

CITY OF PARIS

**Projects funded by the Climate Bond
issued on 10th November 2015**

Reporting on 2016



SUMMARY OF ANNUAL REPORT 2016**PRESENTATION OF THE CLIMATE BOND IN CONTEXT** _____ **3**

In 2015, Paris emphasized its financial commitment to the fight against climate change and has since applied a methodology which meets the recommendations of the Green Bond Principles.

SYNTHESIS OF PROJECTS FUNDED _____ **5****REPORTING ON PROJECTS FUNDED** _____ **6**

Commitments and goals of the reporting / Transverse indicators / Key figures for 2016

1. Reducing greenhouse gas emissions _____ **10**

Public transport / Non-motorised traffic / Electric vehicles

2. Reducing energy consumption _____ **18**

Sustainable buildings / High-performance public lighting

3. Producing renewable and waste energy _____ **23**

Photovoltaic solar panels

4. Strategy for territorial adaptation _____ **26**

Creating green spaces / Planting trees

NOTE ON METHODOLOGY _____ **31**

The annual opinion review provided by the Vigeo Eiris agency can also be found in the appendix to the 2016 Reporting.

PRESENTATION OF THE PARIS CLIMATE BOND IN CONTEXT

City of Paris has long been committed to the fight against climate change, both through its actions led on the ground in Paris and in its administrative activities.

In 2005, Paris was already aware of the environmental and citizen stakes, and **from 2005** resolved to develop its territorial Climate Plan. The Plan was adopted in 2007 and updated in 2012 in consultation with the people of Paris to take social, economic, technical, environmental and legal changes into consideration.

The [Plan Climat Énergie de Paris](#) (Paris Climate and Energy Action Plan) specifically aims to reduce greenhouse gas emissions in the Paris area and from its activities by 75% in 2050 in comparison with 2004. In order to reach this goal, ambitious intermediate objectives which extend well beyond the European and national obligations stemming from the *Grenelle de l'Environnement*, have been set:

- To reduce greenhouse gas emissions by 25 % by 2020 (compared with 2004);
- To reduce energy consumption by 25 % by 2020 (compared with 2004);
- To have 25 % renewable and reusable energy at its disposal in its energy consumption in 2020.

Since 2015, a fourth goal has been adopted, to provide better protection to the people of Paris and to strengthen the city's resilience:

- To anticipate and adapt the territory to climate change and dwindling resources.

A commitment confirmed by an encouraging 10-year experience and external evaluations

The [2004-2014 Results](#), which summarize the actions undertaken by the city in the Paris Climate and Energy Action Plan for adaptation to climate change, demonstrate the following:

- A reduction of around 10 % in greenhouse gas emissions;
- A 15 % reduction in its use of energy;
- A 15 % share of renewable and reusable energy in its energy consumption.

Paris is consistently developing stronger public policies which combine solidarity, economic development, environmental conservation, biodiversity and circular economy.

According to the assessment of the agency VIGEO-EIRIS Rating, Paris is a leader in the local authority sector with a rating of 64/100 in 2014* (against a sectoral average of 43/100) and enjoys the highest level in the grading system. In addition to this, Paris has received "Positive Energy Territory" approval from the Ministry of Ecology, Sustainable Development and Energy.

* At the last grading in 2016 the rating of the City of Paris remained stable at 64/100.

2015, the year of increased Parisian mobilisation in the fight against climate change...

City of Paris was prominent in 2015 when it hosted the 21st international climate conference (COP21) which saw the signing of the historic agreement adopted on 12th December 2015, as well as by the many actions carried out on a territorial scale (adoption of plans for combating air pollution by road transport, the strategy of sustainable innovation for Paris, the plan for sustainable food in municipal catering, and the Paris climate change adaptation strategy). City of Paris has also set up a number of partnerships (declaration of 26th March 2015 on the public procurement stakes as a lever for action in taking concrete steps to fight against climate change and the World Mayors' and local representatives Summit on 4th December 2015). 31 major firms established on Parisian territories have signed the *Paris Action Climat* charter and are committed to reducing their carbon footprint by 2020.



... and the year of the Climate Bond: the first issue of a green-labelled and socially responsible bond by City of Paris

With the organisation of COP21 and the World Mayors' and local representatives Summit at the end of 2015, Paris has gained excellent visibility from the international point of view. The issuance of the Climate Bond in November 2015 falls within the context of supporting exemplary policies relative to sustainable development. Paris has thus asserted its continued commitment to the fight against climate change by choosing to specifically allocate the funds raised to the financing of projects of noteworthy climate benefit.

Method: To carry out this green and socially responsible issue, City of Paris asked for an extra-financial rating by the Vigeo Eiris agency in order to have its performances with regards to sustainable development evaluated by an independent body. This rating completes those carried out by Fitch and Standard & Poor's agencies on the City, at the highest level possible for a French local community (just as with its Euro Medium Term Note (EMTN) programme set up in 2004).

Vigeo Eiris also assisted the City in structuring its issue by certifying, from the start of the project selection procedure, their environmental and social goals and the responsible management of the bond issue. To do this, Vigeo Eiris used its ESG (Environment, Social and Governance) evaluation method and the recommendations of the Green Bond Principles (GBP, 2015 version) which aim at defining guidelines to encourage transparency, the dissemination of information, and integrity in the development of this contract. At the end of this process, the City was able to report to investors on the legitimacy of its approach by publishing the "Second Party opinion" on the subject of the Climate Bond established by Vigeo Eiris, which awarded a favourable verdict, matched with the best level of assurance ("reasonable assurance"):

- On the environmental and social responsibility regarding the City ("advanced" level of the issuer) ;
- On the relevance of the projects targeted by the issue in terms of contribution to sustainable development;
- On the framework of the issue in line with the recommendations of the Green Bond Principles.

The methodology of each of the four Green Bond Principles was followed:

- **"Use of proceeds"** (funding of projects which contribute to climate change mitigation and adaptation): To valorise the diversity of its actions regarding the environment, the City has chosen to allocate funding to projects whose socially responsible environmental approaches cover all the goals listed on its Climate-Energy Plan.
- The project evaluation and selection process, coordinated by the *Direction des Finances et des Achats – DFA* (Finance and Procurement Department) was implicit in all operational management. Meetings were first organised on the substance of the projects in the 2014-2020 *Plan d'investissement de la mandature - PIM* (Mandate Investment Plan): accurate description, forecasted scheduling, costing and budgeting, available "monitoring" methods. The list is subsequently fine-tuned according to the data collected and their relevance with "Use of proceeds": validation on each project of the substantial and measurable benefits - this was effected by the *Agence d'écologie urbaine (AEU)* (Urban Ecology Agency), which is part of the *Direction de l'environnement et des espaces verts – DEVE* (Directorate for Green Spaces and the Environment) and whose agents are accredited for carbon evaluations, and of the results of the Vigeo Eiris evaluation on the scope of the defined issue.
- **"Management of proceeds"**: In view of the monitoring and reporting of the projects, a collaborative approach between the *Direction des Finances et des Achats – DFA* (Finance and Procurement Department) and the directorates concerned was implemented. Thus, the budgetary contacts in the operational departments were notified so that the financing of the selected projects would be under close scrutiny, specifically to avoid any form of "double funding" of a project. The allocation of funds to the selected projects was then confirmed, using the City's accounting tool (*Alizé*) which associated any expenses with the authorisation of the programme concerned through the legal commitments attached to it and, on a second level, was monitored by the *Direction régionale des finances publiques - DRFiP* (Regional Directorate of Public Finance) which checks that the payment they are being requested to make actually corresponds to an expenditure properly entered into, settled and scheduled.

This annual report aims at synthesizing and confirming all the commitments that the City has made within the scope of the issue of its Climate Bond.

SYNTHESIS OF PROJECTS FUNDED

2016

		% of the Bond	2015-2016 Investment
TOTAL :	€300m		€147.9m
Category 1. Reducing greenhouse gas emissions	€120m	40%	€59.3m
Public transport			
Tram: T3 - Chapelle-Asnières Extension	€50m		€50m
Paris stations Ring Road (Surface transport)	€24m		€0.4m
Non-motorised traffic : Cycle paths	€40m		€5.7m
Electric vehicles: Installation of BéliB' charging stations	€6m		€3.2m
Category 2. Reducing energy consumption	€115m	38%	€78.3m
Sustainable social housing (HEQ construction, thermal insulation)	€55m		€55m
Energy performance contract concerning public lighting	€60m		* €23.3m
Category 3. Producing renewable and waste energy	€5m	2%	€4.0m
Photovoltaic solar panels	€5m		€4.0m
Category 4. Strategy for territorial adaptation	€60m	20%	€6.3m
30 new hectares of green spaces	€45m		€4.9m
Programmes for planting 20,000 trees	€15m		€1.4m

* Erratum in 2015 report: see the corresponding file



A reminder of the commitments and targets of the reporting

In order to ensure transparency, and as evaluated independently by Vigeo Eiris, City of Paris has committed to communicating on a yearly basis on the selected projects:

- Allocation and progression indicators (work progress and investments made);
- Their climate benefits;
- The ESG performance indicators.

The reporting is carried out at an operational (project) level and/or at a global (Bond) level for the transverse indicators which are often linked to the internal organisation of the community, particularly where responsible governance criteria are concerned. It will subsequently be necessary to consider these indicators as being common to all the projects.

Synthesis of the 2016 reporting relative to the projects funded by the Climate Bond

As the Climate Bond was issued on November 2015, this reporting is the first to cover a full year. It confirms and specifies the projects (the allocation of funds raised and their distribution), their state of progress and, where possible, the environmental benefits evaluated and quantified by the *Agence d'Écologie Urbaine - AEU* (Urban Ecology Agency, accredited for carbon evaluation).

A new project has been integrated into Category 3 – “Production of renewable energy” – which concerns the installation of photovoltaic solar panels on the facilities and administrative buildings. All the projects are currently being realized, and some are at an advanced stage. Only one project – the stations ring road – is still in the design phase.

In order to better respond to the commitments to transparency that Paris has made in respect of the suppliers, this second reporting aims to provide more complete information than the first edition, and includes a note on the methodology, which can be found at the end of the document (see page 32).

To sum up, over this period of the Bond:

- **€147.9m of the €300m of the Climate Bond have been invested**
These data were confirmed by the IT monitoring of the community accounts (Alizé), in connection with the *Direction régionale des Finances Publiques – DRFiP* (Regional Directorate of Public Finance)
- **4,800 t.CO₂/year, and 23,089 t.CO₂/year per carbon equivalent have been avoided, and 1,600 sequestered**
- **570 kW peak photovoltaic power levels thanks to the installation of over 5,000 m² of solar panels**
- **44,833 MWh were saved in 2016, or 88,904 MWh since 2015**
- **Close to 2,200 trees have been newly planted and 3.4 hectares of green spaces created**
- **26,417 hours of integration work out of the 100,696 planned in the contracts have been validated**



Responsible governance indicators on a general level

Social responsibility towards workers & respect for human rights

Internally speaking, in addition to the already protective statutes of the civil service, human resources policies implemented in the City of Paris integrated the following principles:

- Respect for “residual” private life (amendments to the charter for the use of computer resources taking this tolerance into consideration);
- Compliance with the French Data Protection Act to protect the personal data of users in the teleservices offered by the City;
- Fight against all forms of discrimination (generational, gender equality, people with disabilities, etc.);
- Reception facilities and anonymous, personalized and confidential support for all victims of sexual and moral harassment (an “At your service” unit: callers will be directed toward one of the professionals of the Support and Mediation Service which is bound by professional and medical secrecy).

Regarding its public contracts: Tender file documents (*DCE*) commit the firms winning the tenders to the fight against illegal labour, the obligation to employ disabled or disadvantaged workers, gender equality, and a healthy social situation, in line with the French Public Procurement Code (CMP). For all its procurement City of Paris considers integrating sustainable development targets into its Specifications and in the contract award procedures, in the form of clauses relative to performance conditions and/or in the form of standards by which the proposals are judged (see *Responsible Procurement* indicator). On 31 December 2016, analysis of the 3,302 questionnaires conducted since 2012 concluded that 55 % of the firms had declared their commitment to an approach based on improvement in terms of diversity and to have formalized this.

In cases where the successful tenderers and/or their subcontractors have made incorrect declarations or breached their commitments, the administration uses its general powers of control and management of the performance of the contract to remind the firm of its obligations (with a view to correcting them) or to fine them and even terminate the contract according to the clauses systematically provided in the specifications. No such case has ever occurred on any of the projects funded by the “Climate Bond”.

Over all the City’s public contracts, **Awareness of Health and Safety** is included in the contractual specifications and is reinforced according to the purpose of the operations: to reduce the risks on construction sites, maintenance sites etc., a general plan, imposed by French regulations, covering coordination of safety and health protection, defines all the measures which must be put in place; for contracts for work on green spaces, generalized and local Prevention Plans are applied.

In the case of failure to apply the safety and health protection measures, the *Cahier des Clauses Administratives particulières* (CCAP) includes monetary penalties.



Responsible procurement

In pursuance of the Act of 31 July 2014 on social and solidarity economy and the Act of 17 August 2015 on ecological transition for green growth, in 2016 the city prepared the *Schéma Parisien de la Commande Publique Responsable* (Responsible Public Ordering Plan) which makes circular economy its cornerstone and sets ambitious targets **regarding the environment**: reflection on the development of a carbon footprint indicator, the valorisation of reemployment and recycling, the fight against planned obsolescence, economy of use and functionality, minimising grey energy, etc.

The guide to environmental procurement for suppliers is regularly updated to integrate a variety of issues such as the prevention of associated waste (packaging, procurement of paper, cardboard goods and books, computer and telephone equipment). An article of the CCAP of works contracts regarding the production of the *Plan Assurance Environnement* – PAE (Environment quality assurance plan) and to the *Schéma d'organisation et de suivi de l'élimination des déchets de chantier* - SOSED (Plan for organising and monitoring the elimination of site waste) requires the presentation of these documents to the main contractor for approval 4 weeks from the start of the preparation period for these documents; this article is systematically integrated into the CCAP of the work contracts.

- When drafting their PAE, successful tenderers are thus obliged to take into account the different **legal and regulatory recommendations relating to the elimination of waste and the recovery of materials** along with the facilities classified for environmental protection;
- They are obliged to take all necessary measures to prevent and prohibit soiling and pollution of all kinds, whether air, land or water pollution, particularly outside the limits of the site. Specifically, the storage and collection centres, and recycling units towards which the waste will be evacuated are defined therein, as are the sorting and evacuation methods and the inspection and follow-up means to be implemented. In addition to this, the release of products for washing machines, draining products, lubricants or fuels into the existing runoff networks is formally prohibited.

Thus, in 2016, at City of Paris level:

- 62 % of the contracts awarded include selective collection in line with the SOGeD (*Schéma d'Organisation et de Gestion des Déchets*)/ SOSED.
- 57 % of the contracts awarded contain a clause and/or a criterion for judging environmentally related proposals: eco-label clauses, “clean delivery” (vehicles to Euro 5 or 6/Euro V or VI standard, “soft” modes of transport or “clean”-motorization public transport (electric, NGV, hybrid) or at the very least those which pollute least), “order optimisation”, “ecopackaging”, eco-materials, etc.
- 19.6 % of the contracts awarded have a biodiversity label or contain a “*chantier faible nuisance*” (low pollution site) clause (noise, dust, water and electricity consumption and other forms of pollution which impact biodiversity).

In order to work towards the return to employment of the long-term unemployed, the *Schéma Parisien de la Commande Publique Responsable* also sets ambitious targets based on the work of identifying contracts which are potentially supportive of social integration (9 % of the contracts awarded or whose performance began in 2016 included a **social clause**) and on the mappings of the protected and adapted sector and Structures for Integration through Economic Activity finalized in 2015.



Responsible procurement

Facilitating access to public procurement for SMEs is another vital focus which falls within this socially responsible rationale:

- 41% of expenditure results from contracts attributed directly to SMEs (not including subcontractors) in 2015 (consolidation ongoing in 2016).
- Frequent dialogue with firms: Briefings on different topics (7 in 2016), B-to-B (business to business) meetings, “Sourcings” by procurement departments to understand the economic fabric and identify avenues for innovations, “procurement” contact made possible by registration through a single registration facility (319 requests in 2016);
- More straightforward processes and more information available, specifications, display according to regulations for tender criteria, sub-criteria and weightings, reasoned responses for unsuccessful candidates to help them to improve their proposals during subsequent tenders, lowering of the requested minimum turnover, etc.
- Allotting of tenders

Good business practices & Ethics

Thanks in particular to a reorganisation of the departments in charge of payments, the **average payment time of suppliers** for City of Paris has remained at **20 calendar days in 2016** (statutory time limit: 30 days, this accounts for City of Paris receiving the “*Prix Spécial du Jury des délais de paiement, toutes catégories confondues*” in June 2015) whatever the volume of invoices to be paid (almost 500,000/year). For additional transparency suppliers have been able to follow their payments via the **supplier portal** since September 2014.

In addition to this, the *Sous-Direction des Achats – SDA* (Procurement Division) is implementing an ethical guide entitled **Charte de déontologie Achats** (Charter of Procurement Ethics) in order to comply with the French Public Procurement Code.

- Therefore, concerning procurement in 2016, only 11 actions were brought against City of Paris out of 898 contracts awarded. Of these, 8 were won by the City, 1 was lost due to a formalism which could not be resolved and is in progress, and 2 are pending judgement. None of the actions concerned projects funded by the Climate Bond, and none have produced any ethical questions.
- Within the framework of the prevention of conflict of interest, all agents taking part in a public procurement operation (public contract, delegation of a public service or concession, partnership contract, etc.) must be careful not to find themselves in a position of conflict of interest; if this were to be the case, they would be obliged to report this immediately. Failing this, this breach may be subject to disciplinary action.

The mechanisms for ethical control are ensured through procedures including collegiality (Committees and Commissions), individual responsibility (punished in case of default: reallocating the dossier, cancelling the contract), possible case for criminal responsibility) and work visas (confirming that the current regulations have been respected at each stage).

All the members of the selected firms and new supervisory staff are notified of the procurement ethics and the various violations in this field (corruption, insider influence, unlawful taking of interest and favouritism). Compliance with the **ethical charter for the city’s elected officials**, which was acclaimed by the *Haute Autorité pour la Transparence de la Vie Publique – HATVP* (High Authority for Transparency in Public Life) which encourages this type of practice, is entrusted to an ethics commission. This commission is made up of five independent persons, and acts in an advisory capacity. Since publication of the last reporting, no new procedures concerning the City or its representatives has been recorded.

1. Reducing greenhouse gas emissions

2016

Public transport: T3 tram line - Chapelle-Asnières Extension

<http://www.tramway.paris.fr/>

Project description

The extension of the T3 Tram line between Porte de la Chapelle and Porte d'Asnières follows the northern *boulevards des Maréchaux* (Ney, Bessières and Berthier) which go through the 17th and 18th arrondissements of Paris. This sector has a considerable number of urban projects, for example the ZAC Clichy-Batignolles (17th), where the future *Cité judiciaire de Paris* will be implanted or the ZAC Chapelle International (18th). This 4.3 kilometre extension which is part of the 2015-2020 State-Region Plan (development of the network, multimodal access section, Grand Paris, etc.), is expected to involve over 600,000 people and 300,000 salaried workers (including the passengers from neighbouring municipalities). The project will include 8 new stations.

Key data

Forecasts :

- 4.3 km. extension for a total budget of €218m of which €50m (23 %) is funded by the Climate Bond
- 89,000 passengers/day
- 10,100 t.CO2/year avoided

Completed:

- Preparatory work for €50m:
- 22,530 hours of integration work
- Ecodesign and recycling central to the project

State of progress : work in progress

Operationally speaking, the first rail was laid on 16 December 2016. The operation will be completed in December 2018. The City is committed to submitting regular reports until the operation is complete.

Financially speaking, the €36m of preparatory work carried out in 2016, in addition to the €14m in 2015, amount to 100% of the funding allocated.

Governance

Operational management of the project: a dedicated team with a nominated project manager was set up in the *Direction de la Voirie et des Déplacements - DVD* (Directorate of Roads and Travel) to monitor the project and report on its progress :

- Through six-monthly follow-up committees to present the project's progress to the funding partners
- Through annual presentations to the *Conseil de Paris* in the form of a report on the operation

Social Responsibility

Responsible Procurement

Social clauses included in the works contracts provide for a total of 60,323 hours of integration work for long-term unemployed persons. As far as the support work alone is concerned, the obligation is limited to 7,978 hours. To ensure the correct performance of these clauses, City of Paris signed a partnership with the *Maison de l'emploi de Paris*. On 31 December 2016, 22,530 hours of integration work had been carried out, with outstanding participation by certain service providers who presented results well beyond their contractual obligations.

The field of **Awareness on Safety and Health issues** has been reinforced by a Coordination compact relative to the Safety and Health Protection of Workers (Category 1) which has been declared for a duration of 63 months, starting in September 2013 (i.e. up to December 2018) specifically for urban integration and support work on the one hand and related administrative operations on the other.

Social cohesion

PRM accessibility is an intrinsic component of the project, principally along its route and in the immediate vicinity of the stations: according to the *Cahier des Clauses environnementales des chantiers – CCEc* (works site environmental clauses), the temporary pedestrian and disabled routes, and the existing ones modified for the duration of the works, must meet all the regulations in force and in line with the *Schéma directeur d'accessibilité de la voie publique* (plan for accessibility to public roads) for persons with reduced mobility, and must meet the NF P 98-351 standard of August 2010. In order to do this, clear signposting on the ground is planned, sufficiently upstream of the proposed modifications to the existing provisions, and with the addition of tactile paving stones (in compliance with legislation) designed to mark and secure the mobility chain for blind or visually challenged persons.



Communication with users and residents has been realized through the organization in 2016 of three meetings with the town councils and neighbourhood councils of the 17th and 18th arrondissements, to inform the residents about the project and respond to their questions. Since the commencement of the work, 6 public meetings have been held in the 17th arrondissement, and 4 in the 18th arrondissement. 5 site visits have also taken place for various audiences following requests received by the tram mission. These have been reinforced by quarterly sector visits led by the Deputy Mayor of the 18th arrondissement accompanied by neighbourhood councillors.

In addition to the information channels between users and the tram mission which have been available since the beginning of the project – daily presence of local communications officers all along the line of the future T3, Flash info, T3 Mag, Infotram (dedicated telephone number and email address for answers to questions from residents and traders, which in 2016 answered about 226 telephone calls and provided 205 responses) – a new project has been founded: 2 camera units through which users can follow the progress of the work at the Porte de Saint-Ouen and the Porte d'Asnières through the website www.tramway.paris.fr (5 photos available each day). The aim of these rooftop views is to show a time-lapse video on completion of the work which will trace the transformation of these two major works of art.

The CCAP (Special conditions) for road works contracts contain an article relative to the **Protection of residents against all forms of pollution** during the operation.

Environmental Responsibility

Energy consumption

The survey for the T3 extension route was carried out with a view to creating hubs with Métro lines, Mobilien lines, and Paris and Paris outskirts bus lines, to improve this redistribution of public space (Travel Plans for Paris and Île-de-France) and final consumption by a **rational use of energy**. This focus on mobility is even more important because, while this project anticipates the integration of services to rapidly urbanizing areas, a survey carried out by STIF has shown that from this point of view half the T3 users are inhabitants of the municipalities bordering on Paris.

Air quality

The underlying principle of a project focusing on the Tram option (choice of equipment, exploitation, speed, safety) consists of redistributing the available public space, in this case on a regional basis, by reducing the modal share of the automobile in favour of non-motorized traffic (pedestrians, bicycles etc.). In this respect, air quality through the **reduction of pollutant emissions** is intrinsic to the project.

Ecodesign

Besides the **environmental clauses**, a landscaping project (in the 17th and 18th arrondissements of Paris) will accompany the arrival of the tramway to enhance the city's heritage and green spaces through a focus on **biodiversity** (the introduction of additional species: deciduous trees and flowering or fruit trees).

Waste Management :

The project is particularly committed to the maximum level of reuse of waste material which goes beyond the **legal and regulatory recommendations relating to the elimination of waste and the recovery of materials** along with the facilities classified for environmental protection: from the site at Bonneuil-sur-Marne, the *Centre de Maintenance et d'Approvisionnement* (CMA) of the DVD manages the recycling of elements in natural stone or concrete (in this instance paving stones), of metal urban furniture (posts, fencing, benches, tree grates, glazed enamel street nameplates, etc.) and bituminous cold-mix recovered during work to supply the building sites in Paris:

- 15 to 20,000 tonnes/year extracted from the 2.5 million tonnes of granite on site in Paris;
- Granite borders and paving slabs split into sample paving or bush hammered (to restore their original appearance).

Moreover, concerning **hazardous waste**, the CCAP of road works contracts contain a specific article on the Processing of Asbestos Waste.

Evaluation of climate benefit

Reduction of greenhouse gases

The evaluation of the reduction in greenhouse gases, which could be validated after delivery, is based on the hypothesis that the potential modal shift of transport from bus to tram would be 108,499,900 travellers.km/year. The **T3 extension is therefore expected to save 10,100 t.CO₂/year**.

(see note on methodology on page 31)

1. Reducing greenhouse gas emissions

2016

Public transport: *Rocade des gares* - Paris stations ring road (Surface transport)

Project description

As the development of a clean-engine public transport line linking the main SNCF railway stations of Paris is rolled out this 16 km-long circular line of stations will operate in two East and West arcs, with a phased East arc.

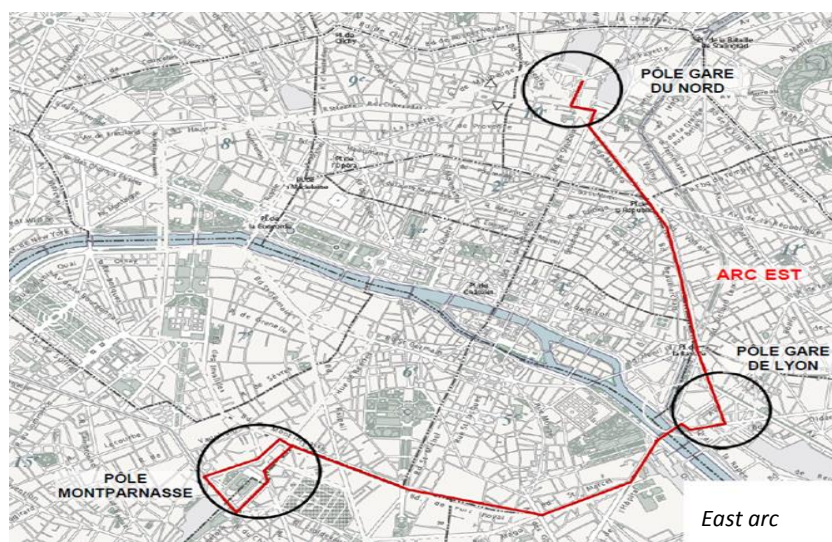
The steering committee met in April 2016 to discuss the preferred development scenario on a section-by-section basis:

- The collaboration with the town hall of each arrondissement in order to arrive at a definitive planning solution.
- Following the technical progress with STIF, RATP and the *Direction de l'Urbanisme* (town planning office) in the search for a maintenance and storage site adapted to the new clean locomotion (electric or gas)

The steering committee of 28 February 2017 decided to realise the arc between Montparnasse station and the *Gare du Nord* station.

STIF has included this information as they work on the "*Grand Paris des Bus*".

The decision of whether the buses will be charged at the depot or the terminus will be made according to the constructors' advances in achieving autonomy.



Key data

Forecasts:

- 16 km. development for a total budget of €50m of which €24m (48 %) will be funded by the Climate Bond

Completed:

The design phase, representing an expenditure of €0.4m, has resulted in a decision on the planning scenarios

State of progress : preliminary phase

The scenario studies have resulted in the allocation of options for each section, with an implementation schedule which has to take into account the contracting process, constructors' development time and the implementation of the work. This schedule, which aims for completion in 2018-2019, is still in the planning stage and thus this 2016 reporting cannot give detailed information about it.

- Pre-planning of the *Bus de Haut-Niveau de Service, BHNS* (high service level buses, HSLB) ring road by extending Line 91 to the Gare du Nord;
- Platform development for a clean site specifically for buses (and parallel development for cycles) for the Boulevard Saint-Marcel and Boulevard de l'Hopital;
- Reutilisation, with improvements and additions along the route, of bus corridors open to cyclists for the rest.

Governance

Operational management of the project: a dedicated team headed by a project manager will be set up in the *Direction de la Voirie et des Déplacements - DVD* (Directorate of Roads and Travel) to follow the project, as is the custom at the Mobility Agency; however at this stage of the project this has yet to be realised.



Social Responsibility

Sustainable procurement

As no contract has yet been awarded, reporting on this aspect is not applicable.

Social cohesion

PRM accessibility is a legislative performance constraint (obligation under Act No 2005-102 of 11 February 2005 for equal rights and equality of opportunities and the inclusion and citizenship of persons with disabilities) which is by definition complied with during the project design phase. This point will be confirmed during later reports.

To calibrate this project with the needs which have been identified, a **consultation** on this project has been carried out with the following public or semi-public bodies: STIF, RATP, Préfecture de Police, DRIEA (*Direction régionale et interdépartementale de l'équipement et de l'aménagement d'Île-de-France*), Région and SNCF.

The basic rationale of this project is the ecologically responsible networking between stations in order to **facilitate users' transport between these centres safely, quickly and qualitatively**. The user is therefore central to this project.

Environmental Responsibility

Air quality

Improving air quality through the **reduction of greenhouse gas emissions** is an essential component of a project focusing on the choice of high service level buses (HSLB) to replace more polluting means of transport.

Energy consumption

Likewise, replacing more polluting buses with (electric) HSLB with **differentiated Terminus / Depot scenarios** places the management of energy consumption at the heart of the project.

Ecodesign

Observing the technical developments offered by the manufacturers, and even encouraging them to make such developments, constitutes an **ecodesign approach** which should be strengthened as the project becomes more clearly defined. A relevant example of this is that, the issue of respecting the impacts, particularly on trees and plants, was integrated during the feasibility studies: thus, for example, on the Boulevard Saint-Marcel and the Boulevard de l'Hôpital, the unavoidable felling of trees will be compensated by a replanting which is already planned and guarantees that the demands of **biodiversity** will be met.

The **environmental clauses** will be finalised during the process of awarding contracts for the work. Nevertheless, the contracts for the ring road projects have been identified as a core target among the 54 % of contracts awarded by the City which contain a clause and/or a standard for judging environmentally related proposals. The lack of certainty is therefore not so much due to their existence, but more a question of their size.

Waste Management :

In view of the state of progress of the project, we can only point out that waste management is considered within the **legal and regulatory recommendations relative to the elimination of waste and the recovery of materials** and those pertaining to facilities classified for environmental protection.

Moreover, **hazardous waste** is also regularly subject to an article of the *CCAP* of road works contracts.

Evaluation of climate benefit

This evaluation can only be carried out following a more precise advancement of the project, but its realisation will be based on the hypothesis of a modal shift.



1. Reducing greenhouse gas emissions

2016

Non-motorized traffic: Cycle paths

Project description

In the course of developing cycle use in the region, besides promoting a true cycle-based culture (cycle-tourism, cycling festivals, etc.) by making bicycles available to all (cycling schools, cycle training in schools, repair workshops, etc.) the project consists of linking and completing the 730 km of cycling network already created. This means creating an express cycling network which would make it possible to cross Paris from West to East and from North to South; to standardize a 30km/h speed limit throughout Paris and create a network of two-way bicycle paths; to continue the development of parking areas, including secure parking, over the whole territory; to close the main gaps in urban fragmentation and provide a cycling continuity between Paris and her inner suburbs by improving the “cyclability” of the gates of Paris.



Map of the Plan Vélo

Key data

Forecasts:

- 670 km of paths created for a total budget of €60m, of which €40m (60 %) are funded by the Climate Bond
- 6,686 hours of social integration work

Completed:

- €5.7m invested (15% of allocated funds)
- 31 km realised (i.e. 25 km more than in 2015)
- 3,100 t.CO2/year

State of progress: in progress

Operationally speaking, the target is to increase the 730 km of cycle paths to 1,400 km by 2020. In 2015, 6 km had been realised, and in 2016 another 25 km were added.

Financially speaking, over the period 2015-2016, €5.7m have been invested out of the €40m allocated to the project.

Governance

Operational management of the project: a dedicated team has been set up in the *Service des Déplacements* of the *Direction de la Voirie et des Déplacements – DVD* (Directorate of Roads and Travel) to follow the project and report on its progress:

- Through monthly cycle plan monitoring committees, internally and with the associations
- Through presentations with the supervising deputy of the Town Hall of Paris

Social Responsibility

Responsible Procurement

The development of the *Plan Vélo* (Cycle Plan) contains **social clauses** for subcontracting to the unemployed. 6,686 hours of social integration work are thus expected to be carried out in the financially significant parts of the contract; these will be monitored by the society EPEC (*Ensemble Paris Emploi Compétence*).

There is a list of fines (which therefore involve a monitoring system) in the event of non-compliance with the **provisions of the labour code relating to undeclared labour** or the non-transmission of the **diversity report**. It should be stressed that the sampling on which the eventual application of penalties and reductions is based are realised by the materials testing laboratory of Paris (*laboratoire d'essais des matériaux de la ville de Paris - LEM VP*) by means of at least one sample per construction site, except for the bituminous cold-mixes for which at least two samples are taken.



Social Responsibility (continued)

Social cohesion

PRM accessibility is a component in any project for the development of public space (including during the construction period). In this respect, the creation of cyclable developments meets the conditions of the *Plan de Mise en Accessibilité de la Voirie et de l'espace public parisien* (Plan for the development of accessibility to roads and public space) which is part of the improvement of accessibility on the perimeter of the projects.

The CCAP of the road works contract also contains an article relating to the **Protection of residents against pollution** of all kinds throughout the operation.

Communication with users is constant: from the development of the Cycle Plan to its improvement

- Citizen consultation on the internet (from 15 December 2014 to 11 January 2015, with 7,004 participants) incorporated during meetings with the town halls of the arrondissements and partners of the City (STIF, RATP, *Préfecture de Police*) and 8 local bicycle and transport committees.
- Proposals received in the framework of the participative budget
- Use of diversified communication channels
 - Information to citizens' associations by means of the press or through cycle committees
 - Feedback of grievances via the Cycling associations (participant in the cycle committees) and the "dans ma rue" Smartphone application.



Environmental Responsibility

Air quality

Air quality through the proposal of non-motorized traffic modes, which aims to reduce automobile traffic and **associated greenhouse gas emissions**, is central to the project. Among the **environmental clauses** contained in the CCAP, a clean vehicle clause, with inspection of vehicle registration documents, has been inserted.

Ecodesign

The project is linked with the objectives of the mandate (creation of 20,000 trees, rainfall zoning and the creation or sustainability of ecological corridors): at the very least, **biodiversity** (according to the compulsory impact study carried out during preliminary studies) and the place of nature are preserved (the removal of trees or flower-tubs is only considered in exceptional circumstances and as a last resort). For example, the CCTP specifies that the root collar of a tree must imperatively be protected during the work, whatever the type of tree. In addition to this, the cycling developments integrate sustainable development (planting, accessibility, etc.) whose cost, by integration, can be practically nil.

Energy Consumption

With the clauses attributing the constraints to the contract holders, the latter are encouraged to **employ the most efficient means of managing the energy and fluids** (and particularly water) necessary to the realisation of the work.

Waste Management:

Besides the **legal and regulatory requirements** of the CCAP of works contracts (see general indicators of responsible governance) relating to the production of the *Plan Assurance Environnement - PAE* (Environment quality assurance plan) and the *Schéma d'organisation et de suivi de l'élimination des déchets de chantier - SOSED* (Organisation and monitoring of Waste management Plan), the *Centre de Maintenance et d'Approvisionnement* (CMA) of the DVD is piloting a new **initiative managing the recycling of elements in natural stone** from their site at Bonneuil-sur-Marne. The CCTP contains a wealth of requirements regarding the reemployment of diverse materials.

Moreover, concerning **hazardous waste**, the CCAP for road works contracts contain a specific article on the Processing of Asbestos Waste.

Evaluation of climate benefit

Reduction of greenhouse gases

The estimation of the reduction in greenhouse gases for the cycle paths is based on a modal shift compared to similar traffic by conventional private car. Over the 31 km of cycle paths realised **since 2015 this equates to a gain of 3,100t.CO₂/km/year**.

(see note on methodology on page 31)



1. Reducing greenhouse gas emissions

2016

Electric vehicles: Installation of BéliB' charging stations

Project description

The political will to encourage the development of the fleet of electric vehicles which are more respectful of the environment, has led to planning, in addition to the normal 3 kW charge of the Autolib' stations, the deployment of a network of accelerated charging stations (maximum power: 22 kW or 50 kW in some petrol stations) accessible to private vehicles. This Parisian network, known as BéliB', was inaugurated on 12 January 2016.

It is in two phases :

1. Phase 1: 60 stations (3 charging terminals / station)
2. Phase 2: 30 additional stations (planned for 2017).

Examples of BéliB' terminals



Key data

Forecasts:

- 90 stations (270 charging terminals) set up for a total budget of €6m (100 %) funded by the Climate Bond)

Completed:

- €3.2m invested (53% of allocated funds)
- 53 stations set up (36 more than in 2015)
- 1,700 t.CO2/year

State of progress : in final phase

Operationally speaking, up to 31 December 2016, 53 BéliB' terminals (96% of the final realisable figure) were installed, in addition to the 17 in 2015. The remaining 37 stations should be installed during 2017.

Financially speaking, over the relevant period, €3.2m have been invested

Governance

Operational management of the project: a dedicated team headed by a project manager was set up in the *Direction de la Voirie et des Déplacements - DVD* (Directorate of Roads and Travel) to follow-up the project and its progress.

- From the design phase onwards, among the accountable production monitoring events there have been weekly follow-ups.

Social Responsibility

Social cohesion

In this incentive project, **the user (trader or not) is the actual target of the project**. There has been consultation with a working group headed by the DVD and bringing together professionals and representatives of the various professions, the Chamber of commerce and Industry (CCI) and the *Chambre de Métiers et de l'Artisanat* (CMA).

- Firstly, a consultation with the Mayors of the arrondissements concerning the setting up of BéliB' charging stations was conducted, with the aim of covering in a more or less homogeneous manner the whole Parisian region.
- Following this, the areas identified as showing a higher need (given the number of electric vehicles listed), using the charging statistics on the Autolib' network, have been densified.

By definition, **accessibility for all** to these facilities is not specifically **PRM**, apart from the fact that their setting-up is such that it in no way impedes their mobility.

Social Responsibility (continued)

Responsible Procurement

Clauses relative to the **Protection of residents against pollution** of all kinds throughout the duration of the road works operations and to the **Safety and Health Protection of Workers**, as in all the City's contracts, are integrated into the CCAP.

Environmental responsibility

Air quality

Air quality is the ultimate goal of the project: the incentive (through an available accessible offer) to use private electric vehicles targets the **reduction of greenhouse gas emissions**. The charging terminal contract is fully consistent with this, and its **environmental clauses** contain a clean vehicle clause and a clause encouraging eco-driving.

Ecodesign

The BéliB' terminals have been specifically developed in collaboration with City of Paris via the bringing together of service providers, between August 2014 and July 2015. The conditions for the execution of services contain the following environmental elements:

- The materials used are **preferably from recycling and are recyclable** and with zero impact on biodiversity;
- **Traceability of the sourcing of materials** must be justifiable at any time during the execution of services.

Moreover, the design of the charging station (number of openings, accessibility of the components) has taken into consideration the need for rapid maintenance).

Energy consumption

The ecodesign approach also takes the form of the **smart management of the available energy** by the Belib' station: according to demand (1 to 3 vehicles at the same time), the power is distributed to each of the terminals:

- The accumulated power of the 3 terminals in the station is a potential 47 kW (22 + 22 + 3);
- On average, 1 hour is sufficient to charge a vehicle to 80 %.

The system is designed to be **upgradable**: in its current state, the terminal is connected to the 36 kW network (which implies a **capping** of the power distributed if 3 vehicles are charging at the same time). In the long term, the energy management software will, for example, be able to limit charging in peak periods.

Other **methods of regulation** are also already being considered, such as pricing to encourage night charging. Moreover this mechanism has been reinforced by a 4-year supervision contract with Sodetrel.

Waste Management :

Besides the **legal and regulatory recommendations relating to the elimination of waste and the recovery of materials** along with the facilities classified for environmental protection (see general indicators of responsible governance) the **recovery of waste at the end of its life cycle** is already a point of discussion and will be taken into account with respect to a future maintenance contract to be implemented from July 2018.

This process is completed by the inclusion of an **environmental dematerialisation clause** requiring that all deliverable documents are provided in either a dematerialised format (e.g. xls, pdf or equivalent) and/or on paper which is recycled or carries an ecolabel which guarantees it is produced from wood from sustainably managed forests (e.g. FSC, PEFC or equivalent labels).

Evaluation of climate benefit

Reduction of greenhouse gases

Compared to fossil fuel consumption, by means of a base hypothesis (pending the real consumption reading of the terminals) of 2 complete charges per terminal per day, corresponding to an electricity unit consumption of 60 kWh, **for 53 terminals, the carbon gain is 1700 t.CO₂/year.**

(see note on methodology on page 31)



2. Reducing energy consumption

2016

Sustainable buildings: Sustainable social housing (HEQ constructions, thermal insulation)

Project description

Since 2009, the energy renovation of existing social housing aims to assist housing associations in reaching a 30% reduction in the energy consumption of the social housing stock by 2020.

Operationally speaking, the goal set is the funding of the overall renovation of 4,500 housing units per year.

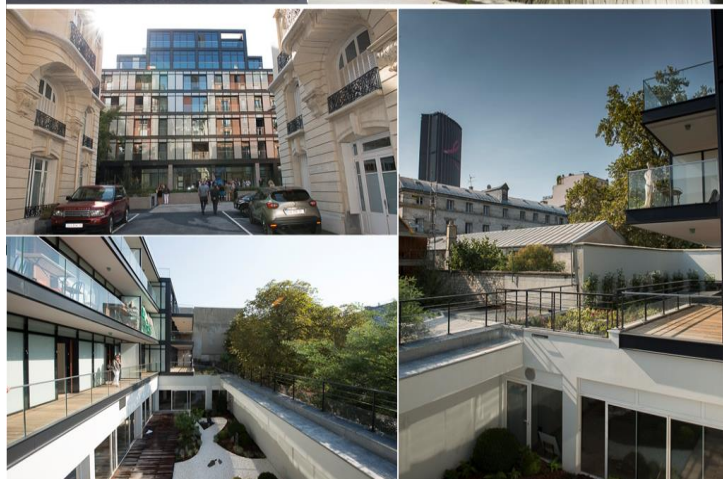
Overall renovation is understood to mean an energy renovation which acts on all the items on which intervention is possible. The level of performance is nevertheless adapted to the technical and architectural qualities of the buildings, in order to be able to benefit all the segments of the housing stock and in particular those with heritage value.

Example of 91B rue du Cherche-Midi:

Before renovation:



After renovation:



Key data

Forecast :

- 27,000 housing units renovated for a total budget of €225m of which €55m (24 %) funded by the Climate Bond
- To approach as far as possible the primary energy coefficient (PEC) outlined by the BBC-Effinergie renovation label, i.e. 80 kWhep/m²/year.

Completed :

- €55m invested (with funding share)
- i.e. 100 % of allocated funds
- 4,717 housing units concerned in 2016 (4,459 in 2015)
- 39,174 MWh/year saved in 2016
- Following the work, for 2,281 housing units, the average PEC is 72 kWhep/m²/year (previously 194 kWhep)

State of progress: completed

Operationally speaking, during 2016, 4,717 renovated housing units completed the 30,146 renovated from 2009 to 2015, of which 4,459 were completed in 2015 alone.

Financially speaking, the refunding share of the Climate Bond contributed to this project. In order to limit this, it should be emphasised that given the duration of the operations, the investment amounts refer to the funding share over the year.

Governance

Operational management of the project: a dedicated team headed by a project manager in the Housing and Funding Department of the *Direction du Logement et de l'Habitat - DLH* (Directorate of Housing and Habitat) monitors this multi-annual project and its progress:

- **Day-to-day management:** An IT tool which makes it possible to complete the financial and technical characteristics of the operations of the funding request files as they arrive, including the works packages planned and the energy performance targeted by the works. The administrative progress of the files is thus monitored right up to the vote in the *Conseil de Paris*.
- **Monthly quantity reporting** in the framework of the Directorate's management control in such a way as to allow monitoring of the development of the goal of 4,500 housing units funded per year ;
- **Yearly quality reporting** for the "*bleu budgétaire logement*" (at the end of the year).

Social responsibility

Responsible procurement

The funding of the energy renovations of the social housing stock engages with an **idea of partnership** (including subsidy and regular evaluations) with the housing associations, not public procurement. The circular financing determines the renovation operations and financing rules, and ensure that social and environmental responsibility is incurred by the funders.

- In this respect the certification (see section on Eco-design) guarantees the **Système de Management Responsable – SMR** (System of Responsible Management) implemented, including the Responsible procurement policy for project managers, and Security and Safety.
- Since 2016 the funders themselves have been subject to the Codes for Public Works Contracts.

Social cohesion

The actions of City of Paris regarding social housing target **social diversity**, which lend this project a socially responsible character particularly where social cohesion is concerned. What is more, as this is aimed mainly at increasing comfort for users, the users are central to this system: the **consultation with the inhabitants** (information meetings and consultation meetings with voting by the tenants on the successful project) is conducted by regulatory obligation by the funder, who prioritizes the projects according to the actions pursued within the framework of the City's Policy and its stated aims.

As to **PRM accessibility** to common areas, this is provided for in the requested certification.

Environmental Responsibility

Air quality

The obligation for certification specifically sets out the aims regarding the **renewal of air in living quarters and VOC releases from the wall** coverings installed.

Biodiversity

Besides minimizing the impacts of renovation operations, including the disturbance created by the project, the greening of buildings is being studied within the framework of the **biodiversity** plan and the mandate's objective of 100 ha of revegetation on the built environment. These installations must meet the recommended technical specifications for greened roofs and the "greening of walls and roofs" drafted by City of Paris. In 2016, 10,076 m² of greened surfaces on the built environment were thus created, complementing the 15,611 m² of 2015.

Ecodesign

Since 2014, the **NF Habitat (HQE) certification** and the **Energy Performance Label** are required for all funded energy renovation operations, except for small scale operations (e.g. insulation of a gable wall which only concerns 10% of the operations, a figure which continues to decrease). The certification process is fundamental because it is then validated by a third party (CERQUAL), in terms of respect for the commitment to "Sustainable Buildings" (from Quality of Life to respect for the environment through to Energy Performance).

Energy consumption

Likewise, these certifications complete on a continuous-flow basis the delivery investigations carried out by the funders: DLH monitors thermal regulation performances on the delivery conditioning the payment of the subsidy. Following verification of compliance with the specifications accepted by the projects managers and housing associations:

- If the installations are collective, the funder **ensures best use of heat production once the work has been completed**. In this case, the energy-related charges can be recovered from the tenants of the housing stock.
- If the installations are private, the management of energy consumption is incurred by the tenant who often benefits from **information** by the funder on the best way to manage the facilities.

On average, in 2016 the PEC was 133 kWh/m² SHON (compared to 276 kWh/m² SHON before the work was carried out).

**Environmental Responsibility (continued)****Waste management** :

The actual operations (of various kinds in the case of renovation) provide for the implementation of **sorting for recycling** whenever possible. This work item is inspected within the framework of the certification. In addition to this, the question of premises dedicated to sorting for recycling (setting up of three recycle bins) is included. Finally, the *Direction de la Proprete et de l'Entretien* - DPE (Cleanliness and Maintenance Service) of the City of Paris constantly works to heighten awareness of this issue among the funders and their tenants.

In view of the nature of the project, the **management of hazardous waste** is not included. However, if relevant, the NF Habitat certification validates the respect for these specific clauses regarding waste treatment.

Evaluation of climate benefit**Reduction of energy consumption**

In 2016, 39,174 MWh/year were saved by completion of the work, which brings to 78,935 MWh the overall funded savings through the energy renovation operations, i.e. 12,075 t.CO₂e/year

(see note on methodology on page 31)



2. Reducing energy consumption

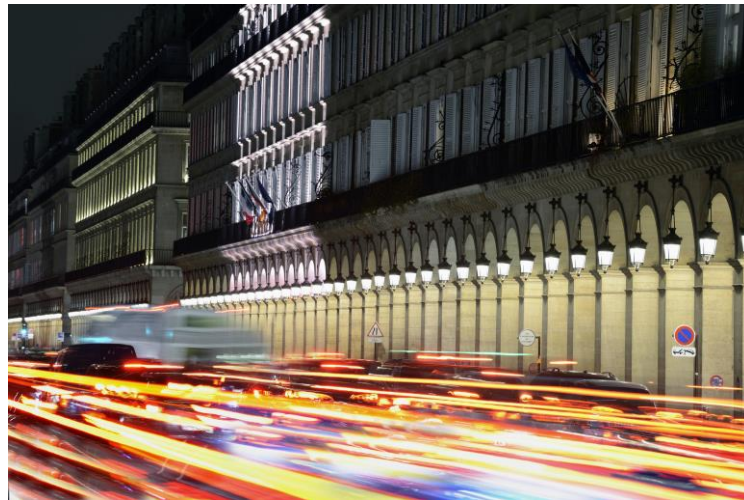
2016

Public lighting: Energy Performance contract (MPE)

Project description

The main target of the *Marché de Performance Énergétique – MPE* (Energy Performance Contract) consists of reducing the electricity consumption of public lighting and light-signalling devices by replacing less efficient lights and the most energy-hungry sources. This contract contains a performance requirement: yearly energy performance objectives. This therefore results in target yields in KW/€ of the operations which must imperatively be met.

It is therefore the successful tenderer's responsibility to understand the installations in Paris and to offer the City energy renovation "Climate Plan" operations which are compatible with these yields. Successful tenderers must therefore always find the best technical and environmental solutions to meet the targets of the contract.



Key data

Forecast:

- The MPE tranche concerned has a total budget of €61m of which €60m (99 %) are funded by the Climate Bond
- Annual savings target: 4,617 MWh

Completed :

- €23.3m invested, i. e. 38 % of allocated funds
- 5,659 MWh saved in 2016
- 3,472 hours of social integration in 2016
- 568 t. of waste recycled in 2016
- 25% decrease in GHG emissions since 2012

State of progress: advanced

Operationally speaking, the project concerns 175,000 lights, 63,000 lighting poles, 30,000 lighting consoles, 21,000 traffic light supports and 313 lighting sites.

Financially speaking, the annual investment is lower than the total energy bill for 2015 at €15.5m, reduced by €0.7m in one year (for an energy consumption of 112 GWh, a decrease of 8.9% against 2014). The operation thus benefits from a healthy return on investment with an average 4.5 % annual decrease in energy consumption.

* *Erratum in 2015 report*: the €25m reported in 2015 corresponded to the amounts committed at that time. For the 2016 reporting, it has been decided that only the amounts effectively spent in each financial year will be reported. These respectively amount to €9.9m in 2015 and €13.4m in 2016.

Governance

Operational management of the project: a dedicated team headed by a project manager in the Public Lighting Section of the Directorate of Roads and Travel (DVD) monitors this multi-annual project and its progress:

- Weekly reporting of the Climate Plan operations with progress report on financial commitments, works site preparation, the development and delivery of sites and financial settlement.
- Quarterly & yearly reporting on the operations of the contractual year and forecasts for the following year

Social Responsibility

Responsible Procurement

The MPE holder, through a **social integration clause**, has a fixed obligation in the percentage of hours worked (10 %) for a total number of hours estimated at 32,637. In 2016, integration represented 10.64 % hours worked (a slight increase on 2015) and the employment of persons serving community service orders and in penal work ("SMA Insertion" label) has continued.

Moreover, the MPE holder has a **prevention charter** which defines the permanent stakes relative to prevention and an organisation which makes it possible to collect and record the third-party accidents on sites and to feed back the near accidents and risk situations. In 2016, 16 minor accidents were identified.

Social cohesion

As an administrative project, increased **comfort for users** is a key aim. Following the satisfaction survey conducted with the users in the 13th arrondissement to find out how they feel about the installation of new lighting with presence detection (contributing to energy saving), the information programme has continued in 2016.

The **interaction with users** relies on

- the "dansmarue" phone application which also makes it possible to notify the contractor of all the problems users encounter with the lighting installations, so that suitable rapid corrective action can be implemented;
- a complaints collection procedure has been installed (1,340 were dealt with in 2016).

Environmental Responsibility

Ecodesign

ISO9001 / ISO14001 / OHSAS 18001 certifications are applied to MPE. In this framework, in addition to the request for *Profil Environnemental Produit – PEP* (Product Environmental Profile) from suppliers, a life-cycle analysis was conducted among 13 of the suppliers on around thirty products, which represent 15.4% of the total purchases.

Air quality

Air quality is treated from the point of view of the greenhouse gas emissions released: the carbon footprint linked to public lighting activities is surveyed every year and this shows a 25 % decrease in emissions since 2012. In addition, as the contractor must achieve a determined rate of clean cars in their fleet, following a test in 2015, the fleet has since included one completely electric nacelle, and another is already in the design stage.

Biodiversity

Biodiversity is a permanent element of the project. The renovation of lighting will be an opportunity to optimise the orientation of the light flow on the areas to be lit (and not towards the greened spaces or towards the sky, for example), conforming to action 20 of the Biodiversity Plan "adapting lighting". In this case, an experimentation of lighting respectful of biodiversity was carried out in a square in Paris with an inventory of targeted species upstream in order to measure more efficiently the consequences of light and adapt the innovative equipment.

Energy consumption

The reduction of **energy consumption is the basis** of this energy performance contract:

- Each project is subject to a photometric study, which is validated by the client
- The estimated gain is then validated, following the work
- The new financial flow data update the data base and the accumulated energy gain in real-time.

Waste management:

Successful tenderers are **contractually obliged** to aim at reducing the impact of their waste on the environment by a valorisation which remains at 91 % in 2016 (including 93 % for public lighting), i.e. **568 t. recycled waste**.

Likewise, where **hazardous waste** is concerned, 97 % has been processed by recycling or recovering materials and 3 % by end-of-life recovery.

Evaluation of climate benefit

Reduction of energy consumption

In 2016, 5,659 MWh/year were saved, in addition to the 4,310 MWh in 2015, i. e. an overall saving of 9,969 MWh, corresponding to 900 t.CO₂e (by ad hoc multiplication of the carbon footprint).

(see note on methodology on page 31)

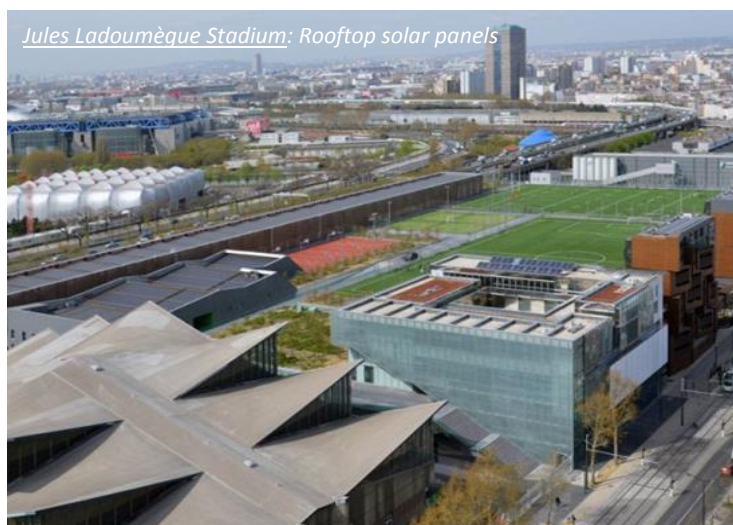
3. Producing renewable and waste energy

2016

Solar energy: Photovoltaic solar panels

Project description

In its approach to energy transition substituting, as far as possible, fossil energies (oil, coal and gas) with renewable and recoverable energies (EnR²), Paris has integrated mechanisms into its *Plan local d'urbanisme* – PLU (Local Urban Planning Scheme) which promote resorting to renewable energies and has developed a solar register which allows it to determine the solar potential of each building in Paris, and thus to increase the implementation dynamics of solar panels, which to date cover 50,000 m² across its jurisdiction.



Jules Ladoumègue Stadium: Rooftop solar panels

Key data

Forecast:

- The deployment of solar PV panels is carried out following identification of opportunities, and each time the feasibility conditions are fulfilled. The Climate Bond devotes €5m to the financing of these installations.

Completed:

- €4.0m invested (80% of allocated funds)
- 5,000m² of solar PV panels with a peak power of 570 kW
- 530 MWh per year produced
- 14 t.CO2e per year saved

State of progress: under way

Operationally speaking, 4 educational establishments, 3 community crèches, 2 stadiums and 1 community centre were equipped with more than 5,000 m² of solar PV panels in 2015 and 2016, including 2,800 m² for the Jean Bouin stadium alone.

Financially speaking, €4.0m has been invested over the period in question:

Amenities	Address	Arrondissement
Community centre	63 rue Buzenval	75020
Community crèche	154 rue de Crimée	75019
Infant school	60 rue Binet	75018
Jules Ladoumègue stadium	39/43 rue des petits Ponts	75019
Primary school	60 rue Binet	75018
Saussure Middle school	34 rue Marie-Georges Picquart	75017
Community crèche	38 rue Liancourt	75014
Community crèche	11 quai de l'Oise	75019
Educational campus	99 rue Olivier de Serres	75015
Jean Bouin stadium	20-40 Avenue du Général Sarrail	75016



Governance

Operational management of the project: Every operation for which the total investment exceeds €1m is presented to the *Comité de Lancement des Etudes* – CLE (Study Launch Committee). The principal mission of a CLE is to steer the preliminary studies and validate the progress of the operations being supervised; it brings together the Secretary General, the Policy Executive and the operational directives. The energy aspects are the subject of particular study:

- City of Paris has implemented a [solar register](#). In principle a thermal or photovoltaic solar installation is considered pertinent when there is an average sunlight threshold of **more than 800 kWh/m²/year**. If the sunlight threshold is reached, the operation leader refers the study, via the MOE contract, in order to have a solar panel installation included.

The management of these operations is carried out within the *Service de l'Architecture et de la Maîtrise Ouvrage* – SAMO (Architecture and Project Management Department), the *Service des Équipements Recevant du Public* – SERP (Public Access Amenities Department) or the *Service des Locaux de Travail* – SeLT (Work Premises Department) and the installation of solar panels is overseen by the *Service de l'Énergie à la Direction du Patrimoine et de l'Architecture* – DPA (Department for Energy, Architecture and Heritage).

The mechanisms concerning the installation of solar PV panels for certain operations are therefore integral to many of the contracts relating to the various operations involved. City of Paris requires all tenderers to submit to strict environmental and social clauses. The processes concerning the installation of solar PV panels for certain operations are therefore identical to those applied to all the work operations concerned.

Social Responsibility

Responsible Procurement

The **social clauses** specifically provide for the employment of people experiencing particular difficulties in finding employment. As an example, the operations at the community centre at Buzenval 75020 and at the community crèche at rue de Liancourt in the 14th arrondissement of Paris aim to provide 3% and 5% of job opportunities respectively for those in difficulty.

Awareness of Health and Safety issues also falls within the contractual specifications.

Social cohesion

Clauses relative to **Protecting Residents from Disturbance** of all kinds for the whole duration of the work are integrated into the CCAP and the **Green and Minimal Disturbance Site charters**, which are attached and co-signed by all the actors in the operation. The aim of the charters is to establish the rules and regulations to be enforced in respect of all the actors involved in the operation in question, so as to limit the negative environmental impacts of the work and to improve staff working conditions.

Environmental Responsibility

The **Green and Minimal Disturbance Site charters** also provide for an “Environment Officer” to be designated within the project in order to ensure that the **environmental clauses of the CCAP** are respected.

As an example, these are the obligations contained in the Minimal Disturbance Charter for the **Jean Bouin stadium**, an operation involving 2,800 m² of photovoltaic installations and 70% of the financing during the 2015-2016 period:

Air Quality

In order to avoid air pollution the following precautions must be observed: skips must be covered, light materials must not be used for the interventions, ground must be dampened in dry weather to limit dust dispersion, vehicle speed must be limited on the site.

Eco-design and Biodiversity

Conducting a biodiversity impact study during the preliminary studies is obligatory.

To limit degradation of the natural environment, trees are only to be felled when strictly necessary; trees are to be protected for the duration of the work and cleaned when the work is complete.

Water and soil protection measures are also demanded, particularly through: designing sealed areas with a system for recovering accidental effluents (flushing and leakage from parked vehicles, and storing of dangerous primary materials); washing vehicle wheels on leaving the site; using biodegradable formwork; and recovering run-off water.

Waste Management:

Besides the **legal and regulatory recommendations relating to the elimination of waste and the recovery of materials** (cf. general indicators of responsible governance) the CCAP and CCTP of the contracts always contain an article on the treatment and storage of **dangerous waste**, requiring specific mechanisms.



Evaluation of climate benefit

Producing renewable and waste energy

Photovoltaic energy production is measured year on year, starting from the date the installation comes into service. But for a peak power of 570 kW installed, an **energy production of about 513 MWh/year** is estimated, equivalent to a saving of **14 t.CO2e/year** of grid power consumption.

(see note on methodology on page 31)



4. Strategy for territorial adaptation

2016

30 new hectares of green spaces

Project description

The development of nature in cities, which specifically includes the creation of green spaces, is a powerful lever for adapting to climate change, as it makes it possible to combat heat islands by cooling the densely built Parisian territory, and to offer permeability and therefore a capacity for soil absorption in the case of heavy rainfall (less risk of flooding). It integrates plants which are beneficial in the fight against greenhouse gases and creates areas for the development of biodiversity (pollinating insects, wildlife).

City of Paris has already delivered more than 62 ha of new green spaces during the last 2 terms of office between 2001 and 2014, and has launched an ambitious programme for the creation of 30 ha of additional green spaces open to the general public over the period 2014-2020.



"Linear Forest" on the Claude-Bernard ZAC

Key data

Forecasts:

- 7.3 ha of green spaces funded by €45m of the Climate Bond from a total budget of €67m (67 % funded)

Completed :

- €4.9m invested (11% of allocated funds)
- 3.4 hectares of new areas of green spaces

State of progress: preliminary study

Operationally speaking, a forecast of the operations has been defined: funding by the Climate Bond should make it possible to finance 2,620 m² of "Balcon vert" (green balcony) and green spaces distributed as follows: 11,000 m² in the ZAC Claude-Bernard; 1,040 m², rue de l'Echiquier; 1,250 m², at Teilhard de Chardin; 1,900 m² at the Hôpital Saint-Lazare/square Alban-Satragne; 5,580 m², Truillot/Richard Lenoir/Voltaire; 6,500 m² in the ZAC Paul-Bourget/Parc Kellerman, 8,000m², Boulevard Victor and 35,000 m² in Clichy-Batignolles (Phase 2).

Financially speaking, €4.9m has been invested since 2015, the year the Climate Bond was issued, including the preparatory studies (for most of the projects), recovery of terrain, and creations including the ZAC Claude-Bernard (11,000 m²). The rate of investment is expected to be increased from next year.

Governance

Operational management of the project: a dedicated team headed by an appointed project manager was set up in the *Service Paysage et Aménagement de la Direction des Espaces Verts et de l'Environnement – DEVE* - to monitor the project and report on its progress:

- A yearly Steering committee (COFIL 30 ha) under the authority of the Secretary General, in the presence of the elected representatives, during which the detailed state of progress of the programme and the provisional schedule of delivery are presented and validated
- A geographical information systems (SIG-V) was developed in order to monitor all the revegetation projects
- Reinforced budgetary monitoring overseen by a committee for scheduling public space operations (CoPOEP).



Social Responsibility

Responsible Procurement

Without being specific to these contracts, **social clauses** and **Awareness on Safety and Health issues** are systematically included. Also, from an operational perspective, the horticultural maintenance of certain green spaces is entrusted to *associations d'insertion par travail* [societies for integration through work] (ACI or managed by the local community).

Social cohesion

PRM accessibility, which is included in a **wider brief of accessibility to all persons with disabilities** (visually and hearing impaired, etc.), is always integrated into all the projects for the creation of new green spaces from the design stage onwards.

The creation, followed by the exploitation, of green spaces incorporates all the **users**:

From the design stage: identification of the expectations of the people of Paris during consultations: public meetings organised by the town halls of the arrondissements and open to all (neighbourhood associations, collectives, individuals, etc.) which are an opportunity to define certain uses to be set up in the new space: playground definition (surface, type of games, age groups, etc.), routes etc., and also the interactive application which enables direct on-line design of the future development of the park (as for the Chapelle Charbon project). Finally, participative budget and "planting permit" systems are encouraging Parisians to suggest projects which will increase the place of vegetation in the city or to vegetalise plots of public land directly.

During the works stage: as all the green spaces carry the QualiParis label (a standard constructed with AFNOR), even if the referential for an improved response to users' expectations is still being developed, the following are guaranteed:

- Information for and responsiveness to users (www.paris.fr, 3975, etc.)
- A commitment to clear, up-to-date signposting on the sites
- Reception and information by field agents



Environmental Responsibility

Ecodesign & Biodiversity

The creation of green spaces falls by definition within the Biodiversity plan (green belt) of the City because the new green spaces are **biodiversity reservoirs** and because all newly created spaces help improve the **ecological continuity** which is favourable to the development of wildlife in densely built urban environments. Moreover, from its design stage, the creation of green spaces integrates an ecological and sustainable dimension (indigenous plants, water circuit, differentiated management, limited lighting, etc.). 78% of municipal gardens carry the **Ecojardin** label (a national label first awarded in 2013, which attests to the ecological management of the sites concerned) and the Bois de Boulogne and the Bois de Vincennes carry the **ISO 14001** label.

In City of Paris works contracts, **specific clauses** impose obligations of conduct and result in terms of ecodesign on the project managers and contractors. For example, for the wood used, the clause inserted in the contracts is as follows: "The contractor must supply all the certificates and supporting documents proving that the woods proposed are from sustainably managed forests, with FSC, PEFC, OLB or equivalent **certification**."

Air quality

By integrating beneficial plants, green spaces combat **greenhouse gases**: the growth of the plants by photosynthesis fixes carbon and produces oxygen, thus reducing greenhouse gas emissions. For example, the 2,000 ha of the Bois de Vincennes and Bois de Boulogne represent 11,000 tonnes of "stored" carbon (source 2009 City of Paris carbon footprint).

Waste management :

During the works phase, in addition to the various **legal and regulatory recommendations relative to the elimination of waste and the recovery of materials** along with the facilities classified for environmental protection (see general indicators of responsible governance), the DEVE optimises **on-the-spot reuse of the waste produced** (earth extracted when digging foundations is used as backfill or complement to model the terrain).

During the works period, the gardens operation department **recycles the green waste produced at over 70 %** (mulching, composting, etc.).

Moreover, as far as the **waste from polluted sites** is concerned (due to the historic presence of industrial activity), depending on the level and type of pollution, the DEVE repurposes or confines the polluted soil, or sends it to dedicated treatment centres.

**Environmental Responsibility (continued)****Energy consumption**

From the study phase and subsequently during the execution of the work, DEVE integrates sustainable management (i.e. adapted light sources and low consumption lighting). Additionally, in its contracts, respect for the environmental standards in force results in the imposing of additional restrictions (for example the on-site use of NGVs or recent mechanical machines).

Evaluation of climate benefit

Territorial adaptation to climate change in compliance with the City's reporting commitments is not demonstrated by a carbon evaluation but by the number and type of green spaces created.



4. Strategy for territorial adaptation

2016

20,000 trees

Project description

Planting of 20,000 additional trees over the whole territory of Paris between 2014 and 2020: in the streets; roadway public spaces whose redevelopment is identified for this mandate; on the banks of the river Seine and the borders of the Boulevard Périphérique in connection with the *Schéma régional de cohérence écologique – SRCE* (regional scheme of ecological coherence) which identifies them as biodiversity corridors; in schools, with a teaching programme on orchards to support it; in gardens; in sports facilities, for the most part located in the SRCE biodiversity belt; in the scope of major urban redevelopment operations and even on private properties; in the scope of building permits or with the “*un arbre dans mon jardin*” [“a tree in my garden”] operation.



Key data

Forecasts:

- Planting of trees for €15m (83 %) on a total budget of €18m
- 1,050 hours of social integration work

Completed:

- €1.4m invested (10 %)
- Close to 2,200 newly planted trees
- (1,500 more trees than in 2016)
- 1 600 t.CO2 sequestered during their lifetime
- 415 hours of social integration work carried out

State of progress: in progress

Operationally speaking, with some 700 trees planted in 2015 and close to 1,500 planted in 2016, completing the planting of 4,321 trees planted prior to the Climate Bond being issued, the number of trees planted out of the 20,000-tree programme has reached 6,517, i.e. 32.5 % of the total programme.

Financially speaking, €1.4m have been invested in this programme since the Climate Bond was issued (of which €0.6m in 2016).

Governance

Operational management of the project: a dedicated team headed by an appointed project manager was set up in the *Service Arbre et Bois* of the *Direction des Espaces Verts et de l'Environnement (DEVE)* to monitor the project and report on its progress, making specific use of the geographical information system (SIG-V) which was developed to:

- Identify the potential for planting trees: 1,200 projects have been identified
- Monitor the progress of the different tree-planting projects

Social Responsibility

Responsible Procurement

In addition to the contractual specification related to **Awareness of Health and Safety** (see responsible governance indicators at global level - no accidents have been documented on this site), the contract for planting new trees in municipal public facilities, signed for a duration of 18 months from October 2015, contains a **social clause** in article 14 of the *Code des Marchés Publics* and a target of 1,050 hours of social integration work. In the event of this objective not being respected, financial penalties are planned.



Social responsibility (continued)

Social cohesion

PRM accessibility is taken into consideration from the design phase of the planting of trees to ensure that accessibility to PRM is maintained once the tree has been planted, and also in the transitional phase.

Even though there has been no overall consultation on the total 20,000-tree programme, the clause “low pollution site” and **information for residents** on tree planting means they are fully included:

- Regular ad hoc meetings with residents to present the plantation projects.
- Information on the website paris.fr/arbres on all the tree operations and new plantations.

Besides these information procedures, the **call for participation** is organised:

- via the “*permis de végétaliser*” (planting permits): the people of Paris are invited to take part in planting programmes.
- In the scope of the “*programme des vergers dans les écoles*” [orchards in schools], projects are co-established with the different actors and future users (teachers, ARE mediators and recreation centres)
- Tree-planting events are organised with the user-schools.

In addition to this, a **procedure for receiving complaints from users**, specific requests and satisfaction feedback is set up via the 3975 (City of Paris call centre), with the commitment to answer all questions.

Environmental Responsibility

Ecodesign & Biodiversity

The programme falls within the Biodiversity plan, with a **reinforcing of ecological corridors**. However, this respect for biodiversity, which is an incentive to implant native species (of regional plants), to protect the environment and the plants, limits the choice of species which is made according to the conditions for planting, distance from facades and the future pruning constraints, the state of the sapling or the soil type and water requirements.

Nevertheless, whenever possible, i.e. when there are fewer constraints regarding landscaping criteria and the development of the public spaces, this means that on certain sites such as the university halls of residence, environmental management is set up which takes into consideration the diversity of species and their adaptation to the territory.

Air quality

Plantations **combat greenhouse gases**: the growth of the plants through the activity of photosynthesis helps to fix carbon and produce oxygen thereby reducing greenhouse gas emissions.

Energy consumption

From the design stage to the works stage, DEVE integrates sustainable energy management (i.e., with adapted light sources and low consumption lighting, rational use of water, implementation of differentiated management). Moreover, in its contracts, respect for current environmental standards leads to imposing additional restrictions (e.g. use on the worksite of NGV vehicles or recent mechanical equipment and the clean vehicle clause.).

Waste management:

A relatively rare issue with respect to green waste as this is not the replacement of trees but the planting of new ones. As with green spaces, in a reemployment approach which is part of *SOSED (Plan for organising and monitoring the elimination of site waste)*, DEVE optimizes **on-the-spot reuse of the waste produced**. For example, the soil extracted when digging foundations can serve as backfill.

In addition to this, the contract clauses provide for a differentiated processing according to the type of **waste**:

- **Asphalt**: reintroduced into a **recycling channel**
- **Stumps**: sorted and separated to be **reused** (wood for heating, for example)

Evaluation of climate benefit

Although territorial adaptation to climate change, in compliance with the City’s commitments relative to the reporting, is not demonstrated by a carbon evaluation but by the number of trees planted in inner-city Paris, a possible estimate is that the 2,200 trees planted in the inner-city area of Paris will enable the sequestering of **1 600 t.CO₂ during their lifetime**.

(see note on methodology page 31)



Greenhouse gas reduction

- **Public transport: Tram T3 - Chapelle-Asnières extension**

The evaluation of greenhouse gas reduction is based on the hypothesis of a modal shift from buses to trams as the T3 extension will, in the long term, replace a portion of the bus line.

Using the experience gained from the 14.5 km covered by the tram on the Southern arc of the T3 line, the North arc project (more widely used) provides for 89,000 travellers/day using this extension. The *Observatoire de la mobilité en Île-de-France* (OMNIL) (Mobility Research Centre for Île-de-France)¹ estimates the average number of kilometres covered by tram in the Île-de-France at 3.34 km, giving a potential modal shift of: **108,499,900 travellers.km/year**.

According to the calculation methodology of the RATP's 2016 CO₂ information², the emission factors relate to the mode of transport operated by RATP:

Bus	96.50 gCO ₂ e/travellers.km.
Tram	3.30 gCO ₂ e/travellers.km.

By digital application, the **10,100 tCO₂e/year** could be avoided with the T3 extension

- **Public transport: Paris stations ring road (Surface transport)**

The evaluation of greenhouse gas reduction is carried out following the hypothesis of a modal shift which can only be fine-tuned with a more precise definition of the options chosen and the technical progress of constructors' bids.

- **Non-motorized traffic: Cycle paths**

The gain for cycle paths has been estimated from similar conventional private car traffic, at around **100 t.CO₂/km/year**. Therefore, for the 31 km of cycle paths realized since 2015, close to **3,100 t.CO₂/year** has been avoided.

This hypothesis is based on what has been observed for earlier developments of cycle paths (730 km). These estimations will be fine-tuned following the mobility and attendance studies of the cycle sections and 30 km/h zones which will be conducted when the volume is significant.

- **Electric vehicles: Installation of Belib' charging stations**

The evaluation of greenhouse gas reduction is carried out according to the hypothesis (pending consumption readings) that each terminal carries out the equivalent of **2 full charges of 60kWh/day** each, thus avoiding an equivalent consumption of fossil fuel.

If we retain on the one hand the emission factors from ADEME's (French Ministry of Environment and energy) carbon base, version of 27 April 2016³ and, on the other hand, the shares of diesel and petrol vehicles from INSEE data for January 1 2015⁴, as follows:

Average 2014 electricity mix*	0.082 kgCO ₂ e/kWh.	
Petrol at the pump	0.314 kgCO ₂ e/kWh.	37.6 % of the fleet
Diesel fuel at the pump	0.323 kgCO ₂ e/kWh.	62.4 % of the fleet

* Latest information available in the base

It is estimated that the **deployment of 53 stations would make it possible to avoid 1,700 t.CO₂/year**

¹ <http://www.omnil.fr/spip.php?article119>

² http://www.ratp.fr/fr/upload/docs/application/pdf/2016-01/information_co2_juin_2015.pdf

³ <https://www.data.gouv.fr/fr/datasets/base-carbone/>

⁴ <https://www.insee.fr/fr/statistiques/2045167#tableau-Tableau1>

Reducing energy consumption

- **Sustainable buildings: Sustainable social housing (HEQ constructions, thermal insulation)**
Calculation of the greenhouse gas emissions avoided is based on energy performance diagnostics (EPD)⁵ carried out for each operation financed by the City of Paris.

La Direction du Logement et de l'Habitat (DLH - Directorate of Housing and Habitat) of the City of Paris indicates that in 2016, the energy renovations financed will make it possible to reduce the energy consumption of the existing social housing stock by 39 GWhep/year which will bring the consumption reduction financed through energy renovation operations since 2015 to 79 GWhep/year.

The energy savings financed in 2016 will make it possible to avoid the emission of 6,259 t.CO₂e/year, bringing the emissions avoided since 2015 to 12,075 t.CO₂e/year.

- **Public lighting: Energy Performance Contract (Marché de Performance énergétique - MPE)**
The emission factor retained is from ADEME's (French Ministry of Environment and energy) carbon base, version dated 27 April 2016⁶:

Electricity for public lighting	0.091 kgCO ₂ e/kWh.
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Which means that the **accumulated energy savings of 9,969 MWh have made it possible to avoid 900 t.CO₂e.**

Production of renewable and waste energy

- **Solar energy: Photovoltaic solar panels**
Taking the emission factors from the ADEME's (French Ministry of Environment and energy) carbon base, version dated 27 April 2016⁷:

Average 2014 electricity mix*	0.082 kgCO ₂ e/kWh.
Photovoltaic electricity	0.055 kgCO ₂ e/kWh.

* Latest information available in the base

The information from the *Institut National de l'Énergie Solaire* (National Solar Energy institute) makes it possible to retain a **kW-peak electrical productivity of 900kWh/year** which is equivalent, for 570 kW-peak installed, to a production of approximately 513 MWh/year, meaning this much grid power can be avoided.

The deployment of 570 kW-peak solar PV panels would enable 14 t.CO₂e/year to be avoided.

Strategy for territorial adaptation

- **20,000 trees**
According to the 2006 GIEC Guidelines for National Greenhouse Gas Inventories, Volume 4: Agriculture, Forestry & Other Land Use⁸, the **average sequestration factor for a tree in a temperate zone is 0.01 tC/year**, i.e. 0.0367 tCO₂/year over its normal maximum growth period of 20 years. The average sequestration capacity of a tree is therefore around **730 kg.CO₂ during its lifespan.**

Under these conditions, **the 2,200 trees which have been planted will allow the equivalent of 1,600 t.CO₂ to be sequestered during their lifespan.**

⁵ <http://www.rt-batiment.fr/batiments-existants/dpe/presentation.html>

Comment: The ex-ante energy saving data corresponds to the savings financed in 2015 and not the energy savings generated since this policy was launched. The calculation method for emissions is specified this year and takes the technical characteristics of each operation into consideration.

⁶ <https://www.data.gouv.fr/fr/datasets/base-carbone/>

⁷ <https://www.data.gouv.fr/fr/datasets/base-carbone/>

⁸ http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_08_Ch8_Settlements.pdf



VIGEO EIRIS

Opinion Review⁹ on the CITY OF PARIS "Climate Bond" Reporting

⁹ This review must be understood as a "Second Party Opinion review" under the Green Bond Principles (in the 2016 edition of the 'External review' section). Green Bond Principles include the Voluntary Process Guidelines for Issuing Green Bond and the Guidance for Issuers of Social Bonds www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/



SCOPE

Vigeo Eiris was commissioned to provide an independent opinion on the sustainability credentials and management of the Climate Bond (the "Bond") issued by the City of Paris (the "Issuer"), according to Vigeo Eiris' Environmental, Social and Governance (ESG) assessment methodology, in line with the Green Bond Principles guidelines.

The opinion is based on the annual review of the two following components:

- ▶ Issuer: update of the document-based evaluation of City of Paris' ESG performance, controversies and capacity to mitigate these risks.
- ▶ Issuance: update of the document-based review of the implementation and transparency of the City of Paris' Climate Bond framework, including:
 - ▶ Project review: evaluation of the Issuer's capacity to use the bond proceeds to finance projects with climate benefits, in line with its initial commitments, and to report on the projects results; analysis of the projects results.
 - ▶ Bond review: evaluation of the Issuer's capacity to implement the Bond processes, in line with its initial commitments (evaluation and selection process and allocation process) and to report on the Bond results; analysis of the aggregated Bond results.

Vigeo Eiris' sources of information are gathered from our rating database, from the City of Paris' data, press content providers and stakeholders. Vigeo Eiris has carried out its due diligence from May 17th to June 8th, 2017.

VIGEO EIRIS' OPINION

Vigeo Eiris remains of the opinion that the Bond issued by the City of Paris is a "Climate Bond", aligned with the Green Bond Principles.

Vigeo Eiris maintains its reasonable² level of assurance on the on the Bond contribution to sustainability.

- The City of Paris continues to display an overall advanced² ESG performance (see Part I.).
- We provide a reasonable level of assurance on the implementation of the City of Paris's Climate Bond framework and on the transparency and relevance on the reporting (see Part II.)
 - Up to date, 100% of the net proceeds of the issuance have been used to finance 9 projects, corresponding to all the categories and sub categories initially defined by the City of Paris. We provide an overall reasonable level of assurance regarding the Issuer's capacity to use the Bond proceeds to finance projects with climate benefits, in line with its initial commitments and our previous review.
 - The overall implementation of the Issuer's commitments in terms of projects' ESG management and evaluation, selection and allocation processes is robust.
 - The assessment and reporting framework appears relevant. We provide an overall reasonable level of assurance on the Issuer's capacity to report on fund allocation and on projects results (i.e. climate benefits and ESG performance), in line with its initial commitments, and on results aggregated at Bond level. We consider that the project results in terms of climate benefits and ESG performance range from limited to robust.
 - No ESG controversy have been observed related to the selected projects.

¹ This opinion is to be considered as the "Consultant review" described by the Green Bond Principles (2016 edition in the 'External Review' section). The Green Bond Principles include the Voluntary Process Guidelines for Issuing Green Bonds and the Guidance for Issuers of Social Bonds (see: www.icmagroup.org/Regulatory-Policy-and-Market-Practice/green-bonds/)

² Definition of Vigeo Eiris' scales of assessment (as detailed on the last page of this document):
Level of Performance: Advanced, Robust, Limited, Weak.
Level of Assurance: Reasonable, Moderate, Weak.

Part I. ISSUER

Level of the Issuer's ESG performance

As of December 2016, the City of Paris' overall sustainability performance has been stable since Vigeo Eiris' last rating review (December 2015) and continues to be advanced, above average scores in all domains. The City leads the sector out of 29 in the "Local authorities" Vigeo Eiris sector.

City of Paris achieves advanced performance in the Social and Environmental pillars, while in the Governance pillar, its score is robust. In particular, performance is advanced on all domains under review, but Procurement and Services and Human Rights for which it is considered as robust.

The City registers its best performances (strength areas) on some environmental issues: environmental strategy, management of green areas and protection of biodiversity and management of environmental impacts from both transportation and energy use. The City also performs in an advanced way on some social issues: social cohesion and fair development, non-discrimination and improvement of health and safety. Reversely, room for improvement lies in the fields of integration of environmental and social factors in the supply chain, as well as in water management.

Stakeholder-related ESG controversies and involvement in controversial activities

As of June 8th 2017, the City of Paris faces 3 controversies related to the "Environment" (2 controversies) and "Procurement and services"³ (1 controversy) domains. The overall frequency is occasional and the overall severity is high. The City is overall reactive: it reported transparently and provided some corrective measures on 2 cases.

The City of Paris is not involved in any of the 9 controversial activities⁴ analysed by Vigeo Eiris.

Part II. ISSUANCE

Use of proceeds

Up to date, 9 projects have been selected as eligible by the Issuer, corresponding to all the eligible categories (reduction of GHG emissions, energy efficiency, renewable energy and adaptation to climate change), representing 300 m€ of proceeds planned to be invested in these projects, i.e. 100% of the total proceeds.

- *Tramway T3 – Extension Chapelle-Asnières*
- *Rocade des gares parisiennes*
- *Pistes cyclables*
- *Implantations de bornes de recharge Belib¹*
- *Logement sociaux durables*
- *Marché de Performance énergétique*
- *Panneaux solaires photovoltaïques*
- *30 nouveaux hectares d'espaces verts*
- *20 000 arbres*

Vigeo Eiris' level of assurance regarding the Issuer's capacity to use the Bond proceeds to finance projects with climate benefits, in line with its initial commitments, is reasonable, in line with our previous review (December 2016). All projects are in coherence with the categories and sub-categories initially defined by the City of Paris, in line with Paris' "climate & energy Plan for 2020", and overall level of assurance related to ESG selection criteria is reasonable, in line with our previous review.

³ This latter controversy is related to the condemnation, on March 3rd 2015, of Mr Tibéri (Mr Tibéri was mayor of the 5th arrondissement of Paris) for fraudulent voters' registrations in the 5th arrondissement of Paris.

⁴ The 9 controversial activities analysed by Vigeo Eiris are: Alcohol, Animal maltreatment, Armament, Hazardous chemicals, Gambling, Genetically Modified Organisms (GMO) in food & feed, Nuclear energy, Sex industry, Tobacco. The controversial activities research provides screening on companies to identify involvements in business activities that are subject to philosophical or moral concerns. The information does not suggest any approval or disapproval on their content from Vigeo Eiris.

Process for project evaluation and selection

The process for evaluation and selection of projects appears to be efficiently implemented, based on internal expertise, including the Direction des Finances et des Achats and the Agence d'Ecologie Urbaine, as well as operational services.

We have an overall reasonable level of assurance on the Issuer's capacity to implement the evaluation and selection process, in line with its initial commitments and our previous review.

Management of proceeds

The net proceeds of the Climate Bond issuance are managed within City of Paris' treasury liquidity portfolio, in cash or other liquidity instruments.

No project divestment has been observed within the year under review.

We have an overall reasonable level of assurance on the Issuer's capacity to implement the allocation process, in line with its initial commitments and our previous review.

Reporting

The reporting framework appears relevant for the majority of the indicators. We have recommended to review the definition or collection method to ensure the systematic collection of some indicators.

- Issuer's capacity to report
 - The indicators on fund allocation are well reported both at project and Bond levels: the list of projects financed includes their description and the corresponding allocated amount, and the allocated amounts versus total amounts of each project are disclosed. We provide a reasonable level of assurance on the Issuer's capacity to report on fund allocation for all selected projects.
 - Regarding project results, the Issuer disclosed information at project level and aggregated information on climate benefits at Bond level (except for 1 project - "*Rocade des gares parisiennes*" - still at early stage). Since our last review, the Issuer has reinforced its reporting by disclosing methodological details including comparative data. Our level of assurance regarding the Issuer's capacity to report on projects results (i.e. climate benefits and ESG performance), in line with its initial commitments, ranges from moderate to reasonable. In particular, we have a reasonable assurance on 8 projects which correspond to 92% of the allocated proceeds. The project "*Rocade des gares parisiennes*" being at early stage, the City of Paris doesn't want to make a statement nor disclosure on uncertain information: as a consequence, Vigeo Eiris does not express any opinion on the issuer's capacity to report on the project climate benefits nor on the ESG indicators of this project.
- Project results
 - Based on disclosed information on projects results, we consider that the project results in terms of climate benefits range from limited to robust. In particular, we consider the project results to be robust for 7 projects (representing 75% of allocated proceeds), in line with the annual objectives (and above the annual objectives for 2 projects in terms of number of housings - "*Logement sociaux durables*" - and trees - "*20 000 arbres*"), and to be limited for 1 project ("*Tramway T3 – Extension Chapelle-Asnières*", accounting for 17% of allocated proceeds) due to the low level of achievement of the projects or lack of trend / comparison data. Of note, the Issuer did not disclose any information on climate benefits for 1 project ("*Rocade des gares parisiennes*", representing 8% of allocated proceeds).
 - In terms of ESG performance, we consider the level of ESG performance to be robust for 8 projects (92% of allocated proceeds). Of note, the Issuer did not disclose any information on ESG management for 1 project ("*Rocade des gares parisiennes*", accounting for 8% of allocated proceeds).
 - No controversy have been identified on all projects which are already selected.

Project	Level of assurance on the issuer's capacity to use the bond proceeds to finance projects with climate benefits	Level of assurance on the capacity of the issuer to report on fund allocation	Level of assurance on the capacity of the issuer to report on climate benefits	Project results in terms of climate benefits	Level of assurance on the issuer's capacity to report on the project ESG management	Level of ESG performance
<i>Tramway T3 – Extension Chapelle-Asnières</i>	Reasonable	Reasonable	Reasonable	Limited	Reasonable	Robust
<i>Rocade des gares parisiennes</i>	Reasonable	Reasonable	NA	NA	NA	NA
<i>Pistes cyclables</i>	Reasonable	Reasonable	Reasonable	Robust	Reasonable	Robust
<i>Implantations de bornes de recharge Belib'</i>	Reasonable	Reasonable	Reasonable	Robust	Reasonable	Robust
<i>Logement sociaux durables</i>	Reasonable	Reasonable	Reasonable	Robust	Reasonable	Robust
<i>Marché de Performance énergétique</i>	Reasonable	Reasonable	Reasonable	Robust	Reasonable	Robust
<i>Panneaux solaires photovoltaïques</i>	Reasonable	Reasonable	Reasonable	Robust	Reasonable	Robust
<i>30 nouveaux hectares d'espaces verts</i>	Reasonable	Reasonable	Reasonable	Robust	Reasonable	Robust
<i>20 000 arbres</i>	Reasonable	Reasonable	Reasonable	Robust	Reasonable	Robust

Paris, June 9th, 2017



Muriel CATON
Director of Vigeo Eiris Enterprise



Paul COURTOISIER
CSR/sustainability consultant

Disclaimer

Transparency on the relation between Vigeo Eiris and the Issuer: Vigeo Eiris has executed audit activity for the City of Paris until so far (as Second Party Opinion provider in September 2015, and Second Party Opinion reviewer in December 2016). No established relationship (financial or others) exists between Vigeo Eiris and the City of Paris.

This opinion aims to explain for investors why the Climate Bond is considered as sustainable and responsible, based on the information which has been made available to Vigeo Eiris and which has been analyzed by Vigeo Eiris. Providing this opinion does not mean that Vigeo Eiris certifies the materiality, the excellence or the irreversibility of the projects financed by the Climate Bond. The City of Paris is fully responsible for attesting the compliance with its commitments defined in its policies, for their implementation and their monitoring. The opinion delivered by Vigeo Eiris neither focuses on financial performance of the Climate Bond, nor on the effective allocation of its proceeds. Vigeo Eiris is not liable for the induced consequences when third parties use this opinion either to make investments decisions or to make any kind of business transaction. The opinion delivered on stakeholder-related ESG controversies is not a conclusion on the creditworthiness of the City of Paris or its financial obligations

Restriction on distribution and use of this Opinion: the opinion is provided by Vigeo Eiris to the Issuer and can only be used by the Issuer. The distribution and publication is at the discretion of the Issuer, submitted to Vigeo Eiris approval.

METHODOLOGY

In Vigeo Eiris' view, Environmental, Social and Governance (ESG) factors are intertwined and complementary. As such they cannot be separated in the assessment of ESG management in any organization, activity or transaction. In this sense, Vigeo Eiris writes an opinion on the Issuer's Corporate Social Responsibility as an organization, and on the objectives, management and reporting of the projects to be (re)financed by this transaction.

Vigeo Eiris' methodology to define and to assess corporate's ESG performance is based on criteria aligned with public international standards, in compliance with the ISO 26000 guidelines, and organized in 6 domains: Environment, Human Resources, Human Rights, Community Involvement, Business Behavior and Corporate Governance. The evaluation framework has been customized regarding material issues, based on the Local Authorities assessment framework, projects specificities and emerging issues.

Vigeo Eiris reviewed information provided by the Issuer, press content providers and stakeholders (partnership with Factiva Dow Jones: access to the content of 28,500 publications worldwide from reference financial newspapers to sector-focused magazines, local publications or Non-Government Organizations). Information gathered from these sources will be considered as long as they are public, documented and traceable. Vigeo Eiris has reviewed documents related to the Bond reporting (project description, environmental and social indicators, climate benefits ...).

Part I. ISSUER

NB : The Issuer performance, i.e., commitments, processes, results of the Issuer, related to ESG issues have been assessed through a complete process of rating and benchmark developed by Vigeo Eiris Rating.

Level of the Issuer's ESG performance:

City of Paris has been evaluated by Vigeo Eiris, during December 2016 on its social responsibility performance, based on 24 relevant ESG drivers organized in the 6 sustainability domains, according to the Local Authorities assessment framework. City of Paris' sustainability performance have been assessed by Vigeo Eiris on the basis of three "items":

- Leadership: relevance of the commitments (content, visibility and ownership)
- Implementation: coherence of the implementation (process, means, control/reporting)
- Results: indicators, stakeholders feedbacks and controversies
 - Scale for assessment of ESG performance: Advanced, Robust, Limited, Weak.

Stakeholder-related ESG controversies:

A controversy is an information, a flow of information, or a contradictory opinion that is public, documented and traceable, allegation against an Issuer on corporate responsibility issues. Such allegations can relate to tangible facts, be an interpretation of these facts, or constitute an allegation on unproven facts.

Vigeo Eiris provides an opinion on companies' controversies risk mitigation based on the analysis of three factors :

- Severity: the more a controversy will relate to stakeholders' fundamental interests, will prove actual corporate responsibility in its occurrence, and will have adverse impacts for stakeholders and the company, the highest its severity. Severity assigned at corporate level will reflect the highest severity of all cases faced by the company (scale: Minor, Significant, High, Critical).
- Responsiveness: ability demonstrated by an Issuer to dialogue with its stakeholders in a risk management perspective and based on explanatory, preventative, remediating or corrective measures. At corporate level, this factor will reflect the overall responsiveness of the company for all cases faced (scale: Proactive, Remediate, Reactive, Non Communicative).
- Frequency: reflects for each ESG challenge the number of controversies faced. At corporate level, this factor reflects on the overall number of controversies faced and scope of ESG issues impacted (scale: Isolated, Occasional, Frequent, Persistent).

The impact of a controversy on a company's reputation reduces with time, depending on the severity of the event and the company's responsiveness to this event. Conventionally, Vigeo Eiris' controversy database covers any controversy with Minor or Significant severity during 24 months after the last event registered and during 48 months for High and Critical controversies.

Part II. ISSUANCE

The Climate Bond framework has been evaluated by Vigeo Eiris according to the Green Bond Principles and our methodology based on international standards and sector guidelines applying in terms of ESG management and assessment.

Project review

The analysis of the conformance with initial commitments covers both the eligibility criteria, based on the definition of eligible project categories (use of proceeds requirements), and the selection criteria, based on the ESG commitments defined in the Climate Bond framework.

The analysis of the existence and completeness of reporting, according to initial commitments defined at project level, based on the three following components:

- Fund allocation, reporting on the use of proceeds, considered as a primary component and mandatory to achieve reasonable level of assurance at project level
- Climate benefits, reporting on output and impact indicators, considered as a primary component and mandatory to achieve reasonable level of assurance at project level
- ESG management, reporting on additional qualitative and quantitative indicators, considered as a best-practice effort and less optional to achieve reasonable level of assurance at project level

Bond review

The analysis of the implementation of Bond processes covers both

- The evaluation and selection process, i.e. evaluation of the coherence and efficiency of the implemented process, and exhaustiveness of the ESG issues covered
- The allocation process, based on the definition of the rules for management of proceeds

The analysis of the existence and completeness of reporting, according to initial commitments defined at Bond level, based on the three following components:

- Fund allocation, reporting on the aggregated use of proceeds, considered as a primary component and mandatory to achieve reasonable level of assurance at bond level
- Climate benefits, reporting on aggregated output and impact indicators, considered as a primary component and mandatory to achieve reasonable level of assurance at bond level
- ESG management, reporting on transversal additional indicators, considered as a best-practice effort and less optional to achieve reasonable level of assurance at bond level

Reporting

The analysis of the relevance of reporting indicators covers the three reporting components, i.e. fund allocation, climate benefits and ESG management, evaluated the relevance of these indicators according to three principles (transparency, exhaustiveness and effectiveness), and the reporting conditions, i.e. format, visibility, data collection,...

The evaluation of project results is conducted both at project and Bond levels, including reporting per project and aggregated reporting, based on both climate benefits, considered as essential to achieve robust performance, and ESG management, considered as a best-practice effort and less optional to achieve robust performance.

- Scale for level of relevance: not relevant, partially relevant, relevant
- Scale for assessment of performance: weak, limited, robust, advanced.
- Scale for assessment of level of assurance: weak, moderate, reasonable

VIGEO EIRIS' ASSESSMENT SCALES

Performance evaluation	
Advanced	Advanced commitment; strong evidence of command over the issues dedicated to achieving the objective of social responsibility. Reasonable level of risk management and using innovative methods to anticipate emerging risks
Robust	Convincing commitment; significant and consistent evidence of command over the issues. Reasonable level of risk management
Limited	Commitment to the objective of social responsibility has been initiated or partially achieved; fragmentary evidence of command over the issues. Limited to weak level of risk management
Weak	Commitment to social responsibility is non-tangible; no evidence of command over the issues. Level of insurance of risk management is weak to very weak

Level of assurance	
Reasonable	Able to convincingly conform to the prescribed principles and objectives of the evaluation framework
Moderate	Compatibility or partial convergence with the prescribed principles and objectives of the evaluation framework
Weak	Lack or unawareness of, or incompatibility with the prescribed principles and objectives of the evaluation framework

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