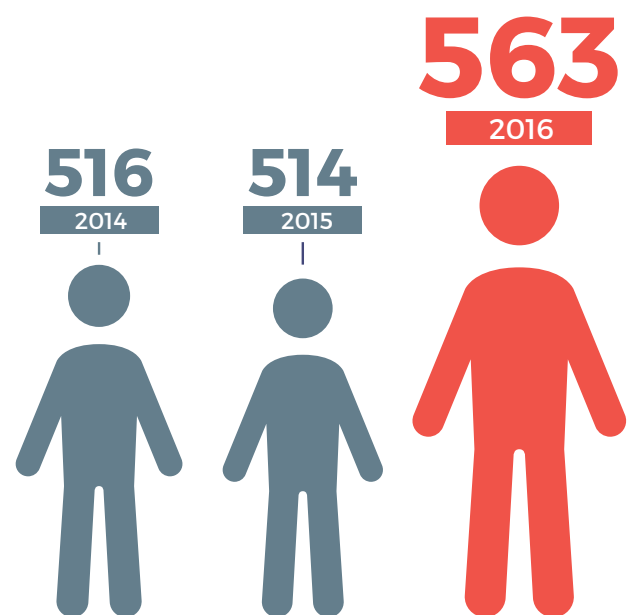
Of payroll 2016
Training budget

563

Number of people trained

3,877

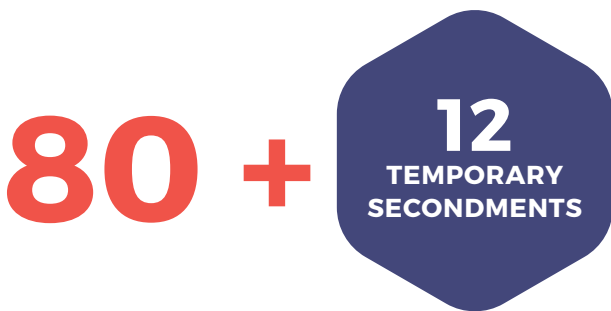
Training days
(excluding work-placement contracts and DIF*/CPF*)



*DIF Individual Training Entitlement / *CPF Personal Training Scheme

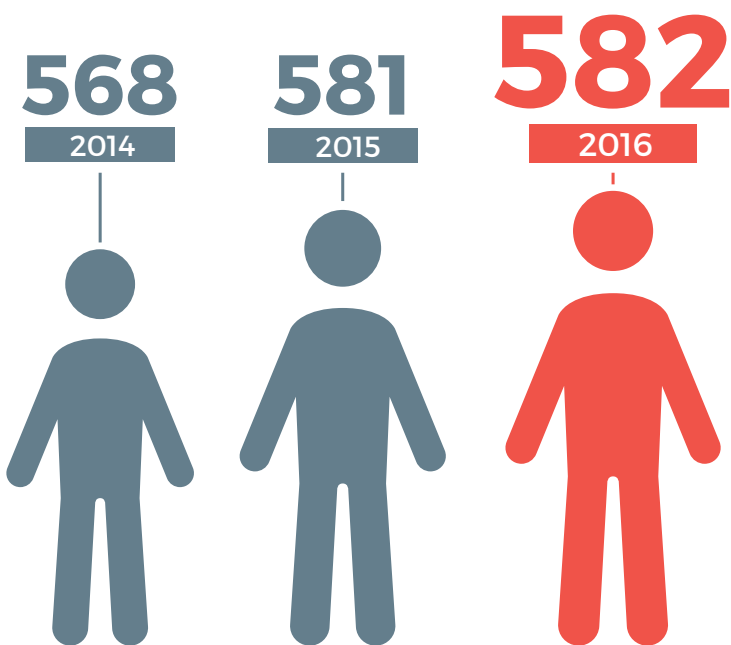


Number of internal mobility transfers within TIGF in 2016



EMPLOYMENT ON 31/12/2016

TIGF workforce including fixed-term contracts and work-placement contracts



Short and long-term contracts

TOTAL
582

547 LONG-TERM

35 SHORT-TERM

MEN
443

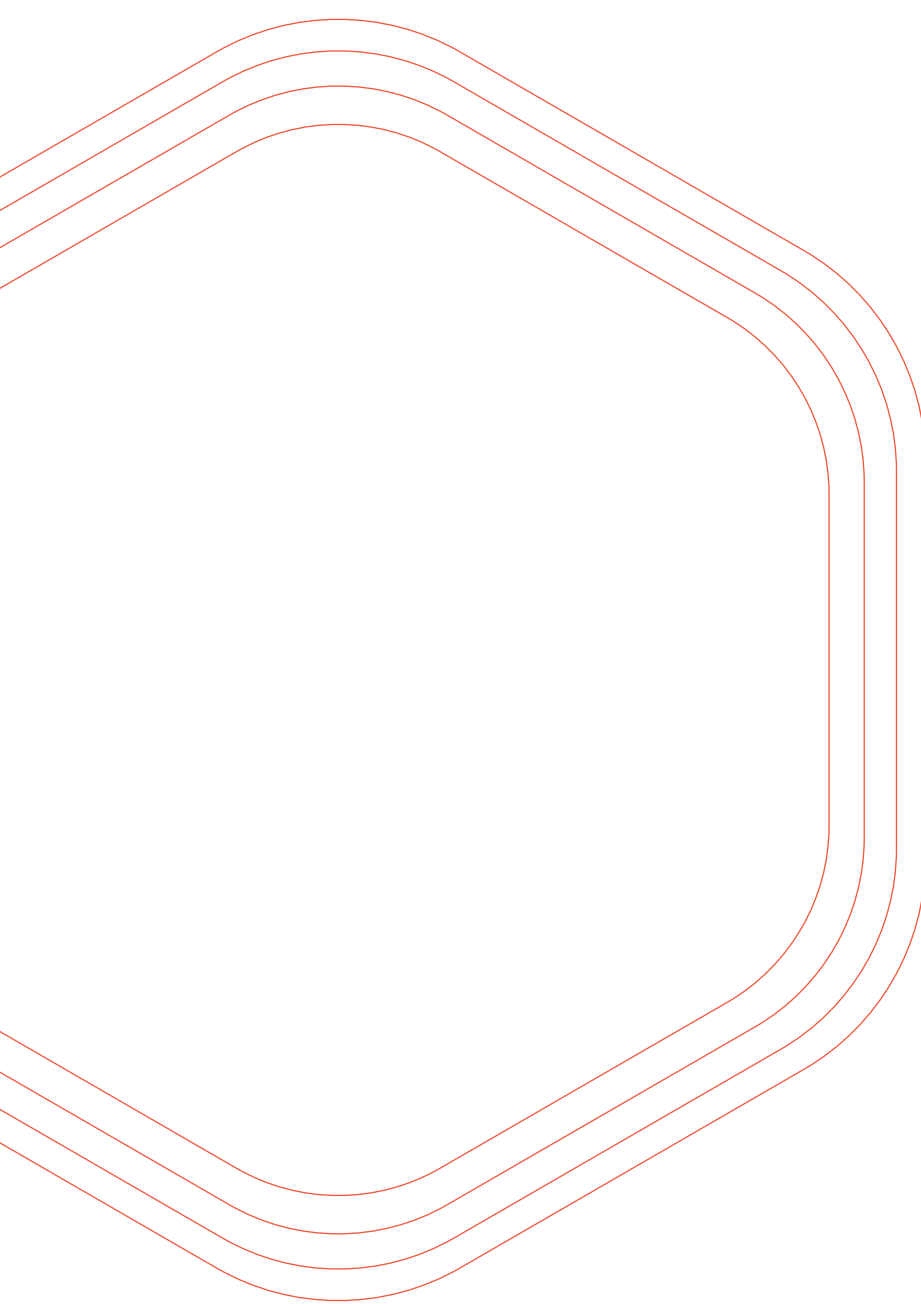
419 LONG-TERM

24 SHORT-TERM

WOMEN
139

128 LONG-TERM

11 SHORT-TERM



Interviews by: NEW COMPACT

Textes written by TIGF

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TIGF May 2017

ACTIVITY REPORT

2016

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