CITY OF PARIS

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

Reporting 2020

on the period 2019

SUMMARY OF ANNUAL REPORT 2020

Only data related to Tram project: T3 - Chapelle-Asnières Extension (Category 1 Reducing greenhouse gas emissions) are reported within this document , since full allocation of funds raised with the bond has now been reached .

Updates for some other projects included in previous reportings of the Climate Bond can be found within the Sustainability Bond reporting relating to year 2019.

projects related to :

Conversion of the fleet of sanitation vehicles from diesel or gasoline to cleaner energy, Sustainable social housing (HEQ construction, thermal insulation)

and Photovoltaic solar panels

have not been reported this year since full funds allocation was reached for the two bonds.

However, their benefits set in 2018 are recalled in this report.

PRESENTATION OF THE PARIS CLIMATE BOND IN CONTEXT

City of Paris has been committed to the fight against climate change for a long time, 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 resolved as a consequence 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.

In 2018 a new version of *Plan Climat Énergie de Paris* (Paris Climate and Energy Action Plan) was adopted which aims at making Paris a carbon-neutral, resilient and inclusive City using 100% of renewable energy sources by 2050. 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 and should be fulfilled by 2030:

- To reduce greenhouse gas emissions by 50% (compared with 2004);
- To reduce energy consumption by 35% (compared with 2004);
- To have 45 % renewable and reusable energy in its energy consumption and at least 10% produced locally;
- To decrease its global footprint on its territory by 40%;
- To become a zero-fossil fuel and domestic fuel area;
- To abide by the recommendations of WHO regarding air quality.

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[1] (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.

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

[1] in 2020 the rating of the City of Paris was 58/100 (sector average being unchanged at 43/100)

(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 highlight 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.

- "Reporting": On an annual basis at least until full allocation, the City of Paris will provide the following reporting on any bonds issued under this Framework:

ESG reporting: reporting on ESG management and the monitoring of the ESG criteria at the project or bond level, when relevant. Allocation reporting: detailing the bond proceeds allocated by each eligible project category and the progress on the projects financed by the Bond proceeds. Impact reporting: on a project level, when feasible, for each eligible project category, City of Paris will endeavor to report using indicative reporting indicators.

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.

SUMMARY OF PROJECTS FUNDED 2020

Only the Tram project: T3 - Chapelle-Asnières Extension –related to Public transport- Category 1 Reducing greenhouse gas emissions will be dealt with in this report allowing full allocation of funds raised through the bond (€300m).

*Projects (marked "**S**" afterwards) such as **Non-motorised traffic:Cycle paths , Electric vehicles: installation of Belib charging stations, Energy performance contract concerning public lightning, 30 new hectares of green areas** and **Programmes for planting 20,000 trees,** which had been reported in previous versions of the Climate Bond reportings are reported this year in the Sustainability Bond reporting allowing to reach full allocation of this bond in 2019 (€320m).*

*Following projects (marked "**NR**" afterwards): **Conversion of the fleet of sanitation vehicles from diesel or gasoline to cleaner energy, Sustainable social housing (HEQ construction, thermal insulation) and Photovoltaic solar panels** will not be reported either in the Climate Bond reporting nor the Sustainable Bond reporting since full allocation of funds is reached for both bonds.*

However, their benefits as of end 2018 will be recalled in this report.

	Initial forecast of funds allocation	Invested throughout 2015-2018	Invested in 2019	Total invested	Total $t.CO_2$ avoided per year
TOTAL :	**€ 300 m**	**€ 289.6 m**	**€ 11.3 m**	**€ 300.9 m**	**41,229**
Category 1. Reducing greenhouse gas emissions	**€ 120 m**	**€ 119.2 m**	**€ 11.3 m**	**€ 130.5 m**	**26,851**
Public transport Tram: T3 - Chapelle-Asnières Extension	€ 50 m	€ 73.1 m	€ 11.3 m	€ 84.4 m	8,626
Conversion of the fleet of sanitation vehicles from diesel or gasoline to cleaner energy *This project replaces the Ring Road project which had been reported in the previous reportings and which has been delayed since.*	Not in previous reportings	€ 7.6 m	-	€ 7.6 m	375
Non-motorised traffic: Cycle paths	€ 40 m	€ 32.2 m	-	€ 32.2 m	14,850
Electric vehicles: installation of Belib charging stations	€ 6 m	€ 6.3 m	-	€ 6.3 m	2,891
Category 2. Reducing energy consumption	**€ 115 m**	**€ 146.2 m**	**-**	**€ 146.2 m**	**14,018**
Sustainable social housing (HEQ construction, thermal insulation)	€ 55 m	€ 105.1 m	-	€ 105.1 m	12,760
Energy performance contract concerning public lightning	€ 60 m	€ 41.1 m	-	€ 41.1 m	1,258
Category 3. Producing renewable and waste energy	**€ 5 m**	**€ 4.0 m**	**-**	**€ 4.0 m**	**5**
Photovoltaic solar panels	€ 5 m	€ 4.0 m	-	€ 4.0 m	5
Category 4. Strategy for territorial adaptation	**€ 60 m**	**€ 20.2 m**	**-**	**€ 20.2 m**	**377**
30 new hectares of green areas	€ 45 m	€ 15.5 m	-	€ 15.5 m	108
Programmes for planting 20,000 trees	€ 15 m	€ 4.7 m	-	€ 4.7 m	269

REPORTING ON PROJECTS FUNDED 2020

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.

Summary of the 2019 reporting relative to the projects funded by the Climate Bond

Since the Climate Bond was issued on November 2015, this reporting is the fourth one 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).

All the projects are currently being realized, and some are at an advanced stage.

Only the Tram project: T3 - Chapelle-Asnières Extension -Public transport- Category 1 Reducing greenhouse gas emissions will be dealt with in this reporting under the funds allocated in 2019 in the Climate Bond.

The other projects included in this reporting haven't been dealt with for 2019 in the Climate Bond because the initial forecast of total funds allocation had been reached (€300m). They -marked with "S"- will be dealt with and updated in the Sustainability Bond reporting under the funds allocated in 2019 (except the projects - marked with "NR"- Conversion of the fleet of sanitation vehicles from diesel or gasoline to cleaner energy, Sustainable social housing (HEQ construction, thermal insulation) and Photovoltaic solar panels). However, their benefits set in 2018 will be recalled in this report.

In order to better respond to the commitments to transparency that Paris has made in respect of the suppliers, this fourth reporting includes a note on the methodology, which can be found at the end of the document.

To sum up, **as of 31 December 2019:**

- **€ 300 m** out of €300 m of the Climate Bond proceeds have been allocated
  These data can be confirmed by the IT monitoring of the local authority accounts (Alizé), in connection with the Direction Régionale des Finances Publiques – DRFiP (Regional Directorate of Public Finance)
- **41 229 t.CO2/year** carbon equivalent have been avoided thanks to cumulated allocated proceeds since 2015 (including benefits of the ***Tram project: T3 - Chapelle-Asnières Extension***).

  Recalled benefits **as of 31 December 2018:**
- **513 MWh/year** produced thanks to 570 kW peak photovoltaic power levels installed.
- **3,343 trees** have been newly planted, and **0.7 hectare of green spaces** created which allow sequestration of 125 t.CO2/year.
- **113 107 hours of integration work** have been validated throughout 2019 among the set of projects selected

Responsible governance indicators on a general level

Social responsibility towards workers & respect for human rights

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 private life (amendments to the charter for the use of computer resources taking this 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 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 the promotion of 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 contract awarding 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 2018, analysis of the 4,233 answers to a survey conducted since 2012 concluded that 55 % of the firms had declared their commitment to an approach based on improvement 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".

Overall 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

As required by 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 a 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 solidarity and inclusive dimension of purchasing in order to work towards the return to employment of people who are far from it and to the promotion of diversity.

The Finance and Procurement Department also developed “The Environmental Purchasing Guide” which is intended both for its own staff and for procurement managers within other departments. This guide is regularly updated to incorporate various issues such as the prevention of associated waste (packaging, paper purchases, cardboard, books, computer, phone sets or other equipment). Following its enforcement, an article has been included in the CCAP for all works contracts, which requires within 4 weeks of the start of the preparation period, the production and presentation to the project manager's approval of an Environmental Insurance Plan (PAE) as well as a scheme for the organization and monitoring of site waste disposal (SOSED) for public works and a Scheme for Waste Management and Disposal (SOGED) for building works.
As a consequence, the winner of the tender has the obligation not only to:
comply with legal and regulatory requirements relating to the disposal of waste the recovery of materials or classified installations for the protection of the environment;
-but also to take the necessary actions to prevent and prohibit soiling and pollution of all kinds, whether atmospheric, terrestrial or aquatic, especially outside work-site rights-of-way. In particular, the storage centers, consolidation centers and recycling units to which the waste will be disposed of are defined, as well as the sorting and evacuation methods and the means of control and monitoring implemented. Discharges into the existing flow networks of machine washers, draining agents, lubricants or fuels are strictly prohibited.

Thus, in 2019, among all markets already launched by the Finance and Procurement Department (DFA) which account for 93% (vs 83% in 2017) in value of all the City of Paris’ markets:

- 71% (vs 61% in 2018) of works contracts included selective collection formalized by SOGeD or SOSED.
- 71% (vs 68% in 2018)included a clause and / or a criteria of selection for offers having an environmental component: such as eco-labels, "clean delivery" (vehicles with Euro 5 or 6 / Euro V or VI standards, "soft" travel modes or by public transport as well as "clean" vehicles (electric, NGV, hybrid) "order optimization" (Sustainable Urban Logistics) "eco-packaging", eco-materials.
- 40% (vs 35% in 2018) of markets awarded had a biodiversity label or included a "low nuisance construction" clause (noise, dust, water consumption, electricity and other pollutants impacting biodiversity). Throughout 2017, the city generalized within its tenders the clause relating to "soft" transport or «clean motorization» (electrical, GNV, hybrids).
  The result being that 95% (vs 99% in 2018) of the contracts notified by

the City of Paris in 2019 included such a clause.

- The City of Paris prohibits diesel engines from 1 January 2020 for both light vehicles and trucks.
- When possible, the City also included a clause governing delivery rounds for supply contracts: in this case, the supplier agrees to store running orders and to deliver in a monthly tour.
- In addition, within the framework of the PDAP2 (Paris Administrations Travel Plan), a study on the optimization of deliveries is ongoing under the joint supervision of DVD and DFA (Transports Department and Finance Department) This study aims to 1- map the current supply flows of the City of Paris,2- to propose scenarios for optimizing these flows (sites for pooling deliveries, logistics platforms, grouping orders, etc.).) and finally to detail the implementation of the optimization scenario that has finally been adopted
- In 2019, 40% (vs 35% in 2018) of the contracts awarded by DFA were favorable to biodiversity.
- Finally, in 2019, 54% (vs 43% in 2018) of the contracts awarded by DFA had a link with the Circular Economy.

Since 2018:

- 100% of printing paper bought by the City is produced from 100% recovered waste paper and delivered in optimized rounds,
- Event equipment is now rented rather than bought,
- Professional cotton clothing items used by city agents are made from 100% organic and fair-trade cotton,
- 79% of all printing consumables are compatible with all brands and 43% of all reusable printing cartridges have been so far collected,
- Removable nurseries with load-bearing panels / wooden beams have been delivered,
- In line with the wish adopted by the Council of Paris in May 2018 relating to the elimination of avoidable plastics in Parisian collective catering, the City of Paris continued in 2019 its commitment in favor of the limitation or gradual abandonment of plastics. with an impact on public procurement: objective of eliminating certain single-use plastics (straws, cups) in Parisian collective catering and take-away sales for agents.

To support the return to employment of people who are furthest away from it, the Paris Scheme of Responsible Public Contracts also sets ambitious objectives:

- Regarding the identification of markets which could help social inclusion (9% of contracts awarded or whose implementation started in 2017 included a social clause, unchanged from 2016)
- On working in partnership with the City's Attractiveness and Employment Department (integration component) and Ensemble Paris Emploi Compétences (EPEC), the unique Parisian facilitator
- membership in the HANDECO network which brings together the structures of the protected and adapted sector
- In 2017 a mapping of protected and adapted sectors which includes most of the Structures of Insertion through Economic Activity was completed.

As a consequence, in 2019: 482,398 hours of integration were provided (City and CASVP), through 445 contracts embedding an insertion clause/ 110 new markets embedding an insertion clause were awarded.

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

- In 2019, 48,56% (vs 49% in 2018) of expenditure results from contracts attributed directly to SMEs (not including subcontractors);
- Over 80% of our suppliers are SMEs;
- 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 (234 requests in 2019, vs 274 in 2018);
- The implementation of simplifications (model of technical brief framework) and guides
- Limiting the use of minimum capacity levels (including turnover) also contributes to this objective.

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-2017**(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) in spite of 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.
Of all the invoices paid in 2019, the average time was 23.78 calendar days.

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.

Thus, concerning procurement in 2019, only 10 (vs 13 in 2018) actions were brought against City of Paris out of 720 (vs 877 in 2018) contracts awarded .Of these, 7 were won by the City and 3 are pending judgement. None of the actions was lost and concerned projects funded by the Climate Bond.

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 members belonging to elected members' cabinets 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 committee of five independent persons, with an advisory capacity. Since the last Climate Bond report, no new proceedings against the City or any of its representatives have been recorded.

1. Reducing greenhouse gas emissions 2020

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 is part of the 2015-2020 State-Region Plan (development of the network, multimodal access section, Grand Paris, etc.)
This 4.3-kilometre extension includes 8 new stations:
It 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 extension is expected to serve over 600,000 people and 300,000 salaried workers (including the passengers from neighbouring municipalities).

The project has been delivered in November 2018.

Key data

Forecasts:

This 4.3 km. extension of Tram T3 delivered at the end of 2018, allows:
- Service for 210,000 passengers/day after 5 months
- **Expectation of 8,713 t.CO2/year** avoided.

Completed:

- First laying of tracks in December 2016.
- Full project delivered in November 2018.

47 369 hours of integration work were provided as of 31/12/2018 (from consolidated data transmitted by the body in charge of managing the social integration clauses of the T3 North markets)

Timetable of proceeds invested since 2015

€84.42 m from the proceeds of the Climate Bond were allocated to this project, which accounts for more than a third of the total budget needed, and more than the initial amount expected to contribute to this extension from the proceeds of the Climate Bond.

€11.36 m were invested in 2019 from the proceeds of the Climate Bond issue.

Funds invested from the proceeds of the Climate Bond since 2015
(These Data have been extracted from the Administrative Accounts throughout 2015- 2019)*

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

The following figures correspond to consolated information which implies an adjustment compared to the figures published in the 2018 reporting:
Social clauses included in the works contracts provide for a total of 58,803 hours *(instead of 60,323 hours, as noted in the 2018 version)* of integration work for long-term unemployed persons.
To ensure the correct performance of these clauses, City of Paris signed a partnership with *Ensemble Paris Emploi Compétences,* a body which is in charge of validating the number of such hours.

As of 31 December 2018, 47 369 (*instead of 48159 as noted in the 2018 version)* **hours of integration work** had been carried out, with outstanding participation by certain service providers who presented results well beyond their contractual obligations.

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

2018 reporting data items were kept in this 2019 reporting

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 be 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
In addition to the information channels between users and the tram mission which have been available since the beginning of the project (*Flash info, T3 Mag, website* www.tramway.paris.fr), meetings are organized regularly.
To inform the residents about the project and answer their questions.
Explanatory panels were also installed to explain how the project development will be conducted up to the moment it is delivered.
The Tram mission also organised presentations for as much as 50 elementary or secondary classes but also for leisure centres for children around the 17th and 18th arrondissement, in order to raise awareness regarding the proper way to safely walk around the construction site.

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
On top of daily presence of local communications officers all along the line of the future T3, Infotram (dedicated telephone number and email address for answers to questions from residents and traders) was set up in order to create a link between the residents and "Tram Mission".
This website received 100,000 connections and 400,000 pages were visited as of the 1st june 2018 for one year.
On two sites at « Porte de Saint-Ouen and Porte d'Asnières » a system of timelapse pictures footage was installed. People connecting to "Tele Tram" website can therefore view the different steps of the works conducted on road tunnels built on these sites.

Environmental Responsibility

2018 reporting data items were kept in this 2019 reporting

Energy consumption

Choosing to develop a Tram line is part of the answer to "Plan de déplacement de Paris" and "Plan de déplacements Ile de France" but also to new local rules regarding air quality and rational use of energy, since it should contribute to a better allocation of public space and profit non-motorized transports (bikes, pedestrians).
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 Idfm 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 assumption that the potential modal shift of transport from bus to tram would be 94 401 775 travellers/km/year.

The **T3 extension saves therefore 8,713 t.CO2/year.**

(see note on methodology at the end of the report)

1. Reducing greenhouse gas emissions 2020

Clean transportations/Vehicles *-NR-*: Conversion of the fleet of sanitation vehicles from diesel or gasoline to cleaner energy (This project replaces the Ring Road reported up last year).

Project description

With this project, the City of Paris aims to deeply transform its sanitation vehicles fleet, moving away from diesel and turning to cleaner power sources.
An environmental impact is expected both regarding the improvement of air quality thanks to a measurable reduction of fine particles and through a reduction of GHG emissions.

	Vehicles delivered in 2018		
Type of Vehicle	**Electric**	**Hybrid**	**NGV**
Vacuum sweeper	34		
Sidewalk scrubber-sweeper	15	2	
Three wheeled sweeper	21		
Garbage trucks			34
Total number of vehicles	**70**	**2**	**34**
Total amount spent	**€2.964 million**	**€0.347 million**	**€ 4.294 million**
	€ 7.607 million		

Key data

Forecasts:

It is estimated that the total cost of the conversion project should be around €118 million (this amount also includes investments for diesel vehicles to turn to gasoline, which we consider out of scope of this report).

In 2018 €7.6 million have been allocated to the program, covering only conversion to either NGV, Electricity or Hybrid power source.

Completed

in 2018 ,106 vehicles were delivered dispatched as follows:

- 70 electric vehicles
- 2 hybrids (electricity and fuel)
- 34 using only NGV (Natural Gas for Vehicles)

Timetable of proceeds invested in 2018, and projections for coming years

€ 7.60 million in 2018 of the proceeds of the Sustainability Bond was allocated to this project and around €15 million is expected to be invested throughout 2019 and 2020.

From the launch of this project in 2015, € 49.8 m have already been invested by the City (including diesel vehicles converted to gasoline).

Actual allocation of the Sustainability Bond proceeds in 2018 and projections.

(This Data has been extracted from the Administrative Accounts for year 2018)

Governance

As for each single project within the scope of the Investment budget of the City, the Council of Paris is consulted, and a vote is conducted regarding both the opportunity of running such a project and on the budget, it will be allocated.

Operational management of the project: a dedicated team with a nominated project manager was set up in the *Direction de la Propreté et de l'Eau - DPE* (Directorate for Sanitation and Water) to monitor the project and report on its progress.

Social Responsibility

Responsible Procurement

All purchases of new sanitation vehicles are conducted within public tenders' processes, they comply both with the French Public Procurement Code and with the City of Paris own Responsible Public Ordering Plan (*Schéma Parisien de la Commande Publique Responsable*).

Social cohesion

In addition to energy savings and improvement of air quality, the conversion of sanitation vehicles also contributes to fighting noise pollution.

Environmental Responsibility

Energy consumption

Energy and GHG emissions reductions are the main target of the conversion program.
The Department for Sanitation and Water decided to favour biogas for its NGV vehicles: for the full year 2018, 55% of gas used by their fleet was biogas, leading to an additional estimated cut of 2.4 t CO_2.

Air quality

Air quality improvement through the **reduction of pollutant emissions** is intrinsic to the project:
NGV vehicles save as much as 85% NO_x emissions.
Electric powered vehicles cut 100% of NOx emissions.
In addition, since diesel consumption has been cut by 732,572 litres in 2018 this conversion program contributes to a significant cut in the fine particles emissions (both for PM 10 and PM 2.5).

Evaluation of climate benefit

Reduction of greenhouse gases

At least 375 tCO2e/ year were saved thanks to conversion conducted in 2018.

(see note on methodology at the end of the report)

1. Reducing greenhouse gas emissions 2020

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

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:

- **Around 120 km of cycle paths are expected to be delivered in 2019.**
- **By the end of 2020 270 km of cycle paths should be created including the paths created in the limited speed areas (30 km/h)**
  - ✓ **1,000 km** of cycle paths (270km would be added to the already 730km existing paths), this target has been revised down from 1400km prevailing up to beginning of 2019.
  - ✓ **27,000 t.CO_2/year** should be prevented following full completion.

Completed:

- ✓ **6 km** created in 2015
- ✓ **25 km** created in 2016 (cumulated amount of 31 km)
- ✓ **26 km** created in 2017 (cumulated amount of 57 km)
- ✓ **91.5 km** created in 2018 (cumulated amount of 148,5 km)
- ✓ **14,850 t.CO_2/year** emissions have been prevented thanks to the cumulated work done since 2015 (out of which 9,150 are related to work done in 2018)
- ✓ **36,445 cumulated** hours of social integration work as of 31st December 2018

(see note on methodology at the end of the report)

Timetable of proceeds invested since 2015

€32.2 m from the Climate Bond proceeds have been allocated since 2015, which is 80**%** of the initial forecast amount.

€ 16.8 m have been allocated in 2018

Allocation Bond's proceeds since 2015
(Data are extracted from Administrative accounts for 2015-2018)

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. Thanks to these clauses a total of 36,445 hours of social integration work were carried out since the start of the project. They are 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 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.

To give an example, in the sector of « boulevards des Maréchaux » in the 13th and 14th arrondissements, the system helped to report a relative discomfort linked to the discontinuity of the installation of the existing paths. These grievances were taken into account and an improvement of the installations is being conducted in collaboration with associations of users (this is included in the "Participation Budget").

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 contains 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. **A gain of 14,850 t.CO_2/year** is expected thanks to 148.5 km of cycle paths completed **since 2015**.

(see note on methodology at the end of the report)

1. Reducing greenhouse gas emissions 2020

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

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) accessible to private vehicles. The budget of € 6.68 m is financed only through the proceeds of the Climate bond.

This Parisian network, known as Belib' (3 charging terminals/ station) was inaugurated on 12 January 2016.

The development was split in four phases:

1. Phase 1: 17 stations (3 charging terminals / station) were in progress in 2015
2. Phase 2: 36 additional stations were in progress in 2016
3. Phase 3: 7 additional stations were delivered in 2017
4. Phase 4: 28 additional stations were delivered in 2018

Belib's data are available on data.gouv and opendata.paris. Thanks to interoperability, a smartphone app has also been developed to give access to these data.

Examples of Bélib' terminals

Key data

Forecasts:

90 stations were planned to be delivered by july 2018:

- ✓ Equivalent to the installation of **270 terminals.** When fully completed, the installation is expected to generate a gain of **2,960 t.CO2/year.**

The delivery of Belib's stations includes both spendings for supplies and workmanship for laying. As a consequence, the spendings and delivery schedule may display a mismatch.

Completed:

Delivered

- ✓ **17** stations in 2015
- ✓ **36** stations in 2016 (for a cumulated number of 53 stations)
- ✓ **7** stations in 2017 (for a cumulated number of 60 stations)
- ✓ **28** stations in 2018 (for a cumulated number of 88 stations)

- ✓ **4,330 t.CO_2 have already been** saved thanks to cumulated installations since 2015.

As of 31st December 2018, **88** stations have been delivered equivalent to **264** terminals.

Timetable of proceeds invested since 2015

Since 2015 **€6.3 m** from the Climate Bond's proceeds have been allocated to this project equivalent to **100%** of the full amount scheduled.

€0.8 m were allocated in 2018

Allocation of Bond's proceeds since 2015

(Data are extracted from Administrative accounts for 2015-2018)

Governance

Operational management of the project:
The "Agency for Mobility" monitors the strategic direction of Belib service (price, interoperability …) and the mapping of stations. 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.

A new contract for supervision was signed with contractor Sodetrel for 4 years in october 2016. The monitoring of operations and the accounting part is done by a department within the Direction in charge of and Traffic and Roadways (DVD).

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 des 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.

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.

Local development

The mapping of stations installations is decided in cooperation with mayors of arrondissements, in order to:

- Achieve a homogeneous coverage within Paris' territory.
- Then identify areas where densification of charging units is needed thanks to recharge data and identification of electrical vehicles within the area.

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);
- In 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.

In average, 1 hour is enough to fill 80% of a 25-kWh vehicle's battery.

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).

The estimated average lifespan of a Belib terminal is a decade.

Evaluation of climate benefit

Reduction of greenhouse gases

Compared to fossil fuel consumption, by means of a base assumption (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. The installation of 28 stations completed in 2018 is estimated to help save **920 tCO_2**/year in addition to the stations already delivered throughout period 2015-2017.

(see note on methodology at the end of this report)

2. Reducing energy consumption

2020

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

-NR-

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.

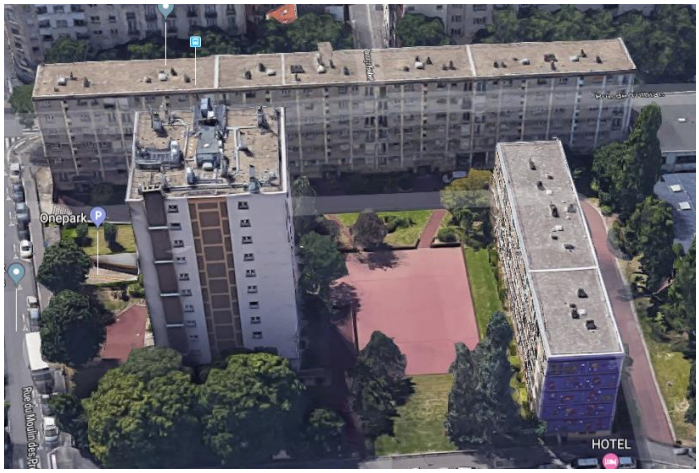
The goal set is the funding of the overall renovation of 4,500 housing units per year. The estimated budget for these projects is €225m. Over the period 2009-2018, more than 45,000 social housing units have been renovated. The new Climate, Air and Energy Plan for Paris which was voted in 2018 reinforced targets regarding renovation of Social Housing units. From 2018 the cut in energy consumption targeted will be 60% and from 2020 the renovation of as many as 5,000 units per year would be conducted.

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 64-rue du Moulin des prés (Paris 13ème)

Thanks to energy renovation of this 44 units building the global power consumption was brought down to 79 kWh_{EP}/m^2/year from 235 kWh_{EP}/m^2/year which means a global energy saving of 66%

The global cost of renovation was €3.3 m ex VAT.



Key data

Forecast:
Renovation of 4,500 social housing units /year:

- To come as close as possible to the primary energy coefficient (PEC) outlined by the BBC-Effinergie renovation label, **i.e 80 kWhep/m²/year**.
- Improving average energy efficiency by 60%
- Increase the organic surfaces**.**

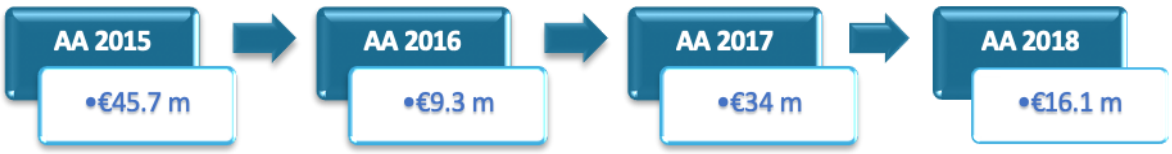
Completed:
During the period 2009-2018, **45,878** social housing units were renovated, 4,656 more units were renovated in 2018, leading to:

- ✓ **39,021 MWh/year** saved in 2018 equivalent to **6,360 t CO_2**, which brings the total cumulated amount of energy saved since the start of the full project to **142,087 MWh/year** equivalent to 22,760 **tCo2.**
- ✓ For the portion (54.4%) of the project funded from the Climate Bond's proceeds energy saved can be estimated at **77,375 MWh/year** equivalent to **12,760 tCO_2/year** (cf methodology at the end of the report)
- ✓ **6,585 m²** new organic surfaces created in 2018
- ✓ **57%** average improvement in energy consumption (ie: 191 kWhep/m²/year)

Timetable of proceeds invested since 2015

The initial estimated amount of **€ 55 m** was fully allocated in 2015 and 2016.

€16.1 m was allocated in 2018, which brings the full amount allocated from the Climate Bond's proceeds up to **€105.1 m** equivalent to almost twice the initial estimated allocation.



Allocation of Bond's proceeds since 2015

(Data are extracted from Administrative accounts for 2015-2018)

Evaluation of climate benefit

In 2018 it is estimated that **39,020 MWh** were saved thanks to 49 sites renovation (totaling 4,690 units renovated). This brings up to 141,598 **MWh** the global energy consumption prevented thanks to these energy renovation projects since 2015. Consequently **22,454 t.CO_2e** will be saved annually as soon as work is completed.

In average in 2018, the primary energy consumption of renovated buildings within the project has been brought down to **128 kWhep/m²/year,** vs 319 kWhep/m²/year before the job was carried out, equivalent to 57% of energy saved.

Moreover in 2018 **6,585 m²** of vegetal surfaces have been delivered which add to the **29,610 m²** already delivered since 2015.

(see note on methodology at the end of this report)

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.

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 2017, 3,923 m² of greened surfaces were funded (out of which 3,844 m² were horizontal surfaces and 79 m² were vertical), they add to the 25,687 m² already delivered since 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 project's 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.

Environmental responsibility

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 Propreté et de l'Eau* - DPE (Cleanliness and Water Service) of the City of Paris constantly works to heighten awareness of this issue among the funders and their tenants.

Due to 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.

Circular economy and low carbon sites: Different actions have been taken by DLH (Department for social housing) to promote low carbon impact sites through recovery and recycling of waste.
Since 2018, an additional subsidy is given by the City to projects that include NF Habitat HQE certification with a circular economy profile.

2. Reducing energy consumption 2020

Public lighting: Energy Performance contract (MPE) -S-

Project description

The main target of the *Marché de Performance Énergétique – MPE* (Energy Performance Contract) is to cut by 30 % by end 2020 (compared to 2004) 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 for the operations in target yields in KW/€ which must imperatively be met. This part of MPE is estimated to need a total budget of **64 M€** in order to change as many as 175,000 city lights,63,000 lighting poles, 30,000 lighting consoles, 21,000 traffic light supports and 313 lighting sites.

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:

- This MPE tranche targets:
  - ✓ Annual saving targets of **4,617 MWh**
  - ✓ **At least 10%** of total hours worked on the project should be executed within a social **integration work scheme**
  - ✓ **50%** cut in GHG emissions compared to 2004

Completed:

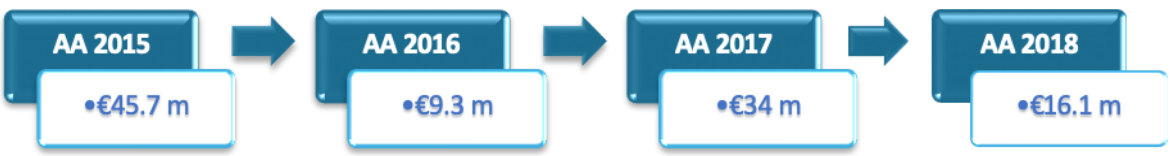
Jobs are completed or at an advanced step:

- ✓ **19,540 MWh** saved since 2015 out of which **4,261 MWh** in 2018
- ✓ This is equivalent to **1,258 tCO_2e** that will be saved every year thanks to works conducted since 2015 and **274 tCO_2e** for 2018 only.
- ✓ **404 t** of waste were recycled in 2018
- ✓ **29,293 hours** of social integration work were distributed (which is as much as 10.42% of the total of hours worked on that project)

Timetable of proceeds invested since 2015

Funding of **€ 41.1 m** from the Climate Bond's proceeds which counts for **68.5%** of the initial estimated amount.

€9.9 m were allocated to the project in 2018



Allocation of Bond's proceeds since 2015

(Data are extracted from Administrative accounts for 2015-2016-2017-2018)

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 %) in social integration work compared to the total number of hours worked. In 2018, the rate was 10.42% or 29,293 hours of social integration work for a total number of 281,211 hours worked on the project.

Moreover, some people were offered the opportunity of serving community service orders and in penal work ("SMA Insertion" label), through an agreement signed in 2017 with Ministry of Justice, 491 hours of community works have been provided.

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 2018, 15 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 2017.

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 (1,415 were dealt in 2018 (1,291 in 2016 and 1,532 in2017).

A process has been set up to collect and record all incidents or risky situations that could affect third parties on construction sites.

Fight against discrimination :

Contracting companies have to comply with a charter against discrimination when hiring staff.

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, the contractor must achieve a determined rate of clean cars in their fleet (in 2018, 12 light hybrid vehicles and 1 fully electric vehicle were added to their fleet).

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 92 % in 2018 (including 95 % for public lighting), i.e. **404 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

4,261 MWh energy saved in 2018 add to the amounts saved in 2015, 2016 and 2017, for a total amount **19,540 MWh**. This figure is equivalent to a global saving of **1,258 t.CO_2e** using the proper *multiplier*.

(see methodological note at the end of the report)

3. Producing renewable and waste energy 2020

Solar energy: Photovoltaic solar panels *-NR-*

Project description

In its approach to energy transition Paris is committed in substituting, as far as possible, fossil energies (oil, coal and gas) with renewable and recoverable energies (EnR[2]). Developing renewable energies allows brings Paris territory more autonomy in case of energy crisis or volatility in the energy prices. In its first « Plan Climat » Paris has set up a target of 45% of renewable and recoverable energy in its energy mix by 2030 out of which 10% should be produced locally. The target for renewable and recoverable energy was even increased up to 100% of by 2050 in the new « Plan Climat » passed in 2018.

City of Paris wants to increase the implementation of solar panels on its territory through a program of installation for 200,000m^2. Today, more than 50,000m^2 have already been delivered. To help the extension of that dynamic, Paris has developed a solar register which helps determine the solar potential of each building in Paris.

Paris has integrated mechanisms into its *Plan local d'urbanisme* – PLU (Local Urban Planning Scheme) which promote resorting to renewable energies. For instance, such equipments have been authorised to exceed the surface covered by usual rooftops as long as they blend harmoniously in the surrounding buildings. New buildings are also incentived to prefer renewable energy .

In 2015 and 2016, 4 schools, 3 kindergartens, 2 stadiums et 1 community centre have been equipped with around 5,000M2 of photovoltaic panels providing a peak-power of 570kW for a global investment of 3.97M€ .

No new installation was delivered in 2017 or 2018.

Jules Ladoumègue Stadium: Rooftop solar pane

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 **€5 m** to the financing of these installations.

Completed:

- Installations completed or at an advanced step;
- No new installation in 2018;
- **€4 m** allocated (80% of the estimated amount);
- **5,000 m2** of solar PV panels with a peak power of **570 kW;**
- **513 MWh per year** produced.

Timetable for the allocation of proceeds since 2015

Installation of solar panels is conducted depending on identification of opportunities, and each time the technical feasibility has been proved. Thus, over the period:

€4 m were funded thanks to Climate bond's proceeds since 2015, which accounts for more than 90**%** of the initial estimated amount for this project.

No allocation of proceeds in 2017 nor 2018.

Evaluation of Climate benefits

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 **5 t.CO2e/year** of grid power consumption.

(see note on methodology at the end of the report)

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/m^2/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 DCPA (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

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.
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.

Environmental Responsibility

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.

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.

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.

4. Strategy for territorial adaptation 2020

30 new hectares of green spaces -S-

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.

The table below displays the surfaces delivered by the end of 2018 (some long-term projects such as Martin Luther King Parc received allocations throughout the period but are not still delivered as a consequence, they are not displayed in the table below)

Delivered in	Location	Surface delivered (ha)	Cumulated Surface delivered (ha)
2015	Jardin des combattants de la Nueve - 4 ème	0,2	
2015	PC13-ZAC de Rungis à rue des Peupliers -13 ème	0,9	
2015	Jardin Charles Trenet -Zac de Rungis -13 ème	0,5	1,87
2015	Place Lourmel-Eglise - 15 ème	0,03	
2015	Jardin Rebière -GPRU Porte Pouchet- 17 ème	0,14	
2015	Halle Pajot Jardin Sud -18 ème	0,1	
2016	Clos des Blancs Manteaux - 4ème	0,1	
2016	Villa Marcès- 11ème	0,02	
2016	Bois de Vincennes -route du lac Daumesnil-Phase 1-12ème	0,64	4,01
2016	Bois de Vincennes -Jardins de l'Ecole du Breuil-12ème	1	
2016	Bois de Vincennes -route du lac Daumesnil-Phase 2 - 12ème	2,25	
2017	Square Alexis Biscarre- 9ème	0,05	
2017	Jardin Yilmaz Güney Rue de l'Echiquier- 10ème	0,1	
2017	Halle Freyssinet-Paris Rive Gauche- 13ème	0,12	
2017	Paul Bourget -Kellermann-13ème	0,1	
2017	Jardin Boucicaut -13ème	0,34	4,35
2017	Parc des Expositions-Phase 1 et 2 -Viparis-15ème	0,4	
2017	Jardin Castagnary -Bessin-15ème	0,13	
2017	Domaine de Longchamp- 16ème	3	
2017	Jardin rue du Soleil -Pixérécourt-20ème	0,11	
2018	Jardin Truillot -11ème	0,5	
2018	Jardin Charcot-Tolbiac-Chevaleret-13ème	0,2	0,7
TOTAL		10,93	

Forecast

- **In addition to 4 ha already delivered in 2014 prior to the issuance of the bond and therefore not reported in this document, 8 ha are expected to be delivered in 2019 as well as an additional 8 ha in 2020. This should bring the total number of ha delivered up to 30ha over the period 2014-2020, in line with our initial target.**

- **Part of a global project aiming at delivering.**

State of progress

10.93 ha delivered since 2015**:**

- ✓ **1.87 ha** in 2015
- ✓ **4.01 ha** in 2016
- ✓ **4.35 ha** in 2017
- ✓ **0.7 ha** in 2018

Sequestration of **108.01 tCO_2** (cumulated from start)

- ✓ **6.88 t** in 2015
- ✓ **21.99 t** in 2016
- ✓ **38.26 t** in 2017
- ✓ **40.88 t** in 2018

(cf. methodological note at the end of the document)

Timetable of proceeds invested since 2015

Global allocation of **€15.5 m** from the Climate Bond's proceeds.
Since the issuance of the bond 100% of the funds spent on that project came from the bond's proceeds.

€8.3 m were allocated in 2018.

Allocation of the Climate Bond's proceeds since 2015

(Data are extracted from Administrative accounts for 2015- 2016-2017-2018)

Evaluation of climate benefit

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

Governance

A Steering committee (COPIL 30 ha) session is conducted at least once a year (twice in 2015) under the authority of the Secretary General, in the presence of the elected representatives. This COPIL is in charge of the governance of the project, during the session, the detailed state of progress of the programme and the provisional schedule of delivery are presented and validated.

The Third COPIL session was conducted in january 2017.

A geographical information system (SIG-V) was developed in order to monitor all the revegetation projects conducted by the Department for Green Spaces and Environment (DEVE) including the "30hectares project".

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.,
- 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

A satisafcation survey is conducted regularly in order to get users' feedback.

Local development and interactions

The DEVE Department is always committed to promote cooperation thanks to the implementation of public meetings that are set up by arrondissements mayors. These meetings are open to all (local associations, individuals, groups …) they give the opportunity to define the best use for new spaces: definition of playgrounds areas (surface, types of games, age groups), paths.

DEVE recently enriched the cooperation process by giving access to an interactive application for the Chapelle Charbon project (18th arrondissement). The site gives users the possibility to take part in the creation of the space planning for the new park.

Through « Participative budget », « planting permits », or « platform for revegetation », City of Paris give citizens the opportunity to bring forward projects which will result in increasing the areas dedicated to green space or to plant surfaces which are part of public space.

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.

4. Strategy for territorial adaptation

2020

20,000 trees -S-

Project description

Planting of 20,000 additional trees over the whole territory of Paris between 2014 and 2020, for an estimated amount of €18 m:

- 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 are identified as biodiversity corridors;
- 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:

- **Around 3,000 trees are expected to be planted in 2019.**

- **Planting more trees within Paris area:**

  - ✓ **20,000** trees
  - ✓ **1,050** hours of social integration work
  - ✓ **14,600** t CO_2 during the lifespan of newly planted trees

Completed:

11,690 trees were planted since the start of the project, allowing global sequestration of **8,530 t.CO_2** over their life span:

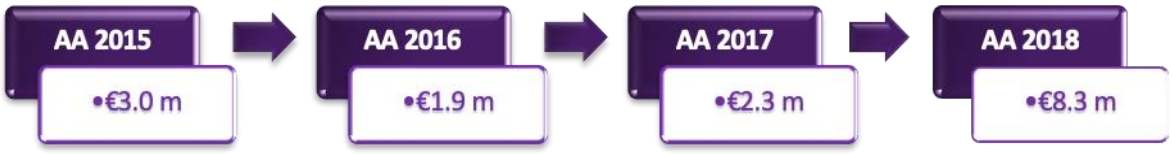
- ✓ **3,343** trees planted in 2018 leading to the sequestration of **2,440 tCO_2** during their life span;
- ✓ **1,826** trees planted in 2017 leading to the sequestration of **1,333 tCO_2** during their life span;
- ✓ **1,500** trees planted in 2016;
- ✓ **700** trees planted in 2015;
- ✓ **4,321** prior to the Bond issue;
- ✓ **415 hours** of social integration work have been carried out during the period (October 2015 – December 2018).

(cf. methodological note at the end of the report)

Timetable for the allocation of proceeds 2015

Allocation of **€4.7 m** from the Climate bond's proceeds corresponding to **31%** of the estimated amount needed for the project.

€1.6 m were allocated in 2018



Allocation of the Climate bond's proceeds since 2015

(Data are extracted from the AA for 2015- 2018)

Evaluation of climate benefit

The **3,343** trees that were planted in 2018 will contribute to the sequestration of **2,440 t CO_2** during their life time.

(*cf*. note on methodology at the end of the document)

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 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)

NOTE ON METHODOLOGY 2020

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 86,500 travellers/day using this extension. The *Observatoire de la mobilité en Île-de-France* (OMNIL) (Mobility Research Centre for Île-de-France)[2] estimates the average number of kilometres covered by tram in the Île-de-France at 2.99 km, giving a potential modal shift of: 94 401 775 **travellers.km/year.**

  According to the calculation methodology of the RATP's 2019 CO_2 information[3], the emission factors relate to the mode of transport operated by RATP:

Bus	95.4 g CO_2e/travellers.km.
Tram	3.10 g CO_2e/travellers.km.

  By digital application, **8,713 t.CO_2e/year could be avoided with the T3 extension.**

  The theoretical computations indicated in the former reporting (2018) have been replaced in this report by computations based on actual number of travellers extracted from survey conducted by IDFM

Projects marked "S" have not been dealt with in this Climate Bond reporting because full allocation of funds has now been reached (€300m). But they are updated in the Sustainability Bond 2019 reporting.

Following projects (marked "NR") : Conversion of the fleet of sanitation vehicles from diesel or gasoline to cleaner energy, Sustainable social housing (HEQ construction, thermal insulation) and Photovoltaic solar panels will not be reported either in the Climate Bond reporting nor the Sustainable Bond reporting since both have already reached funds completion with the selected reported projects.

Conversion of polluting Sanitation Vehicles -NR-

Our evaluation of greenhouse gases reduction is a minimum based only on:

- replacement of diesel-powered garbage trucks by equivalent NGVs
- replacement of diesel-powered sidewalk washers/sweepers by electric sidewalk washers/sweepers.

1 / Garbage Trucks:

The average annual consumption of diesel for a unit is estimated to be around 9,547 **l / year,** equivalent to 95,470 kWh PCi per year.

Diesel / CNG Conversions

Engine type	Annual consumption	Emission Factor used (see table below)	Annual GHG emissions (in kg CO2e / year)	GHG avoided (in kg CO2e per year and per vehicle)

[2] http://www.omnil.fr/spip.php?article119

[3] http://www.ratp.fr/fr/upload/docs/application/pdf/2016-01/information_co2_juin_2015.pdf

Diesel	9 ,547 l	3, 158	30, 149.426	8, 191
GNV	89,224 kWh PCI	246.1	21, 958.026	

Emission factors (from ADEME 's Carbon Database[4])

Road diesel	3.158 kgCO2e / liter
CNG, Compressed Natural Gas for Road Vehicles	246.1 gCO2e / kWh PCI

By digital application, the replacement of a truck should avoid 8.2 tCO2e / year.
- In 2018: 35 units were replaced, generating a global gain of **286.7 tCO2e / year.**

2 / Sidewalk washers/sweepers

The average annual consumption of diesel for a unit is estimated to be around **2,099 L / year in diesel**, equivalent to 20,990 kWh / year.

Diesel / electricity conversion

Type of Engine	Annual consumption	Emission factor used (in gCO2e cf table below)	Annual GHG emissions (in kg CO2e / year)	GHG avoided (in kg CO2e per year per vehicle)
Diesel	2,099 l	3 158	6 628.642	5,910
Electric	20 990 PCI	34.2	717.858	

Emission Factors Used for Sidewalk Washers/sweepers

Diesel	3.158 kgCO2e / l
Electric powered vehicle	34.2 gCO2e / kWh

By digital application, **the replacement of a sidewalk washer/sweeper should avoid 5.91 tCO2e / year.**
- In 2018: 15 units were replaced for a total gain of **88.6 tCO2e / year.**

- **Non-motorized traffic: Cycle paths -S-**
  The gain for cycle paths has been estimated from similar conventional private car traffic, at around **100 t.CO_2/km/year**. Therefore, thanks to 148,5 km of cycle paths realized since 2015, close to **14,850 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 -S-**

[4] https://www.bilans-ges.ademe.fr/en/accueil

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 13/06/2018 [5] and, on the other hand, the shares of diesel and petrol vehicles from INSEE data for January 1 2015[6], as follows:

Average 2014 electricity mix*	0.0647 kgCO2e/kWh.	
Petrol at the pump	0.312 kgCO2e/kWh.	37.6 % of the fleet
Diesel fuel at the pump	0.322 kgCO2e/kWh.	61.6 % of the fleet

** Latest information available in the base*

It is estimated that the **deployment of 90 stations would make it possible to avoid 3,000 t.CO_2/year .**

Reducing energy consumption

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

Calculation of the greenhouse gas emissions avoided is based on energy performance diagnostics (EPD) carried out for each operation financed by the City of Paris.

Taking into account the proper energy mix for each building and the corresponding emission factor ratio, it is estimated that after thermal improvement jobs are completed, they will help save 23,431 tCo2 (thanks to 142,087Mwh/year saved) .

These figures are valid for the global budget allocated by City of Paris on that program i.e. 193M€.

✓ The total amount of Climate Bonds proceeds allocated to this project is 105.1M€ (54.4% of total 193M€).
It is therefore estimated that **12,760 t.CO_2/year** (54.4% of the total amount) will be avoided thanks to Climate Bonds proceeds.

- **Public lighting: Energy Performance Contract (*Marché de Performance énergétique* - MPE) *-S-***

The emission factor retained is from ADEME's (French Ministry of Environment and energy) carbon base, version dated december2018

Electricity for public lighting	0.0644 kgCO_2e/kWh.

This means that the accumulated energy savings of 19,540 MWh have made it possible to avoid 1,258 t.CO2/year

The above calculation is the consequence of applying the ADEME 2018 factor to cumulated improvements performed since 2015.

Using historical ADEME factors for each single year since 2015 would provide a different amount (ie: 4,310*0.091+5,659*0.091+5,310*0.094+4,261*0.0644=1,680 tCO2 out which 274 tCO2 for 2018 only), this explains the discrepancy that arises between the amount displayed and the sum of savings displayed each single year since the first reporting was published.

Production of renewable and waste energy

- **Solar energy: Photovoltaic solar panels *-NR-***

Taking the emission factors from the ADEME's (French Ministry of Environment and energy) carbon base, version dated 13April 2018[7]:

Average 2016 electricity mix*	0.0647 kgCO_2e/kWh.
Photovoltaic electricity	0.055 kgCO_2e/kWh.

** Latest information available in the base*

[5] https://www.data.gouv.fr/fr/datasets/base-carbone/
[6] https://www.insee.fr/fr/statistiques/2045167#tableau-Tableau1
[7] https://www.data.gouv.fr/fr/datasets/base-carbone/

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 5 t.CO_2e/year to be avoided.

Strategy for territorial adaptation

- **30 new hectares of green spaces -S-**

As part of the preparation of Paris area Carbon Assessment, an evaluation method was built in order to include the impact of wooden areas, parks and new green spaces located within Paris' territory.

This work lead to the conclusion that 1 hectare of wooden area had a sequestration capacity of 11 t.CO_2/year and that each hectare of wooden area within Paris territory had 34% of its surface covered by trees. (mainly « Bois de Vincennes » and « Bois de Boulogne »).

As a consequence, each hectare of Paris' parc area has a sequestration capacity of 3.74 tCO_2/year.

The following table displays the historical data for carbon sequestration allowed thanks to the creation of new green spaces for the period 2015-2018.

Year	Number of hectares completed	Cumulated surface	Cumulated amount of tCO2 saved per year
2015	1.87	1.87	6.99
2016	4.01	5.88	21.99
2017	4.35	10.23	38.26
2018	0.7	10.93	40.88
Total			**108.1**

sequestration factor tCO2/ha/year
3.74

- **20,000 trees -S-**

According to the 2006 GIEC Guidelines for National Greenhouse Gas Inventories, Volume 4: Agriculture, Forestry & Other Land Use"[8], the **average sequestration factor for a tree in a temperate zone** is **0.01 tC/year**, i.e. 0.0367 tCO_2/year over its normal maximum growth period of 20 years. The average sequestration capacity of a tree is therefore around **730 kg.CO_2 during its lifespan**.

Under these conditions, the 3,343 trees which have been planted in 2018 will allow the equivalent of 2,440 t.CO_2 to be sequestered during their lifespan.

Thanks to funds allocated from the Climate Bond a total of 7,369 trees have been planted, allowing sequestration of 5,379 t.CO_2 during their 20-year lifespan i.e. 269 t.CO_2/year.

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