

ROUND TABLE

Transforming Decoset's waste-to-energy units to help advance the environmental transition

DATE: April 9, 2025

LOCATION: Balma, Toulouse Métropole



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Aerial view of the Bessières facility @ Richez/Séquences

EDITORIAL

January 1, 2025 was a key date in Decoset's environmental transition. The Toulouse metropolitan area public waste management service, awarded SUEZ and Banque des Territoires, a Caisse des Dépôts Group entity, a concession contract for the management of two waste-to-energy plants handling waste from the Toulouse area and the northern part of the Haute-Garonne department.

The €1.4 billion contract covers the modernization of the Bessières waste-to-energy facility, the reconstruction of a new plant in Toulouse and the operation of both waste-to-energy plants for 20 years.

This ambitious project, which took shape under a program to champion waste reduction and shrink the environmental footprint of waste-to-energy installations, is being conducted in consultation with residents and local associations.

Vincent Terrail-Novès, Chairman of Decoset, commented:

“With this project, we are pursuing our vision of a resolutely future-facing community. By pooling and transforming our infrastructure, we are addressing the environmental issues of today while also anticipating the challenges of tomorrow. For local stakeholders, the project will reduce waste and generate more energy, as part of an approach that interacts with and is open to local ecosystems.”

Thierry Déau, Chairman of SUEZ, added:

“SUEZ is proud to be playing a part in this groundbreaking project. It embodies our commitment and our ability to support areas pursuing their ecological transition. Our vision of how to deliver progress is encapsulated in the first-class integration of these installations within their environment, for the benefit of local partners and the area at large. Thanks to our industrial and technological expertise, we are developing the two waste-to-energy units in the Toulouse metropolitan area into an innovative model that others will look to for inspiration in France and across Europe.”

Gisèle Rossat-Mignod, Head of the Banque des Territoires network, concluded:

“Supporting the ecological transformation and waste-to-energy innovations is perfectly aligned with our strategic ambitions. With a €56.2 million investment, the Banque des Territoires is helping to build a greener energy future for Toulouse and its region.”



INTRODUCTION

TOULOUSE AREA'S WASTE-TO-ENERGY PLANTS: A TRANSFORMATION EPITOMIZING THE ENERGY TRANSITION

Decoset, a joint waste recovery and treatment service for household and related waste, is resolutely looking to the future with the unprecedented scale of the project it is presenting for the Toulouse metropolitan area. The transformation of the Toulouse and Bessières waste-to-energy units forms the cornerstone of its plan for a successful energy transition. It symbolizes Decoset's commitment to local partners and to the environment and is predicated on major upgrades and a revitalized operational model.

A LARGE-SCALE PROJECT THAT AIMS TO DELIVER "LESS WASTE, MORE ENERGY"

Decoset and the EPCI public regional cooperation agencies have launched a policy to reduce waste and raise the efficiency of waste management across the Toulouse metropolitan area in order to curb the environmental footprint of their activities and provide a boost to the circular economy. These ambitious targets are set out in Decoset's 2023–2040 strategic blueprint and each EPCI's local household waste prevention program (PLPDMA).

The plan to transform the Toulouse and Bessières waste-to-energy plants aims to deliver on this vision of reshaping waste management across the metropolitan area, thereby accelerating the ecological transition, in line with the local challenges.

The aim is to recalibrate our view of residual household waste as a source of recoverable energy. This approach is part of a long-term vision in which infrastructure is managed holistically and consistently, thereby helping to wean the area off its reliance on fossil fuels.

SUEZ's and the Banque des Territoires' combined proposal has been devised with a pragmatic approach, which involves adapting the waste-to-energy plants in the short term and preparing for the future in alignment with Decoset's goals. It capitalizes on facilities' existing strengths and the expertise gained by Decoset's and SUEZ's teams, while targeting improvement in environmental, technical and energy performances. This strategy will pave the way for a smooth transition, guaranteeing a harmonious changeover and continuity of operation.



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WASTE POWERS THE FUTURE: SUBSTANTIVE ENERGY BENEFITS

The transformation of the Toulouse and Bessières waste-to-energy units represents a major turning point for energy in the metropolitan area Decoset serves. Residual waste is transformed into a highly efficient, local and recoverable energy source. This approach will yield substantive, measurable benefits for the metropolitan area's inhabitants and businesses.

OPTIMIZED HEAT AND ELECTRICITY GENERATION

Toulouse's new waste-to-energy plant, located in the Lafourguette district close to Le Mirail, is set to become a technological showcase in its own right, which is capable of generating enough heat to cover close to **80% of demand from the Toulouse urban network**.

By 2032, the new waste-to-energy plants will generate **over 360 GWh of heat per year (20% above current output) and 220 GWh per year in electricity (50% above current output). That is the equivalent of the electricity consumed by 90,000 people and the heat consumed by 64,000 people.**

The project's real strength lies in the unprecedented synergy between the Toulouse and Bessières waste-to-energy plants. By regarding these two installations as the pillars supporting a single industrial ecosystem, Decoset and SUEZ can optimize management of the flow of waste and maximize energy generation across the metropolitan area.

This integrated approach guarantees continuity of service even when one of the installations is undergoing maintenance or has to shut down. It helps to lower operating costs through optimized resource and skills management and to drive up environmental performance by harnessing more effective waste recovery.

The adoption of best-in-class technologies will contribute to an improvement in the energy performance of the new Toulouse waste-to-energy plant:

- two furnace and boiler lines processing **15 tonnes of waste per hour**. These efficient installations hold the promise of an optimum waste processing capability, so more energy can be generated with less waste.
- an availability guarantee of **8,100 hours per year per line**. This high level of availability will safeguard continuous and reliable energy generation.
- **57 MW in thermal capacity** guaranteed for district heating purposes. This considerable thermal capacity will help meet demand from the area's district heating networks.
- **2 Turbo-Alternator Sets, 21.7 MW**. This efficient equipment is a means of converting heat into electricity, which will support the diversification of the metropolitan area's energy sources.
- next-generation flue gas treatment. The waste-to-energy plant will be equipped with the most advanced flue gas treatment processes, guaranteeing the lowest possible emissions and best possible protection for the environment.
- partial recirculation of clean flue gas to enhance the thermal yield. This innovative process helps to optimize the use of the heat produced, thereby helping to improve overall energy performance.

Through efficient energy generation, unprecedented synergies between the two installations and the adoption of cutting-edge technologies, this project will help meet energy demand in the metropolitan area without damaging the environment.

INNOVATION

AI AND DIGITAL TECHNOLOGY ARE OPENING UP A NEW ERA FOR THE TWO WASTE-TO-ENERGY PLANTS

To optimize waste management and guarantee the installations' performance, cutting-edge digital solutions are being rolled out at the sites. Three tools will be deployed to:

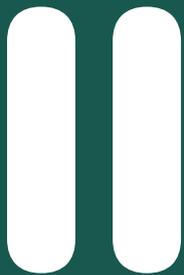
Analyze camera images using artificial intelligence to detect non-compliant incoming waste and enhance the quality of sorting in conjunction with the municipal authorities (QualiWaste).

Centralize and analyze in real time the installations' operating configuration to forestall risks of failure and optimize their performance (ValoVisio).

Accurately measure and track energy consumption trends, with data analysis algorithms. This technique aims to provide effective control over energy-saving measures to continuously enhance the site's energy efficiency (Qualisteo).



Future visitor area and educational facilities at the Bessières site @ Richez/Séquences



**REAL PROGRESS
TOWARDS
ENVIRONMENTAL AND
SOCIETAL GOALS**

Thirty years after its formation, Decoset involved all the EPCIs during 2023 in collectively drawing up a 2023–2040 strategic blueprint. The goal was to set out a vision and shared objectives, especially for supporting citizens with their journey towards energy moderation, circularity and resource savings.

To advance its ecological transition, the Toulouse metropolitan area, likewise, set in motion the “Greener Toulouse” campaign and an ambitious waste management policy. This was formally set out in the local household waste prevention program (PLPDMA) for 2025–2030, which will be adopted shortly.

The upgrade of the Toulouse and Bessières waste-to-energy plants is part of this long-term vision. Following the works, the installations will comply with the requirements of the Regional Climate Plan (PCAET) and help recover energy locally for the benefit of local partners.

LINKS WITH THE METROPOLITAN AREA

Building on the consultation already completed, a consultation process with residents and local non-profits concerning the facilities' upgrade will take place ahead of, during the work phase and also during the operational phase. Decoset and SUEZ will keep the populations informed and engage in discussions in full transparency with the various regional partners. Regular meetings will be held to present the results of the environmental monitoring and answer residents' questions.

Site tours will be run, and spaces open to the general public will host schoolchildren, non-profits and users at the site, providing information, educational insights and networking opportunities.

AN URBAN PROJECT OPENING UP TO ITS ECOSYSTEM

For Decoset, it was a priority to integrate the waste recovery infrastructure with its urban surroundings. To make the local population's lives better, the architecture and the relationship to the local fabric of Toulouse's new waste-to-energy plant have been turned on their head. The first key decision was to restrict the new plant's height to 22 meters. It is designed as a people-centric space, which is connected with the district, a space for dialog and teaching, through:

- **an impressive architectural design.**

With a sober, elegant and compact design, the new waste-to-energy plant will be a model for landscape integration. The flowing curves of the stretched fabric will mirror the distant Pyrénées peaks, blending it seamlessly with its environment.

- **a cool oasis in the heart of the city.**

More than one hectare of urban green space will be created around the waste-to-energy plant, with 187 high-canopy trees and 132 shrubs on the terraces. This plant cover will help to mitigate the urban heat island effects and to improve air quality.

- **a transparent façade, which opens up the space to the city and welcomes in its residents.**

It will be topped by a photovoltaic solar power plant that will generate 550 MWh in solar power,

- **easy, yet secure access.**

An optimized traffic plan will keep trucks moving and minimize any inconvenience for residents. A below-ground car park will be built to curb land take.

HELPING TO SHRINK THE TOULOUSE METROPOLITAN AREA'S CARBON FOOTPRINT

One of the project's primary goals is to lower the metropolitan area's carbon footprint. By making installations more efficient and recovering energy from the waste with optimum efficacy, the upgraded waste-to-energy plants will supply the area with more energy and avoid **123,500 tonnes of CO₂ emissions per year** (on average over the 20-year concession period):

85,000 tonnes of CO₂

by providing heat to the district heating networks. Decoset is helping to decarbonize district heating by making the switch from fossil fuel energies to renewable heat recovered from waste.

11,000 tonnes of CO₂

by supplying renewable electricity. Generating electricity from waste helps diversify the metropolitan area's energy sources.

27,500 tonnes of CO₂

avoided by recycling metals from bottom ash. Decoset will create a circular economy and help to conserve natural resources by reclaiming bottom ash produced by waste incineration.

The future-oriented project does not solely address contemporary challenges. A strategy of capturing, recovering and storing CO₂ is under consideration with a view to massively decarbonizing the waste-to-energy plant.

AN EXPERTISE AND INNOVATION HUB THAT ASPIRES TO INTRODUCING INNOVATIVE NEW DECARBONIZED ENERGY SOLUTIONS

Through this initiative, Decoset's waste-to-energy plants will become test beds leaning first and foremost on the Toulouse area's economic and academic ecosystem. The expertise hub can draw on the experience of three engineers based in Toulouse who have been assigned to the project and boasts the know-how of SUEZ Group's Innovation Department.



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PLANNING AHEAD FOR REGULATORY REQUIREMENTS, CONSERVING RESOURCES AND PROTECTING THE ENVIRONMENT

The design of the soon-to-be-built Toulouse waste-to-energy plant accommodates the environmental regulatory requirements and implements best practices for conserving natural resources.

The waste-to-energy plants will be equipped with best-in-class technologies to significantly lower emissions of atmospheric pollutants and comply with the strictest standards. Smart sensors will measure the savings made in real time.

The design will ensure wastewater and rainwater are the only liquids discharged by the facilities. All process effluents will be reused.

Measures will be taken to reduce the installations' water consumption and to recover the rainwater. A reduction of 25% in the water taken from the Tarn River will be achieved at the Bessières plant with the addition of a new water-saving device.

ACCESS-TO-EMPLOYMENT PROGRAM AND JOBS

In total, 126 employees keep the Toulouse and Bessieres sites running. They employ the same monitoring systems and tools to manage the installations consistently. An Assets and Performance unit has been set up staffed by data science and site monitoring specialists.

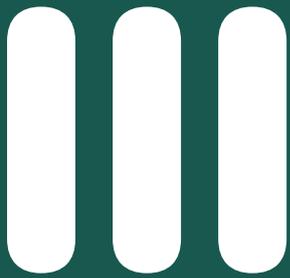
Four full-time equivalent positions are being offered for access-to-employment applicants for the whole duration of the contract. They will help people struggling to find a job to secure long-term employment. The successful candidates will be taken on, supervised and supported by social and solidarity economy organizations:

- . the Bellefontaine neighbourhood association, responsible for maintaining roadways and spaces, cleanliness, and site bungalows.
- . Jardins du Girou, an organization specialized in the upkeep of green spaces.

The program is overseen by two SUEZ Social Innovation hub specialists, ensuring rigorous oversight and effective integration of the access-to-employment arrangements.



Toulouse's new waste-to-energy plant @ Richez/Séquences



**A VIRTUOUS AND
SUSTAINABLE
CONTRACTUAL
ECOSYSTEM**

Decoset, SUEZ and the Banque des Territoires have introduced a unique model that brings together Decoset's comprehensive knowledge of the Toulouse area and aspirations, SUEZ's industrial and regulatory expertise and Banque des Territoires' financial strength.

A LONG-TERM PARTNERSHIP BETWEEN SUEZ AND BANQUE DES TERRITOIRES

Banque des Territoires, a Caisse des Dépôts Group entity that is a trusted partner of local and regional authorities, strives to maximize its impact, especially on the Toulouse metropolitan area's ecological transformation. Furthermore, it is one of SUEZ's three core shareholders.

The alliance between a world leader in waste management, an infrastructure construction specialist, and an experienced public-sector investor provides assurance of operational excellence and financial strength.



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The key features of the alliance are:

an investment in excess of €450 million.

The financial arrangements enable Decoset to pursue this ambitious project without its ability to invest in other game-changing projects being impaired.

a fixed guaranteed interest rate for the entire term of the contract. This guarantee provides long-term financial visibility and protects Decoset from interest-rate fluctuations.

the sale of 90% of the electricity generated to Decoset, of which 50% may be directed to member EPCIs. This provision ensures EPCIs can benefit from a local and renewable energy source, making them more energy self-sufficient.

a dedicated concession company (housing the financing and operations) called Evoneo, 70%-held by SUEZ RV Energie, 30%-held by Banque des Territoires.

a fully proportional fee structure that supports Decoset's waste prevention strategy.

transparency concerning the funding put in place, with no external intermediaries, and no additional reliance on banks and similar institutions.

IV

**BENEFITS FOR
THE TOULOUSE
METROPOLITAN AREA**

ANNUAL ENERGY GENERATION FORECAST:

- 360 GWh in heat (up 20%)
- 220 GWh in electricity (up 50%)

EMISSIONS AVOIDED

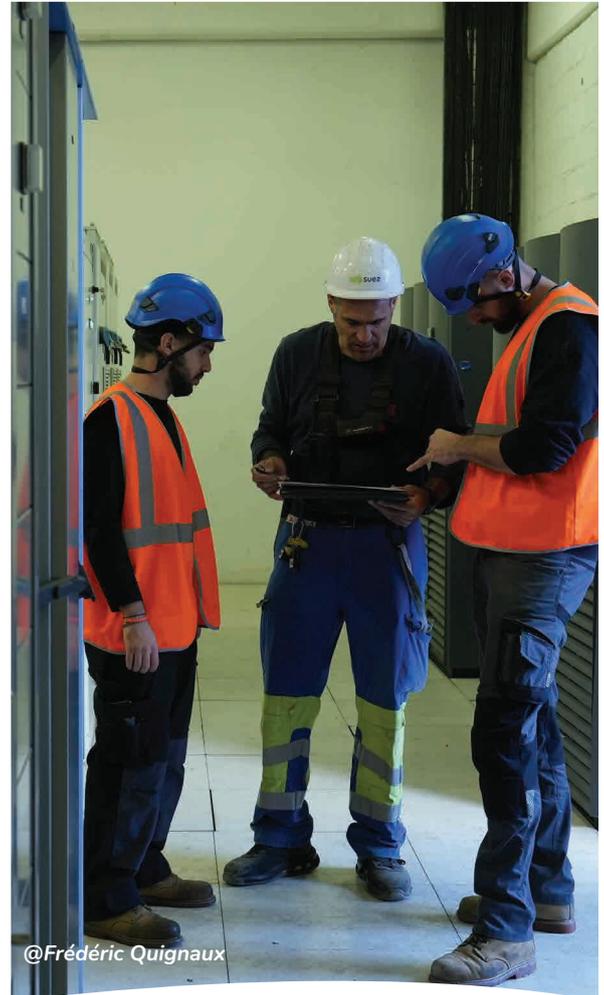
The upgraded waste-to-energy plants will eventually supply the Toulouse metropolitan area with more energy and avoid 123,500 tonnes of CO2 emissions per year on average over the 20-year concession period.

ARCHITECTURAL AND LANDSCAPE INTEGRATION:

- 22-meter tall urban landmark
- southern façade topped with a photovoltaic power plant (550 MWh per year)
- creation of a one-hectare space for nature in the city
- 187 high-canopy trees planted
- 132 shrubs on the terraces
- 31% of the land to remain in a natural, unbuilt state in order to help meet the zero net land take target and advance the “Greener Toulouse” plan

COMMUNITY-BUILDING:

- a meeting place and an educational hub accessible to the local ecosystem



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Stakeholders welcomed at the Toulouse site and expertise hub @ Richez/Séquences



TECHNICAL FACTSHEET

TOULOUSE'S NEW WASTE-TO-ENERGY PLANT:

Treatment capacity: **240,000 tonnes per year**

2 furnace-boiler lines processing **15 tonnes per hour**

Availability guarantee: **8,100 hours per line per year**

New bottom ash installation at Muret (tripling recovery rate of non-ferrous materials and lifting the recovery rate of ferrous materials by 10%)

Heat sold up **22.5% to 337 GWh per year on 13% less waste**

57 MW in thermal capacity guaranteed for district heating purposes.

2 turbogenerator sets, delivering total nominal electrical output of **21.7 MW**

Electricity volumes sold by waste-to-energy plants **to triple**

550 MWh in solar electricity generated

Discharges well below the norm (**almost 4x lower for NOx, 8x lower for SO2 and dioxins**)

Odor containment (additional filtration during shutdowns, monitoring by "smell panel", etc.)

No light pollution at night

Dust containment (bottom ash pit fully contained inside a closed building, etc.)

No noise impact during the daytime or at night owing to the installations' efficiency, as confirmed by an acoustic simulation

Zero liquid process discharges

7x less water used

BESSIÈRES WASTE-TO-ENERGY PLANT AFTER THE WORKS

Treatment capacity: **2x 12 tonnes per year**

Availability guarantee: **8,000 hours per year**

110 GWh of electricity to be generated per year (excluding turbine maintenance years)

Energy synergies with Toulouse: sorting rejects are stored during the summer (**6,000 tonnes per year**) and redirected to the Toulouse waste-to-energy facility in winter, increasing district heating supply by **18,600 MWh per year**.

25% reduction in the volume of water used to cool flue gas treatment through boiler improvements (**down 30,000 cubic meters per year**)

Environmental commitments through tighter management with ATMO Occitanie's assistance

Bottom ash installation upgrade to enhance **the recovery of metals by a factor of 3x**



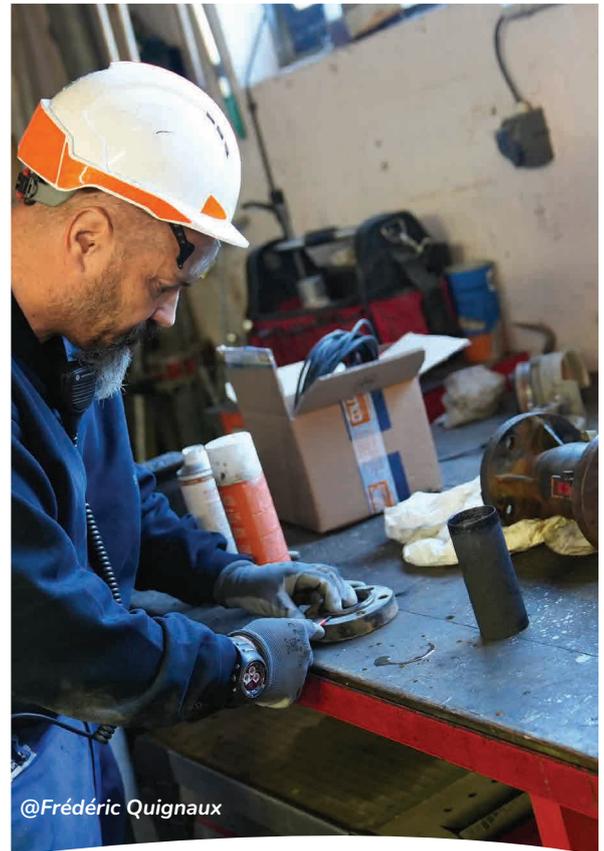
PROJECT TIMELINE

January 1, 2025:
start date of the contract

2026:
Start of work on Toulouse's new
waste-to-energy plant

2031:
Commissioning of Toulouse's new
waste-to-energy plant

Length of the contract:
20 years



VI

**A CONSORTIUM OF
COMMITTED EXPERTS**

VI - A CONSORTIUM OF COMMITTED EXPERTS

The construction consortium and its project management and civil engineering partners are all groups firmly anchored in the metropolitan area. Like the process partners, they are experienced in handling large-scale and long-term developments.



APPENDIX

TECHNICAL GLOSSARY

Waste-to-energy plant: waste-to-energy plant

EPCI: public regional cooperation agency

FAM: Air pollution control device

GTA: Turbo-generator set

IME: Bottom ash installation (processing residue from waste incineration)

MWh: Megawatt-hour

GWh: Gigawatt-hour

LHV: Lower Heating Value

PCAET: Regional Climate Plan

RCU: District Heating Network

TGAP: General tax on polluting activities

REFIOM: Residues produced during flue gas cleaning in a municipal waste incineration plant

ZAN: Zero net land take



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BIOGRAPHY



VINCENT TERRAIL-NOVÈS
Mayor of Balma
First Vice President of the Toulouse Metropolitan Authority
Chairman of Decoset

Vincent Terrail-Novès was born on December 24, 1978 in Toulouse. He trained as a physical therapist and has been in practice since 2000, mainly treating dependent elderly people. In parallel with his career, his political and civic commitment led him to stand in the Balma municipal elections of 2008. He was elected as a municipal councillor and headed up the opposition group.

In March 2014, he was elected as Mayor of Balma (17,000 inhabitants, a municipality forming part of the Toulouse Metropolitan Authority) in the first round of voting with over 52% of votes. He was reelected in 2020 with a majority of 65.37% of the votes cast, confirming he retained the confidence of Balma's voters.

He also stood for election at regional level. He was elected as a Midi-Pyrénées regional councillor in 2010 and then reelected to the larger Occitanie region in 2015. At metropolitan level, he held key environmental and resource management positions. As the First Vice President of the Toulouse Metropolitan Authority, he is in charge of waste and the circular economy.

Since 2020, he has also chaired Decoset, the public waste management and household waste recovery service operating in the Greater Toulouse metropolitan area. This serves more than one million inhabitants across eight EPCs. During his tenure, the services have been reorganized to equip the Toulouse metropolitan area for the environmental, technical and governance-related challenges that lie ahead.



THIERRY DÉAU,
Chairman of SUEZ

Thierry Déau is the Chairman of SUEZ. He is also Chairman and Chief Executive Officer of Meridiam, an investment benefit corporation, specialized in the development, financing, and management of long-term and sustainable infrastructure projects he founded in 2005, in the belief that the alignment of interests between the public and private sector can provide solutions to the critical needs of communities.

Prior to Meridiam, Thierry worked for France's Caisse des Dépôts et Consignations (CDC) where he held several positions with its engineering and development subsidiary Egis Projects, initially working as project leader, before being promoted to become director for concession projects and ultimately Chief Executive Officer in 2001.

Thierry is currently a Board Member of Fondation des Ponts, Board Member of the Friends of the Paris Opera (AROP), Chairman of the Établissement public du Palais de la Porte Dorée, Founder of the Africa Infrastructure Fellowship Program (AIFP), Founding Member of the Sustainable Development Investment Partnership (SDIP) of the World Economic Forum, Chairman of the Long-term Infrastructure Investors Association (LTIIA), Chairman of the Fast Infra Group (FIG), and President of the Archery Foundation, which supports young talents from underprivileged areas in France in their personal and professional development.

Thierry Déau graduated from École Nationale des Ponts et Chaussées engineering school.



GISÈLE ROSSAT-MIGNOD,
Head of the Banque des Territoires network

Gisèle Rossat-Mignod, 55, has headed up Banque des Territoires' Network since September 2018. She is a graduate of the École Vétérinaire veterinary school and of the Institut des Hautes Etudes de Défense Nationale defense institute. She began her career in September 1995 as deputy to the Allier department's Director of veterinary services. In October 1998, she joined the International health coordination mission led by France's Ministry of Agriculture and Fisheries. In May 2002, she became an advisor to the Minister of Agriculture, Fisheries and Rural Affairs, then to the Minister of the Economy, Finance and Industry. After an assignment with the Director-General for Health from February to November 2005, she joined the French national institute for agronomic research as an executive advisor to the Chairwoman and CEO. Then she was appointed as a sub-prefect and held the role for several areas: Sub-prefect – Chief of Staff for the Prefect of the Nord-Pas-de-Calais region, Prefect of the Nord department (from February 2007 to February 2009), Sub-prefect – Chief of Staff of the Ile-de-France region, Prefect of Paris (from February 2009 to December 2013). Sub-prefect – Secretary-General of the Isère Prefecture (from December 2013 to April 2014). Since May 2014, she has held two successive roles at the ADP group: Chief Operating Officer at Roissy Charles de Gaulle airport until October 2015 and then Chief Public Affairs Officer at the ADP group – Chief of Staff for the Chairman and Chief Executive Officer and a member of the Executive Committee.

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