

MASSIVE FINANCING OF THE ENERGY TRANSITION



SFTE feasibility study: synthesis report Energy renovation of public buildings

Providing massive finance for the energy transition and reviving the economy while controlling the public debt: this project aims to leverage the state guarantee to unblock massive credit for the energy transition through the creation of the Energy Shift Financing Agency (Société de Financement de la Transition Energétique – SFTE). A feasibility study has been conducted with a view to mobilising between €30bn and €70bn over 10 years and financing the energy renovation of French public buildings under the best possible conditions. It could be done in France as well as in Europe without putting a strain on the public debt.



A.F.T.E.R.

A.F.T.E.R. is the non-profit Association for the Financing of the Ecological Transition and Thermal Renovation (Association pour le Financement de la Transition Écologique et de la Rénovation thermique). It was established in Paris in 2013 to steer the SFTE project. “Faced with the challenges posed by both energy and climate, the Association is determined – by whatever means – to promote the financing of the energy and ecological transition in Europe.” (A.F.T.E.R. Statutes)

Thanks

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We would also like to thank the many specialists who have already agreed to contribute to the work of A.F.T.E.R., with more than 200 experts, stakeholders and officials consulted in France and Europe.





“To dare; that is the price of progress”

Victor Hugo

I.	Summary	2
II.	Background and challenges	4
II.A.	A macroeconomic project that meets the significant needs of the energy transition	4
II.B.	A drastically different economic environment	6
II.C.	Public buildings as a quick, exemplary and formative first step	7
II.D.	Meeting French and European commitments	9
II.E.	Financial situation of local authorities	10
II.F.	Financially viable work representing an untapped potential of €30bn	11
III.	Structure of the scheme	15
III.A.	Nearby schemes in Europe and France	15
III.B.	EPCs as a means of energy performance monitoring and risk allocation	16
III.C.	Key levers for the SFTE project	18
III.D.	Appropriate accounting treatment of energy efficiency projects	20
III.E.	Proposed structure of operations and the guarantee mechanism	22
III.F.	Low level of financial risk for lenders under EPC-PPPs	25
III.G.	Prospective role and structure of the SFTE	26
IV.	Next steps for the SFTE project and proposals	27
IV.A.	Project rollout	27
IV.B.	Establishment of an observatory	28
IV.C.	Active involvement of local political decision-makers	28
IV.D.	Getting Europe involved	28
V.	Conclusion	30
VI.	Annexes	31
VI.A.	Members of the SFTE consortium	31
VI.B.	Work structure	31
VI.C.	Experts and stakeholders	32
VI.D.	Summary note for decision makers – General note	34
VI.E.	Summary note for decision makers – Technical note	36

I. Summary

The Energy Shift Financing Agency (SFTE), under the auspices of A.F.T.E.R., aims to promote a European investment strategy involving a broad partnership between the public and private sectors, breathing new life into the economy through the energy renovation of schools, hospitals and all other public buildings. In France, it aims to unblock between €30bn and €70bn of quality investment over 10 years for the implementation of medium-sized projects (in the order of €1m) considered necessary for the energy and climate transition. This undertaking, involving €3bn to €7bn of operations per year over the next 10 years, would help to address the country's chronic lack of investment in its public buildings, which represent some of its key infrastructure.

Three key scenarios for the energy renovation of public buildings in France

Scenario	Investment over 10 years (€bn)	Energy savings	CO2 gain
Business as usual	10	-10%	-10%
Financially viable	30	-20%	-20%
Ecologically viable	70	-40%	-40%

The SFTE project will help to provide the best possible financing conditions (interest rates and term) for private banks, with state backing, to support the energy renovation of public buildings, first in France and then in Europe, through the involvement of large companies and SMEs. The SFTE will act as a financial institution providing a “state” guarantee to those projects.

Numerous international organisations are now calling for investment programmes or fresh funding for infrastructure (IMF, OECD, G20, EC, EIB, ECB, etc.). Despite this, infrastructure can sometimes seem counter-productive in the context of strategic energy and climate challenges for the European Union. Yet the renovation of public buildings, often disregarded, is one kind of infrastructure project well worth the investment. COP21 also provides France and Europe with the opportunity to launch an ambitious initiative such as this.

A feasibility study has been conducted by A.F.T.E.R. with an exemplary consortium of public and private sector stakeholders¹: local authorities, industry players, banks/financial institutions, NGOs/think tanks and Plan Bâtiment Durable². The implementation of the SFTE project now calls for the full commitment of public authorities. A proactive real-estate policy would contribute significantly to economic recovery and could quickly yield positive results. These quick wins and the ability to largely or entirely “self-fund” renovations through energy savings represent an unparalleled opportunity in the current public investment climate.

Political will

By facilitating the energy renovation of buildings, the SFTE project will bring a number of benefits, whether economic (reducing energy dependence and the trade deficit, creating an industrial cluster of excellence and competitiveness), social (creating jobs), local (involving SMEs), environmental (cutting CO2 emissions) or financial (raising tax revenue and reducing debt), while rising to one of the strategic challenges of European energy and climate policy. The SFTE project builds on the duty of the state and local authorities to meet these challenges and trigger investment in the entire building sector, including housing.

¹ Aquitaine, ARKEA Banque Entreprises et Institutionnels, CDC, Centre, Crédit Agricole, EDF, European Climate Foundation, Fédération Française du Bâtiment, Fondation pour la Nature et l'Homme, GDF SUEZ Energie Services, Groupe BPCE, Landes, Meridiam, Plan Bâtiment Durable, Rhône-Alpes, Schneider Electric, The Shift Project, Vinci.

² Plan Bâtiment Durable is an umbrella organisation for building and real-estate players, attached to the Ministry of Housing and Territorial Equality and the Ministry of Ecology, Sustainable Development and Energy, and is tasked with attaining the energy efficiency targets applicable to the building sector.



Since they represent 45% of energy consumption in France and 25% of CO₂ emissions, buildings (of which public buildings account for 10-15% of total surface area) are a major segment of the energy transition, calling for investment of hundreds of billions of euros. Public buildings alone represent a financially viable (unsubsidised) source of renovation of at least €30bn, i.e. €20bn more than current energy renovation trends³ (which amount to an investment volume of €10bn or less over 10 years).

Critically, commitment at national level (or beyond) should also enable elected representatives to more easily gain political backing for their energy-efficiency projects.

Accounting and financial solutions

Energy renovations often provide a high potential for profitability, but generally not enough to attract massive private financing without some form of innovative mechanism. Better financing conditions – especially for very long-term investments (at least 25 to 30 years and up to 40 years or more) – and a fair accounting treatment of these specific operations outside the scope of public debt are now key requirements in bringing about a change of scale. It would be advisable to apply a specific treatment to certain energy-transition investments when calculating the public debt and deficit within the meaning of EU rules. However, in the absence of any amendment to the Maastricht Treaty, a number of quicker and easier solutions could be implemented. These are discussed below.

At the heart of the scheme, the SFTE would provide a high-quality guarantee (based on its own equity and counter-guaranteed by the state) for commercial bank loans.

Simple, transparent and safe securitisation would facilitate the refinancing of these very long-term loans by institutional investors, the EIB, and eventually directly by the ECB whose policy, as at autumn 2014, is ostensibly moving towards targeted funding of the economy. Economic and industrial levers – including economies of scale and the simplification and wide-scale standardisation of contracts – will need to be used to maximum effect. The SFTE project will also facilitate the contribution of complementary resources (public savings funds in certain countries, such as “le fonds d’épargne” in France).

Our proposal also involves leveraging Energy Performance Contracts (EPCs)⁴, which are very well suited to the investments concerned. EPCs contractualise the performance of the company carrying out the renovation for the customer, in this case a public body. Collectively, these will provide for a commitment by the private sector to genuinely reduce the consumption of fossil fuels by public buildings. EPCs would ensure the successful evaluation of any proactive public real-estate strategy in support of the SFTE project.

Structure of the report

This report sets out the main recommendations of A.F.T.E.R. in the following sections: (i) the project background, which discusses the unparalleled opportunity represented by the energy renovation of public buildings in France and Europe for an investment programme compatible with the current economic climate; (ii) the project financial structure, which details the identified solutions enabling a significant change of scale in the volume of public-building energy renovations: a high-quality guarantee, radical development of EPCs, compatibility with European accounting, long-term refinancing by institutional investors, and so on; (iii) the suggested practical next steps for the project’s implementation, including the full and active involvement of the French public sector, and its rollout to Europe.

³ Expenditure on authority buildings stood at €21bn including tax in 2012 (including new works) (CERC).

⁴ Sometimes called “Energy Savings Performance Contracts” (ESPCs).

II. Background and challenges

The current European economic environment calls for the revival of sufficient public investment, not only to meet the significant needs of the energy transition, but also to effectively revitalise the real economy under today's unprecedented conditions (interest rates are at their lowest for 900 years, for example). Regardless of how the investment is made, the benefits represented by the energy renovation of public buildings far outweigh the cost. Much of the work can be done in a financially viable way (through energy savings) without any need to increase the operating expenses of public authorities. In addition, the SFTE has identified a whole host of socio-economic benefits brought by renovations (jobs, industrial policy and competitiveness, energy independence and exemplary CO₂ reduction with respect to COP21), many of which are measurable.

II.A. A macroeconomic project that meets the significant needs of the energy transition

The SFTE project has a strong macroeconomic dimension, providing for financing of between €30bn and €70bn over 10 years⁵. This general mechanism is applied here to French public buildings but could easily be extended – subject to additional studies – to cover further energy transition needs in both France and Europe, calculated at hundreds of billions of euros. To achieve the EU's carbon targets, the average additional investment required per year between 2011 and 2030 is estimated at €38bn⁶.

It is investment in general which has been weak in Europe. In a document co-signed by France and Germany in early September 2014, both countries remarked that the total level of investment within the Union was still 15% lower than it had been before the crisis. The two countries reiterated the need to “return to a sufficient level of public investment”⁷. Numerous institutions have underlined the need to revive public investment, including in the euro zone (IMF⁸, OECD⁹, G20¹⁰, EC¹¹, EIB¹², ECB¹³, etc.).

In France, for the entire energy transition, the investment required between now and 2050 is estimated at €2,000bn¹⁴. Around half of that is accounted for by the renovation of buildings and housing, with the Agency for the Environment and Energy Management (ADEME) calculating investment needs at €30bn/year, well above current investment of €20bn/year (including €6bn for the tertiary sector as a whole)¹⁵, which is liable to fall in the years to come.

At the European Union level, the need for investment has been estimated at around €600bn between 2012 and 2020¹⁶. According to our estimates for the energy renovation of only public buildings in Europe, investing €180bn would serve to reduce the energy consumption and CO₂ emissions of those buildings by 20%, while investing €420bn would reduce CO₂ emissions by 40%.

Energy transition projects are now a priority. Among these major initiatives, the energy renovation of buildings has the advantage of being a less sensitive area than power generation and creating more jobs than public works. A number of factors make the energy renovation of buildings a public policy priority in our eyes, not least its valuable socio-economic benefits:

5 Volume to be viewed in the context of current investment trends estimated at €1bn per year (approximate figure owing to lack of data).

6 [Questions and answers on 2030 framework on climate and energy](#). 2014.

7 Les Echos. [Investissements: Paris et Berlin d'accord pour que la EIB prenne plus de risques](#). September 2014.

8 IMF. [The Time Is Right for an Infrastructure Push](#). September 2014.

9 OECD. [OECD Green Investment Financing Forum](#). June 2014.

10 G20. [Policy Note – Increasing investment in infrastructure](#). August 2014.

11 Reuters. [EU's Juncker calls for 300 bn euro investment programme](#). July 2014.

12 EIB. [More EIB support for infrastructure, innovation and SMEs in Europe](#). September 2014.

13 Wall Street Journal. [Draghi Urges Eurozone Governments to Increase Investment Efforts](#). September 2014.

14 DNTE. [Synthèse des travaux du débat national sur la transition énergétique de la France](#). 2013.

15 DNTE. [Quels coûts, quels bénéfices et quel financement de la transition énergétique ? Scénario EFF](#). 2013.

16 Ecorys. [The Energy Efficiency Investment Potential for the Building Environment](#). 2012.

- A project which does not exacerbate the budget deficit and which, indirectly, is likely to contribute to its recovery (economic activity and tax revenue, reduction in energy consumption, meaning lower operating costs).
- A recovery plan that yields results much more quickly than in housing or other energy transition projects, with decisions made by a limited number of political and administrative stakeholders. This provides the state with an additional political and economic tool for achieving quick wins. It should also be noted that public buildings are usually owned rather than rented, and are generally occupied for a long time, further facilitating operations.
- The potential to create local jobs (including through SMEs), estimated at 15 jobs/year per million euros invested in projects, i.e. 45,000 jobs for €3bn (over the investment year).
- A significant impact on the trade deficit. French energy imports stood at €65bn in 2013¹⁷, while in Europe fossil energy imports account for more than €1bn per day.
- A contribution to the energy dependence reduction targets of European countries¹⁸. France imports approximately 50% of its energy and the share accounted for by gas and oil heating is relatively high in public buildings¹⁹. In addition, the EU imports more than 50% of its energy (including 65% of its gas and 90% of its oil), and its imports from Russia represent approximately 25% of its gas consumption and 30% of its oil consumption²⁰.
- The development of industrial excellence clusters which could potentially boost exports. The SFTE project is likely to lead to the emergence of French and European industrial leaders with exportable technology and skills²¹.
- The duty of the state to lead by example through its contribution to lowering CO2 emissions²²: local, national, European and international exemplarity (COP 2015).
- Mitigated rebound effect (compared to residential dwellings²³).

According to ADEME²⁴, only around half of municipalities²⁵ have at least one investment project (56%) or services project (45%) geared towards improving the energy efficiency of their buildings over the next two or three years. The number of municipalities to have rolled out energy efficiency actions between 2005 and 2012 is also relatively low, and those actions by no means covered the entire building stock. Only 20% of municipalities claim to have replaced or insulated the doors and windows or renovated the boiler rooms of most of their buildings. This information demonstrates the lack of current investment in the energy renovation of public buildings.

The SFTE project is thus a practical response to a need for vast long-term financing in Europe (see Green Paper²⁶ of the European Commission). Despite its challenges, we believe that the project could be replicated in other EU countries, and in the case of many of its proposals and mechanisms, in any country intending to implement an ambitious plan for the energy renovation of its public buildings.

17 CGDD. [Bilan énergétique de la France pour 2013](#). July 2014.

18 See the results of the gas resilience tests conducted by the European Commission: European Commission. [Communication on the short term resilience of the European gas system – Preparedness for a possible disruption of supplies from the East during the fall and winter of 2014/2015](#). October 2014.

18 Gas and fuel oil account for 50% of total energy consumption and 70% of heating and hot water consumption. Exposure to fossil energy is also higher in the public services sector than in residential buildings where gas and fuel oil are used in 58% of dwellings for heating excluding domestic hot water (respectively 44% and 14%) and in 47% of dwellings for domestic hot water (respectively 38% and 9%).

20 European Commission. [European Energy Security Strategy](#).

21 The SFTE project could also be an industrial political tool for the wood-energy sector, and could potentially promote the rollout of district heating in France.

22 Duty to lead by example recently reiterated by the National Debate on the Energy Transition, the National Assembly and the Senate (Parliamentary Office for Science and Technology Assessment - OPECST), the European Union (Energy Efficiency Directive) and the Court of Auditors (Cour des comptes), referring to the climate and energy package and the gap to be bridged for the “model state” policy. Court of Auditors. [La mise en œuvre par la France du paquet énergie-climat](#). January 2014.

23 Due to some energy-poor households being heated to below their comfort level, the reduction in energy consumption (in kWh) achieved by improving the energy performance of dwellings could be offset by an increase in heating temperature. This rebound effect can also be seen in wealthier households. In the tertiary sector the temperature can be controlled professionally based on the relevant rules and regulations.

24 ADEME. 2012 survey. [Energie et Patrimoine Communal](#). June 2014.

25 Municipalities of France with more than 500 inhabitants, excluding Paris-Lyon-Marseilles

26 European Commission. [Green Paper on the long-term financing of the European economy](#). 2013.

II.B. A drastically different economic environment

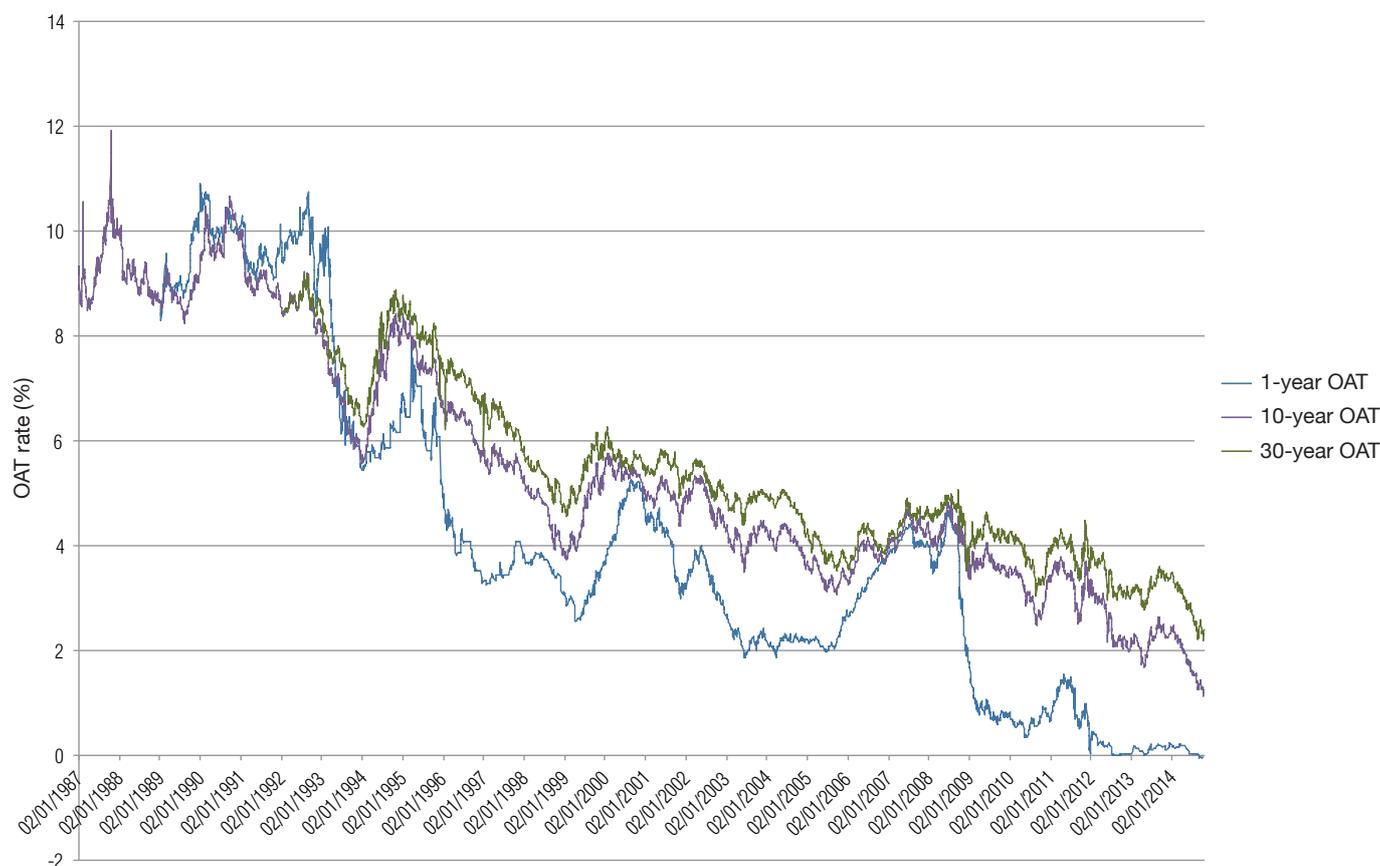
Capitalising on extremely low very long-term rates

The economic environment has changed drastically in the past year. Inflation is at a historic low and interest rates have also reached unprecedented levels, including in the long and very long term. The ECB is rolling out a programme to promote the massive financing of the “real economy”. Yet the euro zone is still experiencing considerable contraction in bank lending²⁷ and a serious shortfall in long-term investment. Cost-containment measures taken to control public deficits are seriously affecting the economy and, in the long term, could result in a significant contraction in public infrastructure investment.

No measures have been taken to alleviate financial regulation and promote very long-term investment. While the more stringent requirements of Basel III are mitigating the risk of systemic shock, they are also significantly restricting the financing capacity of banks, especially in the very long term²⁸. Insurers are also being subject to constraints under the strengthening of the prudential framework through Solvency II, which does very little to promote very long-term financing, especially of infrastructure. Yet the current low rates are particularly conducive to the development and very long-term financing of infrastructure projects.

Trends for 1, 10 and 30-year OATs in France between 2 January 1987 and 24 October 2014

Source: [Banque de France](#)



27 Between the first quarter (Q1) of 2012 and Q1 2014, outstanding (domestic) bank loans to the private non-financial sector in the euro zone fell by approximately 4% following an increase of 2% between Q1 2010 and Q1 2012. In France, credit outstanding remained relatively stable (+2% between Q1 2012 and Q1 2014) following a sharp rise between Q1 2010 and Q1 2012 (+9%). Source: BFI. [Dataset: BIS Credit to non-financial private sector.](#)

28 The tightening of prudential regulations under the Basel III accord has led to an increase in the capital needs of European banks, as well as the establishment of a “leverage ratio” and liquidity ratio, thereby further hindering long-term financing.

Macroeconomic dimension of the project

The macroeconomic dimension of the SFTE project is a key factor in the context of the deflationary risks identified in late 2013 in the euro area, resulting largely from the energy crisis at the start of this century which saw the price of oil rise sharply between 1998 and 2007, and which contributed to the global economic downturn. Alongside other more or less targeted stimulus projects with far-reaching or indirect impact (e.g. certain fiscal policies or, as of September 2014, the ECB's "Targeted LTRO"²⁹ for businesses and individuals excluding loans to households for house purchase), a global and massive plan for energy-saving initiatives would be a very valuable tool indeed for rapid and controlled economic recovery.

The development of energy renovations would also seem particularly appropriate in a context where the "correlation" between GDP and energy consumption is increasingly well documented. According to economist Gaël Giraud, the sensitivity of per capita GDP to energy consumption is more than 60%³⁰. This underlines the importance of the macroeconomic aspect of energy-efficiency projects.

If the restrictions of the Maastricht Treaty were to be lifted as a matter of urgency, e.g. for the €300bn three-year investment plan announced by President Juncker, a number of other A.F.T.E.R. proposals would also prove pertinent. As 2014 draws to an end, the time is right for public authorities to take prompt and meaningful action.

***N.B.** While a potential of €180bn (minimum) of work may seem limited for the EU, the SFTE project could be extended to the broader public sector, private services sector or any other energy-transition industry.*

II.C. Public buildings as a quick, exemplary and formative first step

By focusing on public buildings (excluding social housing), the SFTE project has opted for an area which, while overlooked, poorly researched and accounting for only 10-15% of total surface area, nevertheless holds proven potential for energy-efficiency gains. It is also overlooked in Europe, probably due to: (1) the very diverse roles and backgrounds of public buildings; and (2) the limited capacity and motivation of public authorities to carry out renovations at present.

As a case in point, 30% of French towns with populations of more than 100,000 know very little about their real-estate assets, and this figure increases to 60% for towns with 10,000 to 30,000 inhabitants³¹. Many municipalities do not monitor the energy consumption of their buildings. The SFTE has mapped public service buildings in greater detail to help analyse the improvement areas concerned, drawing a distinction between various work "packages" based on cost and energy performance targets: smaller packages generally focusing on controls or equipment; larger packages necessarily involving work on buildings' envelopes. While energy renovation projects clearly provide diminishing returns, it should be borne in mind that the targets enshrined in the law on the energy transition and the green economy can only be attained if more extensive works are carried out.

The 335 million m² accounted for by public service buildings covers a broad range of properties, usages and stakeholders, although some segments are larger than others (education, municipal buildings, etc.). The annual energy consumption of public buildings stands at 70 TWh, equivalent to the transport capacity of around 60 Aframax oil tankers, and their CO₂ emissions stand at 12m tonnes (3% of French emissions).

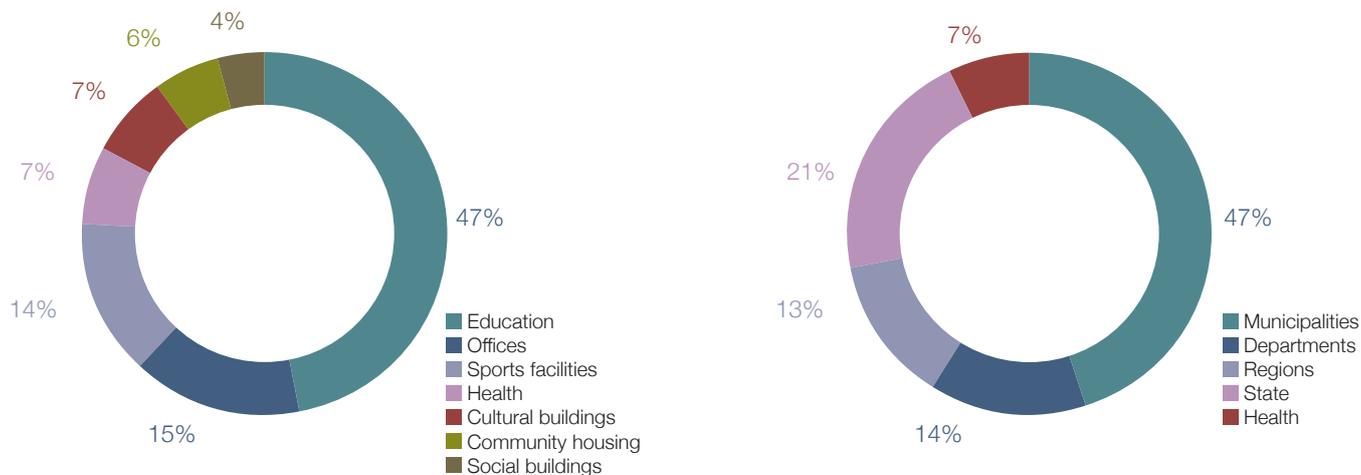
²⁹ "Long-term refinancing operation": long-term loans (4 years) granted to banks by the European Central Bank.

³⁰ Giraud, Gaël. Oil Man. « [Le vrai rôle de l'énergie va obliger les économistes à changer de dogme](#) ». April 2014.

³¹ Sources: ECODEFI study n°22, Groupe Caisse d'épargne, 2005; Scientific and Technical Centre for Building (CSTB). Connaissance du patrimoine immobilier des collectivités locales. Responsible person: Aurélien Chazel. Customer: Department of Housing, Urban Planning and Landscape (DHUP). April 2013.

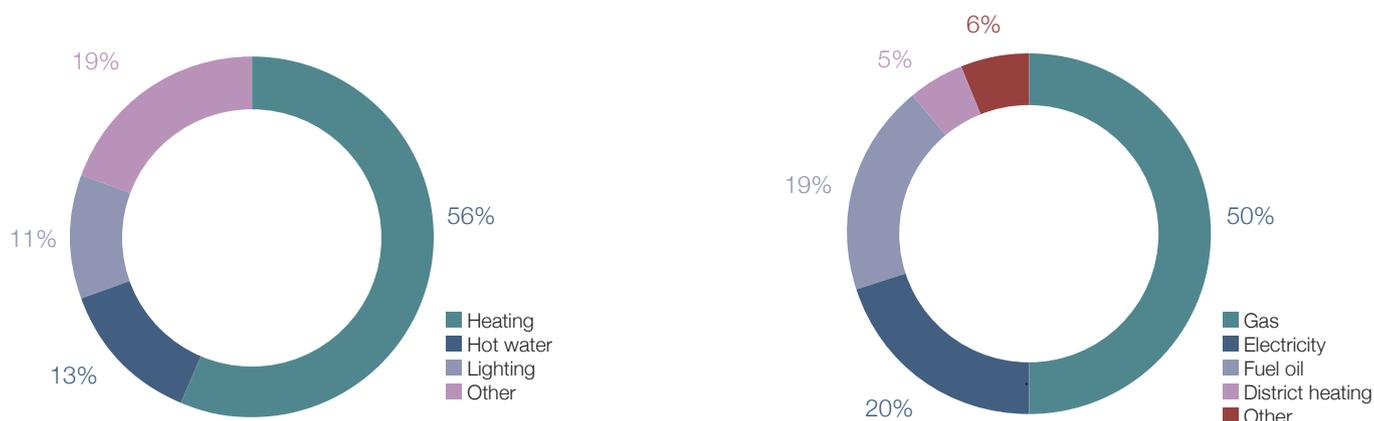
Surface area of public service buildings by sector (left) and stakeholder (right)

Sources: Carbone 4, A.F.T.E.R.



Final energy consumption of public buildings by usage (left) and heating energy (right)

Sources: Carbone 4, A.F.T.E.R.



Untapped potential

The renovation potential of public buildings remains largely untapped and the demand for works low. This calls for action by public authorities, since:

- budgetary and accounting constraints are weighing heavily on projects and their “conventional” financing mechanisms;
- the situation directly concerns the state and perhaps increasingly so the local public sector, given the partial and gradual erosion of its decision-making autonomy;
- project financing mechanisms are currently ill suited to operations of this kind: in Europe, the relatively small segment represented by social infrastructure projects (buildings) chiefly concerns new constructions and very rarely renovations which deserve greater consideration;
- energy renovation projects are unique in their limited scope, in the order of €1m;
- needs are poorly structured and identified, and often overlooked during decision-making processes due to the sheer volume of obligatory work to be undertaken (security, accessibility, health and safety, conservation, asbestos removal, etc.);
- projects are not valued highly enough in political terms;
- any such action must go hand in hand with a long-term real estate strategy : it musn't be constrained by the limited organisational and project management capacities of public authorities, but must ensure a clear strategy for the management and oversight of public buildings;

- if such a proactive public real estate policy (and further public policies for other vital energy transition projects) were ultimately implemented, current financing capacities would not be great enough to cover the amounts involved, calling for innovation. In other words, existing financing mechanisms only cover current operations because demand is too low.

A.F.T.E.R. is calling for a proactive real-estate policy. As we will see below (III.B), Energy Performance Contracting (EPC) in privately financed or “conventional” public projects would be a potentially valuable component of any such proactive public policy for the energy renovation of public buildings (it is also used in the private sector). Its main benefit is that it provides a quantified measurement of the energy efficiency of a project, both before it begins and for its entire duration. Its mass use would therefore ensure the overall efficiency and exemplarity of public investment.

II.D. Meeting French and European commitments

France: ambitious targets renewed, but not restricted

Some ambitious targets have been set at the national level to improve French energy efficiency and cut greenhouse gas emissions.

In 2005, the POPE Law paved the way for the long-term national objective to quarter CO₂ emissions by 2050. In the shorter term, under the Grenelle I Law, the state set itself the objective of reducing the energy consumption of the existing building stock by at least 38% by 2020. For state buildings and public institutions, the aim is to reduce energy consumption by 40% and greenhouse gas emissions by at least 50% between 2012 and 2020. The state also committed to inciting local authorities to achieve the same targets.

France ultimately set itself a key target by enshrining the obligation for the energy renovation of service sector buildings in the Grenelle II Law of 12 July 2010³² (Decree not yet published following the proposals set out in the report of the working group led by Maurice Gauchot of Plan Bâtiment Durable³³).

Very recently, the energy transition bill for green growth set a target to reduce final energy consumption by 20% by 2030 (versus 2012), and 50% by 2050³⁴. For buildings and dwellings, the bill sets the objective of “renovating the entire building stock in accordance with ‘low consumption building’ or similar standards by 2050 [...]”. It also contains provisions for the establishment of “the 2050 national strategy to mobilise investment for the benefit of energy management in the national public building stock [...]”.

Europe: CO₂ and energy independence

The entire European Union has committed to extremely ambitious reduction targets as regards its energy consumption and greenhouse gas emissions. By 2050 it aims to reduce its greenhouse gas emissions by 80% compared with 1990, including the extensive rollout of energy efficiency gains in buildings (approximately -90% or more in residential and service sector buildings). The target for 2020 is to reduce greenhouse gas emissions by 20% compared with 1990, and for 2030 the binding target adopted by the European Council is -40%³⁵.

For 2020 Europe aims to reduce its energy consumption by 20% compared with an initial baseline scenario. Whether this target will be achieved is unclear and would require significant additional efforts. In October 2014, the European Council set an indicative target for a gain of at least 27% in EU energy efficiency by 2030³⁶. The Ukraine crisis has also underlined the need for action on the part of the EU to improve its energy independence.

³² Article 3: “Work to improve energy performance shall be carried out in existing service sector buildings or buildings in which a public service is provided, within eight years of 1 January 2012. A Council of State Decree shall determine the nature and terms of this work obligation [...]”

³³ Plan Bâtiment Durable. [Recommandations relatives à la rédaction du décret organisant l’obligation de travaux de rénovation énergétique dans le parc tertiaire entre 2012 et 2020](#). Final report of the working group led by Maurice Gauchot. November 2011.

³⁴ National Assembly. [Projet de loi relatif à la transition énergétique pour la croissance verte](#). Version of 14 October 2014.

³⁵ European Council. [European Council Conclusions of 23 and 24 October 2014](#). October 2014.

³⁶ European Council. [European Council Conclusions of 23 and 24 October 2014](#). October 2014. Target corresponding to maximum consumption of 1,350m toe of primary energy in 2030, compared with more than 1,550m toe in 2013.

Although the proposals for action focus primarily on supplier diversification and storage and network facilities, the need for proactive policies to reduce the energy consumption of the Member States is now beyond doubt.

The European Union explicitly underlined the exemplary role to be played by the buildings of public bodies within the framework of the 2012/27/EU Energy Efficiency Directive (EED), calling for the formation of a national strategy and tailored financing mechanisms.

II.E. Financial situation of local authorities

Local authorities currently account for around 70% of public investment made in France³⁷. The financial situations of the different authorities vary somewhat, which can influence their investment capacity. But public finances are most notably affected by the austerity plan presented by the French government in April 2014, which targets a €50bn cut in public spending between 2015 and 2017. Of this, €18bn applies to the state and €11bn per year to local authorities. By way of comparison, the current income of local authorities stood at around €212bn in 2013, of which state grants accounted for €52bn (estimate of La Banque Postale³⁸). The investment expenditure of local authorities amounted to approximately €55bn in 2013, but a lack of grants will adversely affect the investment capacity of local authorities, especially given the apparent rise in management costs.

Volume of energy renovation operations in the public sector

Ongoing operations on the entire public building stock are estimated at several hundred million euros. These figures are extremely difficult to verify, since energy renovation works are not recorded as such – probably precisely due to the low volume of operations. A.F.T.E.R. estimates the figure at over €500m per year but almost certainly under €1,500m. Let us say €1bn, probably an overestimate of the actual volume.

Forecast volume of energy renovation operations

Based on a reduction of €10bn in state grants by 2017, La Banque Postale calculated three scenarios forecasting the impact on local investment between 2015 and 2017. Even the most optimistic of these predicts a significant drop of 8% in investment by local authorities in 2017 compared with 2014. The most pessimistic scenario forecasts a 34% decrease.

Impact scenarios on local investment according to La Banque Postale (all authorities)

Source: Fédération Nationale des Travaux Publics. [Baisse des dotations aux collectivités : Quel impact pour les Travaux Publics ?](#) May 2014.

	2014 investment (€bn)	2017 investment (€bn)	% change
Optimistic scenario	52,4	48,1	-8,2%
Baseline scenario	52,4	41,2	-21,4%
Pessimistic scenario	52,4	34,7	-33,8%

ARKEA Banque E&I and the Forum pour la Gestion des Villes have estimated that the fall in the level of savings of major local authorities will result in “a sharp fall in investment expenditure, especially municipal investment”³⁹.

37 Vie Publique. [Quel est le rôle des collectivités territoriales en matière d'investissement public ?](#) June 2013.

38 La Banque Postale. [Note de conjoncture – Les finances locales – Tendances 2014](#). April 2014.

39 Arkéa Banque Entreprises et Institutionnels. [Les tendances financières 2014 des grandes collectivités locales](#). June 2014.

It is possible (but far from certain given the generally pessimistic, wait-and-see attitude in France and the ever-decreasing appetite for any kind of tax rise) that some local authorities will go into debt to partially offset the decrease in state grants. Financing opportunities may seem abundant (BPCE, ARKEA Banque E&I, Crédit Agricole, La Banque Postale, EIB, CDC, l'Agence France Locale, bond issues, etc.), and supply may even appear to outstrip demand, but these sources of funding would not be enough to cover the huge rise in the number of projects under the stimulus plan recommended by A.F.T.E.R. If the volume of operations were consistent with France's economic challenges and ecological commitments, the question is whether the banks would have the resources to finance those projects, especially if they had to meet the needs of the energy transition for other long-term investment funding solutions.

Pending a major breakthrough like that proposed by the SFTE, the increased use of le fonds d'épargne (French public savings funds) should enable a gradual and moderate growth in the volume of energy renovation projects, that is, without the additional contribution of public project management or the implementation of a national real-estate strategy.

II.F. Financially viable work representing an untapped potential of €30bn

Energy expenditure by the public sector on its buildings

Given the pressure on public finances, one major motivation for the state and local elected representatives to carry out work on public buildings could be the savings associated with such investments. For municipalities, for example, energy expenditure represented approximately 4.5% of operating expenses in 2012⁴⁰, and that share is likely to rise sharply. In absolute terms, the energy expenditure of municipalities alone has risen from under €2bn in 2002 to approximately €3bn in 2012. Municipal energy expenditure has also grown in profile in recent years due to rising energy prices, as evidenced by ADEME surveys published in 2007 and 2012⁴¹. Municipal energy expenditure chiefly concerns buildings (75%) and public lighting (20%).

In 2012, expenditure relating to the energy consumption of state buildings accounted for between €600m and €750m⁴², largely within the Ministry of Defence.

Financially viable operations

Studies by the IEA⁴³, McKinsey⁴⁴ and the European Commission⁴⁵ have demonstrated a very high and as yet untapped potential for financially viable energy savings in the building sector. This applies in particular to public buildings in France.

To identify potential areas for renovation in more detail, A.F.T.E.R. used a tool to model the financial viability of public building energy renovations. The assumptions below were modelled on the reference scenario:

- Three work packages (gains below in final energy and based on thermal usage):

Package	Gain	Cost in €/m ² ⁴⁶	Amortisation
Package 1	-25%	50-100	15 years
Package 2	-45%	150-200	30 years
Package 3	-70%	350-500	30 years

40 Public Finances Directorate General (DGFiP). [Base des données comptables des collectivités et établissements publics locaux](#).

41 ADEME. 2012 survey. [Energie et Patrimoine Communal](#). June 2014.

42 Sources: (i) [République Française. Document de Politique Transversale \(DPT\) – Projet de Loi de Finances pour 2014. Politique Immobilière de l'Etat](#). Expenditure as stated by programme officers. 2013. The Cross-cutting Policy Document (DPT) stipulates: "The findings of this analysis should be interpreted with due regard for their declarative nature and the chosen estimate methodology." (ii) IFORE. Patrick Soler, Eric Dime, Christophe Huet. Journée d'échanges: L'efficacité énergétique des bâtiments de l'Etat. 6. Libéralisation des marchés. 19 March 2014.

43 IEA. [World Energy Outlook 2012](#). November 2012.

44 McKinsey. [Resource revolution: Meeting the world's energy, materials, food, and water needs](#). November 2011.

45 European Commission. [Consultation – Financial Support for Energy Efficiency in Buildings](#). February 2012.

46 Bands for cost according to segment of activity (schools, health, sport, offices, etc.).

- Doubling of energy prices over 20 years (+3.5%/year), followed by an increase of 1%/year for subsequent years.
- Minimum project IRR of 3%: we decided not to lower the IRR any further, despite a sharp fall in interest rates over the past year.
- No change in package cost (productivity gain); no subsidies; no additional costs (non-energy related work at 0%: asbestos, health and safety, etc.).
- Increase in financially viable potential over the relevant 10-year period taken into account.

These conservative assumptions were used to estimate financially viable potential at approximately €30bn over 10 years for 150 million m² (around half the total surface area). Most of the surface area is renovated under Package 2 and accounts for around 80% of total investment. The reference scenario delivers energy and CO₂ gains of 20%.

Key results of the reference scenario over the 2015-2025 period

Sources: Carbone 4, A.F.T.E.R.

		Reference scenario
Total m2 renovated	Mm²	150
% of building stock renovated	%	45%
Total annual sum of renovations	€bn	3.0
Total sum of renovations	€bn	30
Energy gains	TWh	14
Energy gains	%	-19%
Electricity	%	-24%
Gas	%	-8%
Fuel oil	%	-31%
CO₂ gains	MtCO₂	2.3
CO ₂ gains	%	-19%

Six alternative scenarios were modelled using the following assumptions:

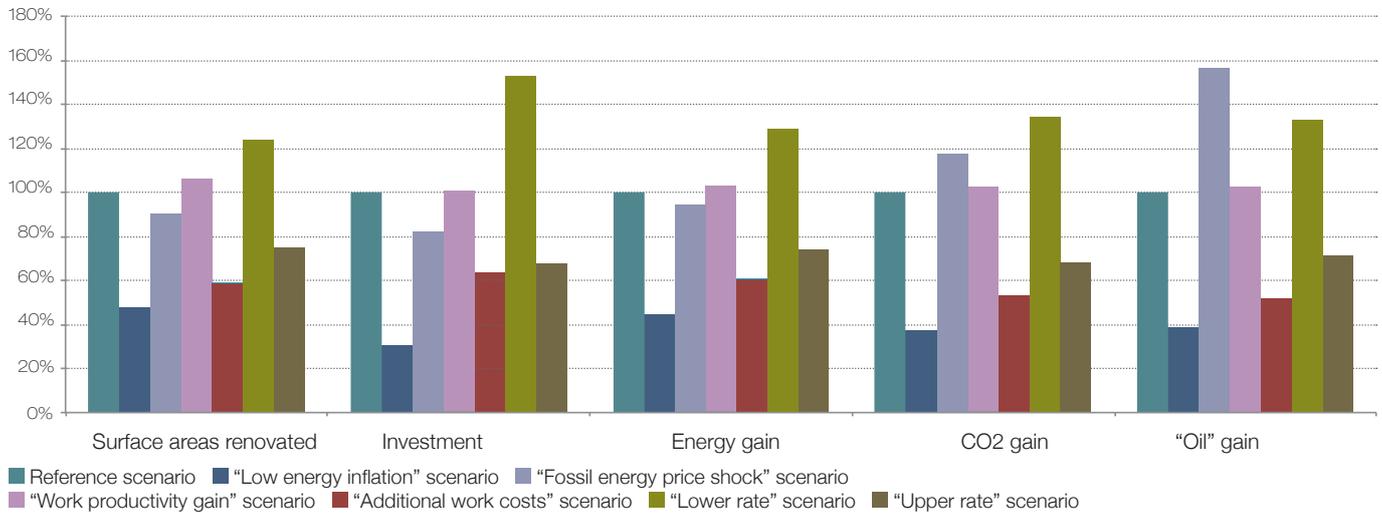
- low energy inflation: +1%/year for all energies;
- fossil energy price shock: doubling of fossil energy prices by 2020 (+10%/year) and +1%/year thereafter; +1%/year for electricity;
- productivity gain on work: yield increases for a given package cost;
- additional work costs: additional cost of 33% (added costs due to a significant non-energy share of works (see below));
- lower rate: minimum IRR of 0.25%;
- upper rate: minimum IRR of 4%.

The scenario results are detailed below for the reference scenario.

Impact summary of the various sensitivity scenarios tested for 2015-2025

Sources: Carbone 4, A.F.T.E.R.

Relative position of the various scenarios by indicator (reference scenario = 100%)



Remarks:

- the 'lower rate' scenario is naturally the one in which all indicators are most favourable;
- the 'low energy inflation' scenario is the one which hinders the programme the most;
- depending on the given objective, some scenarios may deliver specific benefits (e.g. the 'fossil energy price shock' scenario enables better reduction of CO2 emissions and substitution of fuel oil).

The incentive of a given energy renovation project is made greater by a range of key variables as modelled in our study, such as: energy price rises, which could be very significant⁴⁷; amortisation term (potentially 30 years or more⁴⁸); energy-saving certificates; any European subsidies (FEDER, ELENA...); and the share of non-energy works (standards, etc.).

The effects of deferrals – on work durations – and progressive annuities accompanying rising energy and carbon prices were also simulated by A.F.T.E.R.

Share of non-energy work in renovation projects

Although partially offset by productivity gains, new standards governing a range of factors (asbestos, health and safety, accessibility, noise, historic buildings, etc.) have played a significant role in rising construction costs over the past 10 to 15 years. According to the French Building Federation (FFB)⁴⁹ (in 2013): "the general integration of all identified regulatory factors has led to an 80-90% increase in costs since 2000 [...]". Many standards make renovation work obligatory, although no such obligation exists for energy and climate performance (see II.D).

⁴⁷ Potential rise of 50% in the price of gas according to European Commission forecasts between 2010 and 2020, corresponding to an average annual growth rate of more than 4%. European Commission, [Energy prices and costs report](#), 2014. Rise of 5% per year in the actual price of oil forecast by the OECD in 2013. OECD, [The Price of Oil – Will it Start Rising Again?](#) March 2013.

⁴⁸ A longer amortisation term is probable, especially for operations geared towards high energy efficiency gains in so far as they necessarily involve work on the building.

⁴⁹ FFB, [Analyse de l'évolution comparée des prix et des coûts dans le bâtiment – Préconisations en matière de simplifications réglementaires](#). July 2013.

Benefit of bundling energy projects with renovations

Strong ambitions in the area of non-energy work could limit opportunities for a radical change of scale in the volume of operations, given current budgetary constraints. However, some non-energy operations could prove desirable beyond the most obvious needs. It would be particularly beneficial to more systematically “bundle”⁵⁰ energy performance with non-energy renovations already being carried out.

Ecologically viable operations

A.F.T.E.R. has also modelled the effort required to achieve the targets set under the Grenelle Law, not affected by the energy transition bill for green growth (40% reduction in energy consumption), while postponing their attainment from 2020 to 2025. Based on the energy price assumptions of the reference scenario, and bearing in mind that no price was given for CO₂ reductions (a carbon tax may be indicative for local authorities, but is overall irrelevant for public authorities), it will be necessary to:

- set the minimum IRR target at -3%;
- renovate 235 Mm² under package 2 and 31 Mm² under package 3;
- accordingly, invest €7bn/year over 10 years.

N.B. *Another option would be to carry out only package 3 renovations (ambitious efficiency gain of 70%) with a minimum IRR of -0.5%, renovation of 155 Mm², and €7.5bn of annual investment.*

N.B. *The report of Alain Quinet⁵¹ on the shadow price of carbon recommended that any calculation of the socio-economic benefits of public investment should include a rising carbon value, set at €32 per tonne of CO₂ in 2010 and rising to €100 per tonne by 2030. This value would enable the negative effects of CO₂ emissions to be integrated into any cost-benefit analysis from the perspective of the state as a supposed representative of the general interest. While this value would by no means equate to cash flow, the use of such shadow prices is widespread in public economic calculations, e.g. to ascertain the value of time savings when calculating the socio-economic benefit of transport infrastructure. In our case, including the log of carbon values from Alain Quinet’s report in our calculations causes a 5% increase in the financially viable potential of investments and surface areas. Note, however, that these values remain low due to the low incentive level of current and future shadow carbon values.*

Achieving the Grenelle Law target will require an investment of €70bn. Aside from the legal basis of this target, there are a number of other potential reasons for public authorities to take action beyond what is strictly financially viable (€30bn):

- integration of energy efficiency projects into operations which are not entirely financially viable (“bundled” projects);
- financially offsetting operations which are not entirely profitable against largely profitable operations;
- other socio-economic benefits referred to above.

⁵⁰ [The energy transition bill for green growth](#), adopted on first reading by the National Assembly on 14 October 2014: “A Council of State Decree determines: 1. the energy and environmental characteristics and energy and environmental performance [...] of buildings or existing parts thereof subject to major renovation works [...]”

⁵¹ Strategic Analysis Centre. [La valeur tutélaire du carbone – Rapport de la commission présidée par Alain Quinet](#). March 2009.

III. Structure of the scheme

Earlier we looked at how public budget constraints served as a barrier to energy renovation projects, and how those constraints are likely to increase over the next four years (e.g. with a reduction of state grants to local governments of some €12.5bn/year in France).

Very long-term private loans will be needed to fund these public works projects repayable over very long periods.

A “state guarantee” would thus help to reassure those very long-term investors.

This is the crux of the project: the SFTE is the prospective financial institution providing that “state guarantee” for any such long-term funding.

- (1) We will see first of all that energy performance contract (EPCs) can be used to devise complex long-term projects (III.B.).
- (2) The central proposal of A.F.T.E.R. involves the use of the state’s endorsement to guarantee private financing of such public projects via the SFTE (III.C.), without any direct impact on debt thanks to specific vehicles enabling an appropriate accounting treatment tailored to the actual risks borne (III.D.).
- (3) EPCs can be integrated into any such public infrastructure funding under EPC-PPPs, with private project companies or local public companies (III.D.), such infrastructure projects having an intrinsically low risk profile (III.F.).
- (4) Such very long-term EPC-PPP funding by banks should and could be securitised and refinanced with international investors under the SFTE guarantee (III.E.).
- (5) Since infrastructure funding of this kind is intrinsically and deliberately low risk, the SFTE guarantee should have little impact on the balance sheet and off-balance sheet of the state. (III.F.).

III.A. Nearby schemes in Europe and France

The SFTE project is based on state-guaranteed finance mechanisms either successfully rolled out already or under development, including:

- KfW Bank, which has at its disposal a balance sheet of approximately €500bn guaranteed by the German state, and is particularly active in financing the energy transition with significant sums and robust *ex ante* and *ex post* control mechanisms, without direct impact on the public debt⁵²;
- the UK Guarantees Scheme for Infrastructure Projects rolled out in 2012 and providing £40bn of financial guarantees for infrastructure projects in the UK⁵³.

Several other European schemes are already leveraging national or European public guarantees as a risk-sharing and credit-stimulus instrument: Private Financing for Energy Efficiency (PF4EE, a European pilot programme); Project Bonds Initiative (EIB loans or guarantees facilitating the involvement of institutional investors); Sections 1703 and 1705 of the Loan Program in the United States (guarantee scheme set up in 2005 to facilitate the funding of energy transition infrastructure).

Some existing schemes also focus on public buildings, including under EPCs (RE:FIT and Salix Finance in the UK, Fedesco in Belgium and certain KfW businesses). However, these account for relatively little investment at present.

⁵² KfW Bank is actually a financial intermediary assuming risk on the basis of its own equity within the meaning of Eurostat, and the public guarantee it receives is not consolidated as public debt (see below for details on the Eurostat methodology).

⁵³ Infrastructure UK and HM Treasury. Policy paper. [UK Guarantees scheme key documents](#). 2013.

III.B. EPCs as a means of energy performance monitoring and risk allocation

Definition

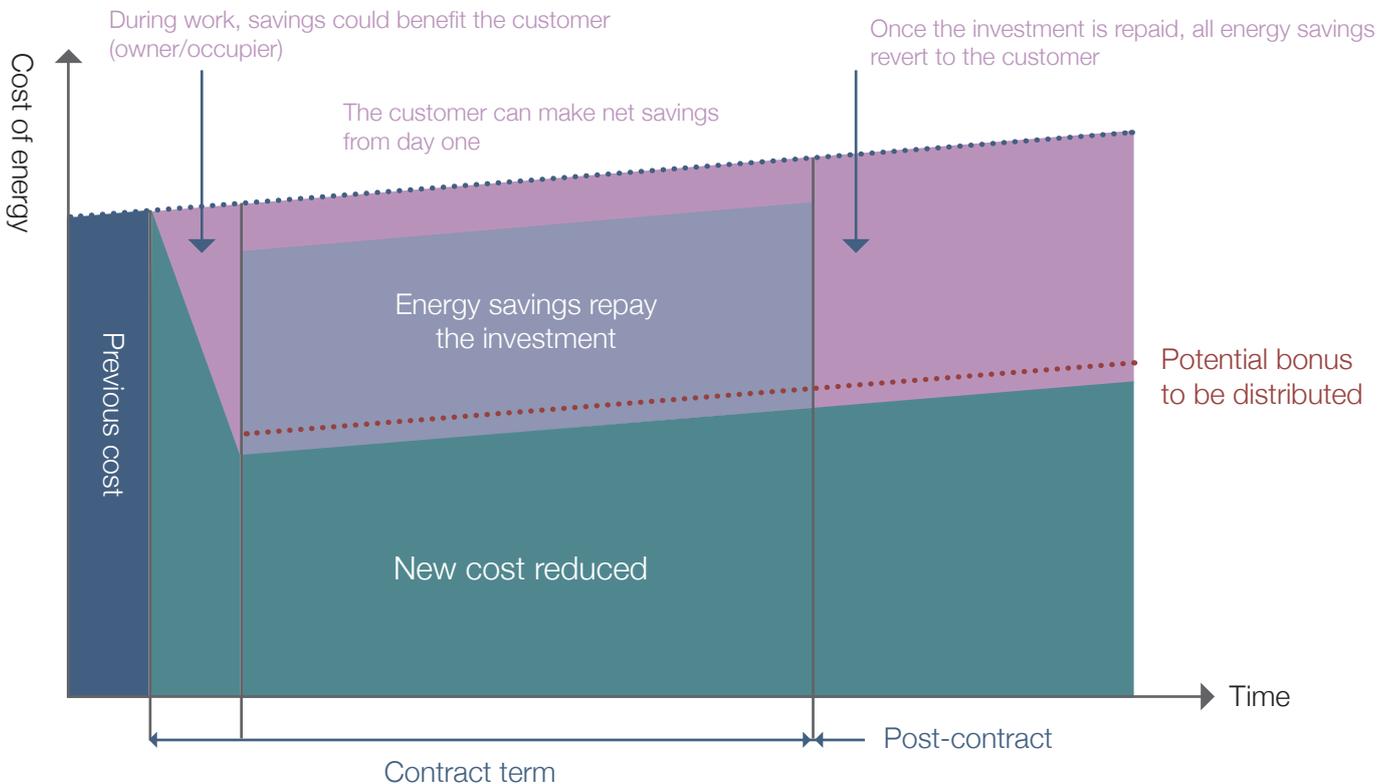
EPCs are defined in the European Energy Efficiency Directive (2012/27/EU), and as follows by Olivier Ortega⁵⁴: “Energy performance contracts are any contract concluded between the owner of a building and an energy efficiency services company with a view to providing the co-contractor with a reduction in the energy consumption of a building or stock of buildings, as verified and measured over time, through investment in works, supplies or services.”

The professionalism, experience and robustness of private operators ensure a low industrial risk in the fulfilment of their performance obligations for operations of this kind.

The industrial rollout of EPCs to the public building stock is a substantial macroeconomic tool for evaluating public policies, in particular with a view to meeting France’s international commitments to cutting greenhouse gas emissions. The performance guarantee also enables a better appreciation and more effective *a priori* control and a *posteriori* monitoring of the financial viability of each renovation operation through energy savings (whether partially or entirely).

Diagram of a financially viable EPC

Source: CDC



54 Source: www.lecpe.fr.

The entire French market for building-based energy efficiency services is relatively small, worth around €800 million in 2013 (7% of the total energy services market), including €130 million for EPCs⁵⁵.

The development of EPCs is a major European objective. As stated by the 2012/27/EU Energy Efficiency Directive: “There is a need to identify and remove regulatory and non-regulatory barriers to the use of energy performance contracting [...]”

Energy performance contracting is relatively new (Grenelle Law I of 3 August 2009). On the basis of a handful of EPCs already implemented, A.F.T.E.R. has made some far-reaching, practical suggestions for improvement:

- Standardising and simplifying processes to enable the wide-scale, industrial development of EPCs.
- Cutting organisational costs, considered high (technical, financial and legal expertise): simplifying procurement procedures, rationalising design costs, selecting consistent building stocks.
- Avoiding long-term contractual rigidity to facilitate other operations on the same building (e.g. starting with a ‘light’ Package 1 EPC and then carrying out a ‘heavy’ Package 2 EPC before the first contract is over).
- Facilitating arrangements directly accessible to SMEs and mid-cap companies.
- Enabling the pooling of operations in certain cases to help achieve critical mass.

Given the limited size of the current EPC market – essentially a niche market resolutely and determinedly supported by industry experts – meaningful development will not be possible without these radical changes. We must enter a phase of massification to establish a significant volume of operations, such that energy performance contracting – an effective, tailor-made tool resulting in part from French know-how – and its associated financing mechanisms can be used “off the shelf” in Europe.

Types of financing involving EPCs

A number of potential legal financing vehicles are under review in conjunction with energy performance contracting, such as public-private partnerships (EPC-PPPs)⁵⁶ and design-build-operate-maintain public contracts (EPC-DBOMs⁵⁷).

EPC-DBOMs, effective but untargeted and subject to unfair accounting treatment

DBOM financing cannot be unconsolidated for accounting purposes, barring a revision of European treaties as proposed in section III.D. Our aim, then, is to develop public investment through project financing, with such investment allowing for deconsolidation under specific conditions within the current framework (see III.D.).

Proposing a specific treatment for energy renovations to make them financially viable can only be justified if each project can be linked to its financing mechanism. This particular form of funding is not generally targeted, as state and local authority budgets are financed as a whole. The proposals made by A.F.T.E.R. allow for such targeted funding.

Financing projects under EPC-PPPs not only provides a means of measuring efficiency over time, but also helps to map out financing mechanisms against their targeted contribution to the energy and ecological transition. Indeed, most public sector financing is not mapped out at all, and very few financing mechanisms in our economy are mapped out against the energy transition, despite the strategic nature of the latter. For these reasons, and to ensure we are ready for the future, it would be desirable and beneficial to provide targeted funding for operations performed under DBOMs.

⁵⁵ ADEME/CODA. [Marché français des services énergétiques](#). June 2014. Figure similar to the JRC’s analysis which estimates the French EPC market at between €75m and €100m: Joint Research Centre. [ESCO Market Report 2013](#). 2014.

⁵⁶ These could potentially include give-and-take arrangements similar to EPC-PPPs, such as administrative emphyteutic leases. However, A.F.T.E.R. has noticed some uncertainty around the future of these facilities due to the proposed transposition of the EU Procurement Directives of 11 February 2014, and their tendency to impose the use of partnership agreements.

⁵⁷ Marchés de Conception, Réalisation, Exploitation, Maintenance (CREM) in French.

III.C. Key levers for the SFTE project

The project levers are both financial and industrial, the former being detailed in the specification of the SFTE study, and the latter having been identified during the course of the study and described at the end of this chapter.

Financial levers

A.F.T.E.R. recommends exploiting two key levers to incentivise the financial sector:

- the public guarantee; and
- the facilitation of banks' refinancing, with a particular focus on securitisation schemes within a safe, simple and transparent framework.

Public guarantee

The aim of the SFTE is to provide a high-quality guarantee for commercial bank loans to cover a share of their risk and enable the granting of loans: the quality of the SFTE guarantee will be ensured by the state which will counter-guarantee its activities⁵⁸. Any operation to finance an EPC project, under satisfactory financial conditions in terms of risk taken, would thus benefit from more favourable conditions with respect to both term and rates. Standardising operations (standards, volumes, etc.) should improve those conditions further. Fixed-rate loans could feasibly be granted in the current environment, with interest rates close to 0%.

Very long-term refinancing

Given the significant volumes anticipated, it is impossible that banks would keep amounts receivable within 30 years or more on their balance sheets for the entire term of the loan, in accordance with the prudential ratios imposed by the regulator. To this end, a change in banking regulations (Basel III) would be desirable to facilitate the holding of such loans on bank balance sheets. In the meantime, it will be essential to provide securitisation solutions and incentivise very long-term institutional investors, in particular the EIB, in order to refinance projects.

To enable this mass securitisation with international investors, the trust of those investors must be gained through the provision of the SFTE guarantee. Mistrust has been widespread on the financial markets since 2007, and the public guarantee is the *condicio sine qua non* for success, according to a principle of trust now put forward by a number of analyses on the recovery of very long-term infrastructure funding⁵⁹.

Poor performance and yields are often cited as the main difficulty facing institutional investors today⁶⁰. Their contribution to the financing of infrastructure projects in France is limited, but it is estimated that the allocations of international institutional investors to infrastructure could rise to a weighted average of 4% of those assets over the next few years⁶¹. In 2013, approximately 50% of those investors were planning to increase their allocation to infrastructure over the next three years⁶².

⁵⁸ One potential scheme would involve obtaining the counter-guarantee of the EIB in addition to that of the state.

⁵⁹ See Boissinot, Jean; Waysand, Claire. [Le financement des investissements de long terme: quel rôle pour les pouvoirs publics ?](#) December 2012.

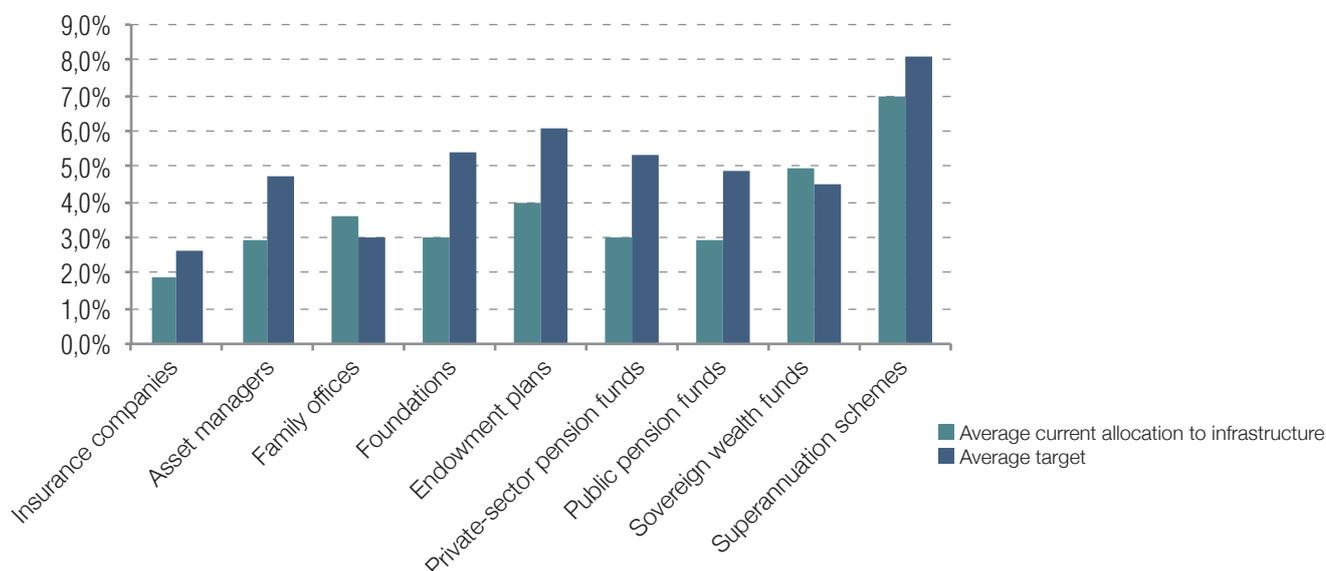
⁶⁰ Natixis. [Enquête internationale 2013 sur les investisseurs institutionnels](#). June 2013.

⁶¹ Standard & Poor's. [Global Infrastructure: How To Fill A \\$500 Billion Hole](#). January 2014.

⁶² Natixis. [Enquête internationale 2013 sur les investisseurs institutionnels](#). June 2013.

Average and target allocation to “infrastructure” assets by investor type

Source: Standard & Poor’s. *Global Infrastructure: How To Fill A \$500 Billion Hole*. 16 January 2014. Taken from: Preqin Infrastructure Online.



In Europe, a number of schemes are already geared towards facilitating project financing by institutional investors, such as the Project Bond Initiative (EU and EIB) or PEBBLE. The United States has rolled out the Qualified Energy Conservation Bond, under which investors receive subsidies directly (from the Treasury) or indirectly (through tax credits) towards borrowing costs for the financing of EPC operations on public buildings.

The specific nature of EPCs could allow for the establishment of a new class of assets – integrating EPC financing mechanisms into “green bond” assets – to achieve identified, measured and verified outcomes conducive to the energy transition. There is growing interest among institutional investors in this class of assets⁶³.

There are several possible investment options for such securitised assets:

- with very long-term institutional investors (sovereign wealth funds, pension funds, etc.) e.g. with ERAFP in France;
- with the EIB, thereby “rebuilding” the capacity of banks to finance new projects;
- eventually, directly with the ECB, subject to the eligibility of those assets under the securitisation programme rolled out in 2014 and provided other EU countries had the same capacity to generate such assets, thus establishing a significant asset class eligible to refinancing.

For these reasons, the securitisation of loans is also backed by the European Commission. While it refers to some poorly regulated securitisation models in the past, the Commission recognises the potential value of safe securitisation to long-term financing: “Securitisation transactions enable banks to refinance loans by pooling assets and converting them into securities that are attractive to institutional investors. [...]”⁶⁴

⁶³ According to Crédit Agricole CIB, “sustainable development” bonds were issued for more than \$26bn (in € and \$) between 2012 and June 2014 (in particular by Crédit Agricole CIB, BoAML, Morgan Stanley, JP Morgan, Citigroup and others). Source: [Crédit Agricole CIB website](#).

⁶⁴ European Commission. [Communication from the Commission to the European Parliament and the Council on Long-Term Financing of the European Economy](#). March 2014.

Resilience to crises

In the event of another long-term systemic crisis on the markets, the SFTE could allocate loans itself if necessary. In such cases, it would also guarantee the liquidity of the primary securitisation market and free up bank balance sheets by committing to buy any bank debts that could be securitised.

Economic and industrial levers

A.F.T.E.R. also recommends exploiting economic and industrial levers geared towards massification and the continuous improvement of project performance:

- Targeting economies of scale from project launch by virtue of the volume of operations performed, including the standardisation of processes and contracts for all stakeholders.
- Helping to pool projects by promoting consolidation by national and local beneficiary administrations, e.g. at the initiative of regional councils. Since pooling projects will enable the pooling of performance obligation risks by a single private operator, it will help to optimise costs for public bodies. Multi-purpose third-party financing vehicles could also be used (mixed-economy companies, local public companies, etc.). Under these arrangements the contract holder would no longer be a private project company established for a single project (special purpose vehicle), but rather a multi-purpose public or mixed-economy company. This entity would be bound to the public body by an EPC-PPP (or similar contract) and would sub-contract the majority of the operation to one or more private operators, e.g. via a public tender.
- Expecting technological progress of private operators and mapping out their advancement on an energy efficiency learning curve over the 10 years of the SFTE project, to be distinguished by work package. At this stage, however, any such improvement is difficult to estimate accurately.

***N.B.** Beyond the bounds of energy efficiency projects for public buildings, these industrial levers should be exploited for all moderately-sized energy transition projects calling for massification.*

III.D. Appropriate accounting treatment of energy efficiency projects

Burden of the ill-suited accounting framework under the European treaties

Given the total amounts at stake, a key challenge for the SFTE project is to facilitate the financing of operations without having a negative impact on debt (Maastricht criterion), for a substantial share of operations. Like other leading participants in the European debate, A.F.T.E.R. recommends ultimately applying a specific accounting treatment to these public investments. While it may seem overly ambitious to seek direct derogation from the deficit criterion for energy efficiency investment projects, European accounting standards should recognise the very distinctive nature of these projects, capable of not only generating “negative energy” and hence financial savings (an outcome unparalleled by other public sector infrastructure projects), but also helping to attain the energy and climate change targets continually reiterated by the EU – while acknowledging the importance attached to energy in our economies.

Some local authorities will continue to borrow directly to perform EPC operations. In this case the receivable amounts would be included in the French public debt. Under the energy renovation stimulus plan proposed by A.F.T.E.R., although not all projects would be financed under EPC-PPPs or EPCs, EPC-PPPs should at least be promoted for operations carried out to improve on low current investment volumes, i.e. €1bn/year.

The budgetary constraints imposed by the treaties have been curbing state investment for a long time. In 2015, this inertia risks spreading to local authorities, who are increasingly being pressurised by the state to act in accordance with the treaties (see II.E.).

Exceptional circumstances call for exceptional measures. Promoting investment in the energy and ecological transition as quality investment that calls for derogation from the accounting provisions of the treaty will not yield immediate results, but it could do so before long with international pressure for quality infrastructure funding, and with the growing consensus as to the major role of energy efficiency.

The SFTE guarantee mechanism

If the European treaties are not revised in the short term, the SFTE project will be based on:

- the off-balance sheet treatment of the public guarantee leveraged by the SFTE;
- the treatment of the SFTE outside the scope of public administrations, as a financial intermediary assuming risk in its own right;
- the financing of projects under EPCs (EPC-PPPs), transferring substantial risk to mixed-economy or private operators.

The European System of Accounts (ESA 2010) provides for the off-balance sheet treatment of ad-hoc guarantees such as that provided to the SFTE, unless the guarantee is called or it is known that it will be called at a later stage.

- The financial structure will be such that the public guarantee is never actually called, the ultimate risk profile being very low (see section III.F.).
- The level of capital in the SFTE is strengthened through the payment of a fee by the guarantee beneficiary.
- The state acts as the ultimate guarantor beyond the capital of the SFTE.

The vehicle supporting the projects

EPC-PPPs would serve as the vehicle supporting projects within the meaning of ESA 2010 and Eurostat, whereby most of the risk would effectively be transferred from the public body to a private partner (e.g. an SPV) or a commercial local public company (e.g. an entity from the mixed economy), as per Eurostat recommendations.

***N.B.** The accounting standard preventing the use of the French guarantee facility known as Dailly necessitates the partial coverage of the risk by the state via the SFTE (for the financing party, but also for the markets if credit is to be distributed to investors). In practice, partnership agreements provide for the assignment of receivables referred to as «Dailly transfers» and their acceptance by the relevant public body. Under a special commitment on the part of the debtor (the public body), the latter undertakes to directly pay the assignee (the lender) and, in particular, not to raise any defences against him based on his personal relationship with the assignor (the contractor). This process was put in place at the request of the banks to secure French PPP operations.*

The use of special purpose vehicles (SPVs) to finance projects with private capital (including CDC SPVs and others) corresponds to existing international standards. The use of mixed-economy companies, on the other hand, seems to depend more on the preferences of certain stakeholders. It represents a potentially useful tool for pooling and sharing expertise⁶⁵. EPC-PPPs – in the absence of any other solutions – are a very effective tool enabling the specific nature of the energy renovation project to be taken into account.

With the risk profile being so low, the capital level of the vehicle could be around 5% of the project amount, as was the case for some previously implemented EPC-PPPs.

Proposals

Like other organisations in Europe with which it is in contact, A.F.T.E.R. is calling for technically limited changes to the European accounting framework taking into account the existence of energy efficiency projects⁶⁶, whose treatment outside the scope of public debt is vital in bringing about a change of scale.

⁶⁵ A.F.T.E.R. also suggests that local public companies focusing on the energy efficiency of public buildings should benefit from a treatment comparable to that of public corporations within the European accounting framework, including where those companies are not in competition (in-house), but where they then put their suppliers in competition and where the latter account for the majority of the renovation work.

⁶⁶ See also the proposal of the Energy Efficiency Financial Institutions Group (EEFIG) on the basis of a contribution by A.F.T.E.R.: "The European System of Accounts (ESA) and Eurostat's methodology should support energy efficiency renovations in public buildings (Energy Performance Contracts)". Source: EEFIG. [Energy Efficiency – the first fuel for the EU Economy. Part 1: Buildings \(Interim Report\)](#). April 2014.

We are aware of the negative image that has tarnished in France the reputation of privately-financed public contracts, a mechanism occasionally misused to deconsolidate certain infrastructure projects for accounting purposes, whereby the transfer of risks and global costs attracted criticism from the Court of Auditors. The EPC-PPPs in question will enable balanced project financing, thus avoiding these pitfalls. Having been used extensively in the past, privately-financed public contracts (or PPPs in modern parlance) are not intrinsically ineffectual; on the contrary, they can prove crucial in meeting infrastructure needs. As indicated by the European Commission, the fall in the number of PPPs is one of the factors “resulting in a suboptimal level of long-term investment and financing”⁶⁷. We are also calling for a change of scale in the volume of EPC-PPP operations to ensure greater effectiveness, calling for radical changes to EPC-PPPs (see below).

A.F.T.E.R. is highlighting the need for more constructive exchanges with INSEE (the French statistical institute) and European stakeholders, particularly in light of the interpretation of Eurostat on project financing quite rightly not impacting on public debt. At present, renovations must account for more than 50% of the asset value after the operation to be considered as PPPs within the meaning of Eurostat. We have not been unable to ascertain the basic logic or purpose of this provision. Many of our European contacts seem sensitive to this issue, however⁶⁸. Several Member States also appear to be in favour of amending the European accounting framework to promote EPCs (Ireland, Slovakia, Czech Republic, Poland and possibly Spain). Therefore, these changes could be brought about by a joint and concerted effort.

III.E. Proposed structure of operations and the guarantee mechanism

There are a number of possible ways of structuring operations. It would seem desirable to clearly distinguish the work phase (short) of energy renovation projects from the operating phase (very long), so as to facilitate the complementary role of commercial banks and the institutional investors taking over:

- **Banks** can bring key added value to the detailed analysis, structuring and monitoring of operations, as well as the gradual drawdown of liquidity. However, regulatory requirements make it too difficult for them to retain these very long-term receivables. Banks would accumulate small operations (in the order of €1m) on their balance sheets and then refinance them as securitisation packages (in the order of €100m) for long-term investors. They would manage the interest rate risk from the start of the operation to the transfer of credit, consolidating operations by maturity level or relevant public body.
- **Institutional investors** do not have the means to individually study EPC-PPP operations. They will have a general understanding of the relevant assets and will analyse the SFTE guarantee.
- **European public investors** like the EIB are likely to be interested in these assets, in so far as their acquisition would free up bank balance sheets for new transactions. Once again, the SFTE guarantee would also be an incentive (although ideally, the EIB would ultimately be able to assume more risk without the SFTE guarantee). While the EIB does not play any part in smaller operations, the SFTE would provide for its involvement by enabling the aggregation of receivables and promoting large-scale operations in some cases.

The idea, then, is to clearly distinguish between an initial phase involving the banks without any guarantee; and a second phase as of which the guaranteed receivables can be transferred to institutional investors, without affecting the existing solidarity between the members of the group beyond the work acceptance phase. The reassurance provided by this take-out financing is a prerequisite for the involvement of the banks, which cannot currently retain such long-term receivables on their balance sheets.

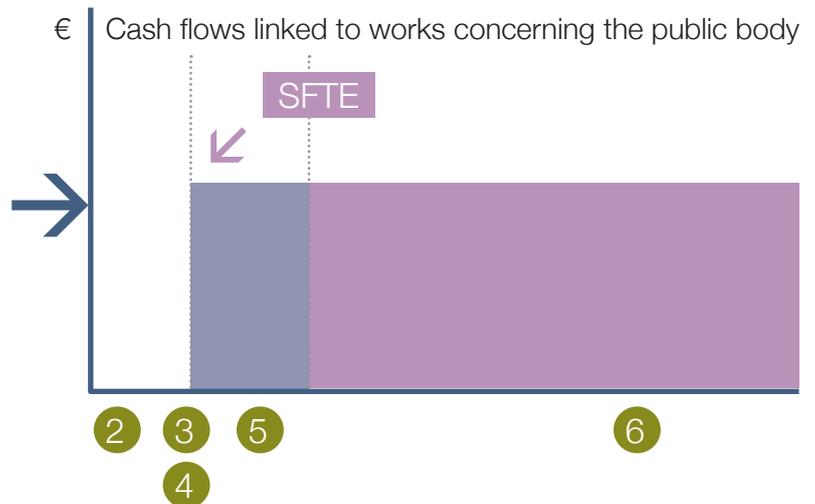
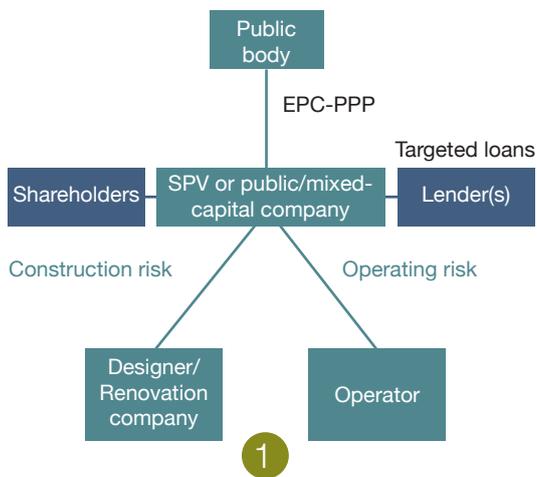
- **Phase one** would cover the work period, the highest-risk phase.
- **Phase two** would cover the energy operation of the building following work acceptance.

⁶⁷ European Commission. [Communication from the Commission to the European Parliament and the Council on Long-Term Financing of the European Economy](#). March 2014.

⁶⁸ This includes the EIB (EPC Campaign), the BPIE Institute, the European Commission and others. We know that DG Energy has identified this as an obstacle, while a JRC report ([The European ESCO Market Report 2013](#)) cites the accounting treatment of EPCs within the scope of public debt as the main financial barrier to the development of energy performance contracting.

Key stages in the proposed structure of operations

Sources: Global Warning, A.F.T.E.R.



- 1 Signing of EPC-PPP:** targeted financing, dual transfer of risk (works/operation)
- 2 Works:** : pre-financing by an SPV or a public/mixed-capital company, gradual drawdown of liquidity (banks)
- 3 SFTE guarantee for bank loans:** on work acceptance
- 4 Refinancing:** securitisation and transfer to institutional investors (pension funds, etc.)
- 5 Run-in period:** first few years of operation, initial repayment of the investment
- 6 Follow-up and end of operating phase:** gradual repayment of LT financial debt

Terms of the SFTE guarantee during the operating phase of a project

Guarantees like that provided by SFTE play a crucial role, at least initially, in reassuring institutional investors – especially international ones – by enhancing the readability and understanding of the relevant assets and simplifying the investors' own risk analyses. That is why we have proposed that the SFTE guarantee should not apply at all during the initial work phase of energy renovation projects (as the credit risk is 100% borne by the banks).

The SFTE guarantee could take two different forms:

- either a 100% guarantee; or
- a guarantee of a percentage of the receivable amount, activated upon first losses (junior risk)⁶⁹. For example, covering 10% of the junior risk could be more than enough to reassure investors, given the low risk of default (and losses in the event of default) on the relevant securities (see section III.F.). The decoupling of loans into “senior risk” and “junior risk” structures the risk and recoveries on maturity: the sums recovered during the term of the loan are allocated first to the “senior” component and then, if at all, to the “junior” component of the receivable, making this component higher risk.

The decision between these two options would ultimately be based on the impact of showing the state's off-balance sheet commitments on the one hand⁷⁰, and the market estimate of the risk on the other, calling for the cooperation of the French Prudential Supervisory Authority (Autorité de contrôle prudentiel et de résolution – ACPR) and Banque de France.

This guarantee would give banks the option to transfer their securitised receivables under excellent conditions. Even if a 100% guarantee were provided, it should not engender any risk of moral hazard on the part of the banks. They would analyse all aspects of the risks presented by the operations. Their reputation would remain at stake and prudential regulations on securitisation would oblige them to retain at least 5% of the risk.

⁶⁹ Terms based on those of the EIB: for example, with a subordinated tranche as a conditional credit line provided by the EIB for credit enhancement, as in the case of the “Project Bond Initiative”.

⁷⁰ Court of Auditors. [Le recensement et la comptabilisation des engagements hors bilan de l'État](#). May 2013.

Finally, this guarantee would replace the current Dailly transfer mechanism which, while providing securities of a similar nature, clearly does not allow deconsolidating the corresponding debt. Dailly transfers have no place here unless the treaties are amended (see section III.D.).

The guarantee would be charged to the beneficiary supporting the project, based on the low level of risk identified with the ACPR, the supervisory body for such matters.

Institutional investors and the guarantee

Aside from a shortage of decent projects to finance, lack of confidence and even mistrust are the main obstacles to the long-term financing of infrastructure projects involving public bodies. That is what makes the SFTE guarantee so vital in bringing about a change of scale in funding the energy renovation of public buildings. The SFTE could restore a great deal of trust in the market through its state-backed guarantee, its consulting capacity (providing technical, risk and market expertise) and the strong commitment of the state to the political plans accompanying its establishment. It will be essential to ensure the legal soundness of the mechanism through regulatory stability and robust, clear and standardised contracts. European support (funds of the Commission; EIB) would provide even further reassurance to the market.

The anticipated interest rates on such high-quality assets should be close to the rates of French Government Bonds (OATs), i.e. very low. A potential benefit for investors could be provided by energy “outperformance”: a bonus for EPCs achieving reduction targets above and beyond the commitment level. While the rewards for such outperformance of EPCs are usually shared annually between the public body and the private operator, a portion could be allocated to the long-term funder to make the security even more attractive, and to enhance its “green value”.

Pooling and securitisation

A major obstacle to the development of infrastructure assets such as those covered by EPC-PPPs is the potentially limited scale of operations (in the order of €1m). The involvement of institutional investors thus calls for:

- projects to be pooled as part of major operations (e.g. grouping together several schools of a general council, buildings of a particular ministry, and so on);
- moderately sized projects to be packaged into a single securitised operation, which could be done by banks for homogenous projects⁷¹.

The first option, while necessary, will probably be difficult to implement quickly. But A.F.T.E.R. is proposing an innovative solution to the issue of pooling through securitisation.

This type of pooling would be inexpensive. Securitisation is currently high-cost, at tens of basis points (and often more than 50 basis points), because:

- there are very few such operations in Europe, and even these are tailored;
- operations involving risky securities require complex structuring: “tranching”, i.e. separating packages of receivables into risk tranches.

Here both obstacles are overcome: (1) very significant volumes, in the order of €3bn per year under the lower (“financially viable”) scenario; (2) no need for any particular expertise to structure the receivables. This has two outcomes:

- we can anticipate very low intermediation costs for such operations, the ultimate target being management costs of less than 10 basis points;
- this cost is justified by our proposal to initially select only companies with strong risk ratings to operate EPC-PPPs. Any changes to this principle could have an impact on structuring and hence on securitisation costs.

⁷¹ This point could also concern other major segments of the energy transition. It is thus essential to develop a framework more conducive to “mezzo-infrastructure” type operations, underlining the need to standardise operations.

SMEs and the work phase

The approach taken by A.F.T.E.R. will facilitate direct access by SMEs and mid-cap companies in the building sector to the relevant energy renovation operations. The mechanism proposed here is compatible with contracts under which SMEs with general enterprising capabilities become direct co-contractors during the work phase. This would be compatible with the risks potentially assumed by banks, their desire to support regional SMEs, and the will of political decision-makers to do the same.

Banks and the work phase

Banks will adopt standard banking conditions during this phase, where they will bear loans which are both difficult to manage and costly in capital.

Operate phase and risk assumed

It would seem desirable to enable SMEs and mid-caps ultimately to play a direct role in the operate phase. This would mean devising mutual guarantee mechanisms for example, so as best to secure banks, the SFTE and institutional investors against the risk of default on the part of SME-type operators (see nature of risk below). Such a change would be entirely possible following a launch phase. In the meantime, the initial proposal is for only high-quality companies with strong financial ratings to act as operators for the term of the EPC-PPP guaranteed by the SFTE.

III.F. Low level of financial risk for lenders under EPC-PPPs

Financial risks for lenders in connection with the EPC-PPP operations proposed by A.F.T.E.R. are structurally very low. EPC-PPPs belong to the “social infrastructure” project-funding category, which is the lowest risk category in the funding of infrastructure projects.

Standard & Poor's has produced statistics based on the 510 projects it has rated since 1991. Around 10% of those projects (57) were in the public finance/real estate sector, and not a single default was recorded among those operations (initially rated BBB in average) between 1992 and 2012⁷². The level of risk engendered by “social infrastructure” projects under public project funding in France was even lower. The difficulty is that there is no track record for the specific risk incurred by EPC-PPP and similar operations (with SPVs or local public companies), despite that risk being extremely low.

Lenders are particularly exposed to the following risks, potentially leading to the payment default of an SPV or public body:

- risk of fragility (bankruptcy, etc.) of the builder during the build phase: we have just seen that this falls outside the SFTE scope;
- risk of fragility (bankruptcy, etc.) of the operator during the operate phase and inability to replace the operator under the same commercial conditions (in particular the energy performance obligation);
- insolvency of the public body upon repayment during the operating phase.

However, these risks are limited owing to:

- the robustness and experience of the industry players liable to take part in these operations upon the launch of the SFTE (see above); the risk to be assessed is the disappearance of the operator (low default risk) combined with losses on the relevant asset if no company is found to replace the failing operator under the same conditions (also a low risk given the experience of the operators).
- the proven extremely low solvency risk of French local authorities.

⁷² Source: Standard & Poor's. [Project Finance Default And Recovery: Shale Gas Fuels Rise In U.S. Defaults](#). 9 August 2013.

The local public sector is in fact very highly rated on the whole, and instances of default are historically very rare. Here again a track record has little statistical relevance. According to a report by the Court of Auditors⁷³, one of the main credit institutions active on the local public sector market published a default rating of 0.009% in September 2010 (three authorities). And losses in the event of default are very limited indeed in France.

N.B. . *It should be stressed that the technical failure of a private operator (noncompliant energy performance) is a “commercial” risk for which that operator is solely liable, provided it does not file for bankruptcy. Such failure to meet commercial commitments thus has no impact on the SFTE, unless the financial situation of the operator is generally compromised, leading to the replacement of the latter due to insolvency.*

Guaranteed credit rates

Since the assets incur a very low risk, guaranteed indirectly by the state, the proposed returns for the guaranteed phase of the loan are likely to be very low, with margins a few basis points above 30-year France OATs (averaging 2.4% in September 2014) for the longest-term securities (see CADES e.g.).

To this must be added the cost of securitisation, estimated here at a few basis points (see section III.E. on “Pooling and securitisation”).

Only the supervisory authority (the ACPR) can accurately define the capital requirements imposed by the type of the risks assumed by the SFTE. “Standard” risk calibration methodologies would be particularly disadvantageous: it is imperative that the ACPR approves an “internal” risk model entailing a constructive dialogue based on the ideas put forward here, given the insignificance of statistical measurements. On the basis of such a preliminary calibration, it would be beneficial to discuss the matter with the relevant ratings agencies to confirm their findings. Very long-term investors should also be involved in this dialogue to voice their approval of the structure ultimately chosen.

These securities would nonetheless be penalised owing to their low liquidity (a few basis points), although their “green value” should reduce this spread as the attractiveness of “green bonds” grows globally.

III.G. Prospective role and structure of the SFTE

Although the SFTE has yet to be established, it is possible to define its prospective key characteristics.

The sole purpose of the SFTE will concern risk analysis. As such, it will have at its disposal a wealth of expertise provided by a team of high-level technical, legal and financial analysts. It will also be responsible for monitoring technological innovations in this sector.

To establish its knowledge base and manage its risks as best as possible, the SFTE will create an observatory covering a range of issues (tenders, SPVs and local public companies, performance, energy performance contracting (costs/performance obligations; effective and ongoing performance monitoring), energy expenditure of public bodies, spread of companies and local authorities, securitisation conditions, secondary market, etc.).

It should therefore remain modestly sized (fewer than 25 FTEs⁷⁴), specialised and focused on its particular field, without getting involved in either public real-estate strategy or public project management, although it will make its data available to these ends. And it will not interfere in energy renovation projects prior to any agreement providing for the guarantee.

⁷³ Court of Auditors. [La gestion de la dette publique locale](#). July 2011.

⁷⁴ Full-time equivalent employees.

IV. Next steps for the SFTE project and proposals

Rather than merely focusing on design aspects, A.F.T.E.R. has drafted some initial operational proposals for the practical implementation of the SFTE project. Based on the work done so far, we are calling for the continued commitment of all stakeholders, and in particular the support of public authorities and European institutions.

IV.A. Project rollout

The actual implementation of the SFTE project will call for the full and active support of all those involved:

French public authorities

- Full involvement and pooling of public contracting authorities for the mass launch of projects by public decision-makers (initially by the state and as quickly as possible by local authorities)
- Publishing of the decree on the obligation for the energy renovation of service sector buildings (provided for by the Grenelle Law)
- Law providing the public guarantee to the SFTE
- Creation of an observatory as a precursor to the SFTE, covering energy expenditure, energy efficiency expenditure, EPCs, monitoring of project costs/returns, European networking, etc.
- Extensive standardisation of EPCs and EPC-PPPs: access to mid-caps/SMEs, flexibility, simplification, etc.
- Calibration/validation of the risk level inherent to operations (serving to establish the capital level of the SFTE and the cost of the guarantee recharged to project beneficiaries): Banque de France (ACPR), ECB, etc.
- Simultaneous dialogue with a panel of very long-term institutional investors to calibrate the guarantee level of the SFTE (junior risk at 10% or less? See section III.E.).

SFTE

- Specific business plan and structural elements: statutes, governance, team, ACPR certification, etc.
- Involvement of potential shareholders (public and private, or supranational)
- Detailed legal and financial structuring of the guarantee provided by the SFTE (following dialogue with investors)

European Union

- European backing and/or approval of an experiment in France
- Adaptation of the Eurostat methodology to ensure an appropriate accounting treatment of EPC-PPPs
- Strengthening of ties with the EIB: purchase of securitisation products (junior and senior risk), capital (SFTE and/or SPVs under EPC-PPPs), expertise, etc.

Industry players

- Statement of short- and long-term productivity gain targets
- Scalability (including for SMEs and mid-caps)

Banks and institutional investors

- Active participation in the standardisation/massification process
- Development of the EPC/EPC-PPP offering and financing under optimal conditions (rates and term)
- Establishment of a Common Securitisation Fund (simple, safe and transparent securitisation) and active involvement of institutional investors (readability of assets)
- Consultation and prior commitment with investors to anticipate the viable economic conditions of financial mechanisms

IV.B. Establishment of an observatory

Pending the green light from political decision-makers, the creation of an observatory could be initiated ahead of time so as to amass and publicise available knowledge and expertise on subjects relating to the energy renovation of public buildings: energy expenditure of authorities and the state (on buildings in particular); EPCs; mapping of the public building stock; special bodies such as local public companies, mixed-economy companies or public enterprises; financing and political instruments for energy efficiency; securitisation market and green bonds; stimulation of global public infrastructure investment; etc. A range of approaches and subjects could be covered based on resources and ambitions.

The SFTE project is concerned with energy performance contracting and tasked with clearly identifying the risks (occurrences, consequences, guarantees, etc.) assumed under EPCs and EPC-PPPs. An observatory on the European EPC network should therefore be established to ensure transparency of prices and facilitate financial and economic analyses. Such a network could be supported by the EIB.

The French observatory could be based near an existing organisation (Plan Bâtiment Durable, for instance) and benefit from the support of different institutions (ADEME, CSTB, etc.). It should be borne in mind that some information is difficult to access (detailed contracts under EPCs, energy consumption data of local authorities by usage, etc.). Public authorities could provide significant support for the establishment of an observatory by promoting the provision of certain information.

IV.C. Active involvement of local political decision-makers

“Energy efficiency is not sexy”

The renovation of public buildings may appear to be of little political interest, especially in comparison with more visible infrastructure projects such as the construction of new buildings, or more “modern” assets like telecommunications networks. There needs to be enough incentive to facilitate the development of such operations. The energy efficiency of existing buildings should be made an obligation (under certain conditions, to be specified) in the same way as other obligatory activities, if only to facilitate the choices of local public decision-makers. Decisions should be made with due regard for long-term factors and future generations, not just the current electoral cycle.

Levers for incentivising the implementation of operations

Savings made through the renovation of buildings can only be profitable over very long periods, so other incentivising mechanisms must be proposed to facilitate the mass rollout of energy renovation operations. For example, it would be advisable to enable local authorities to repay the debt associated with energy renovations only after the completion of work and a break-in period. KfW is already proposing payment deferrals of three to five years to finance the energy efficiency of public buildings. An incentivising link between the allocation of grants by the state and the completion of energy renovations could also have a significant impact on the current budgetary framework. Finally, while the decree enacting the Grenelle Law has yet to be adopted, an obligation for renovation work would do a great deal to stimulate energy renovations.

Some initiatives (in particular RE:FIT in the United Kingdom) have demonstrated that it is possible to promote these renovations to the electorate (raising user awareness, labelling, etc.). In connection with the SFTE project, national initiatives absolutely must raise the profile of energy efficiency projects.

IV.D. Getting Europe involved

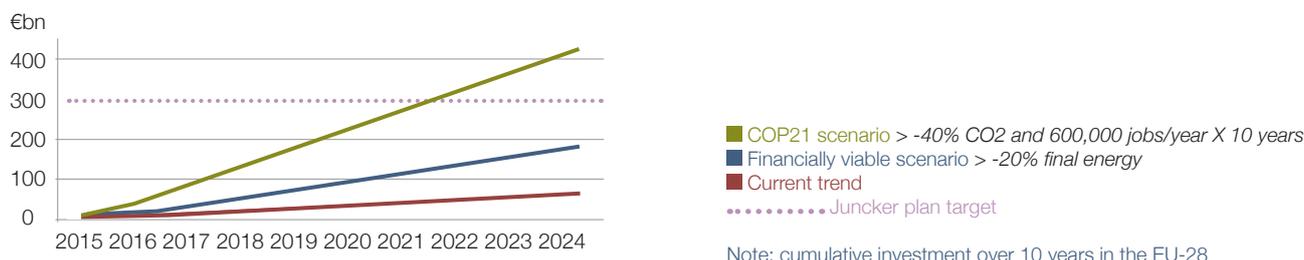
The rollout of the scheme in other European countries is an opportunity not to be missed. Indeed, most countries are facing the same barriers to the very long-term financing of the energy transition.

European potential

At the European level, the potential is estimated at between €60bn and €420bn over 10 years (under business-as-usual conditions in the former case and in line with an ambitious target to reduce greenhouse gas emissions by 40% in the latter). Financially viable potential stands at €180bn. In Europe, one decisive socio-economic benefit would be energy independence, although this particular benefit is even more difficult to quantify than others. The decline in the euro exchange rate, to be expected in the current environment, could also bring about a further increase in energy prices in the euro area. Combined with the upward (if erratic) trend of energy prices, especially oil, such changes would be a structural burden on public finances.

10Y investment scenarios in the energy renovation of schools, hospitals and other public buildings in the EU

Sources: estimates of A.F.T.E.R. and Global Warning based on available information



European institutions

The European Commission is very vocal on this issue, particularly in connection with the EU's climate and energy plans for 2030 which identify energy efficiency and investment in the energy renovation of buildings as key objectives⁷⁵. The EIB has set itself the target of allocating at least 25% of its loans to climate-related projects (including energy efficiency projects) and it has exceeded this target every year since 2010 (with €19bn of loans allocated to such projects in 2013)⁷⁶. As explained above, the EIB could contribute through the acquisition of securitised SFTE-guaranteed receivables, or equity-based investments.

Public-private partnerships are already recognised and governed by Eurostat⁷⁷. The SFTE project is calling for the specific and justified accounting treatment of EPC-PPPs under Eurostat for the immediate benefit of all euro zone countries. The SFTE guarantee scheme, also governed by Eurostat, is transferrable to all other EU countries. The development of EPCs is a European objective, and many other countries are already carrying out operations of this kind (Germany, Austria, the United Kingdom, etc.).

National idiosyncrasies

Certain national idiosyncrasies should be taken into account when adapting the scheme to other EU countries, including:

- disparate financial health of local authorities;
- differences in relations between authorities, the semi-public sector and the state;
- structural differences in the real-estate stock of each country (public building surface area and category);
- difficulty in obtaining the energy performance history of individual buildings as an analysis basis for quantified improvement projects like those under EPCs;
- differences in the maturity and structure of the energy service company market (the most mature markets include France, United Kingdom, Germany, Austria and Czech Republic);
- differences in the structure of local authorities affecting their suitability to pooling.

As an overarching European body, the EIB could play a key part in rolling out the SFTE scheme to all European countries while taking into account local idiosyncrasies, through its capacity for financial structuring and risk analysis.

⁷⁵ European Commission. [A policy framework for climate and energy in the period from 2020 to 2030](#). 2014.

⁷⁶ EIB. [Finance for climate action](#). 2014.

⁷⁷ Eurostat. [Manual on Government Deficit and Debt - Implementation of ESA10](#). 2013.

V. Conclusion

We have made contact with a number of organisations in addition to the consortium of project sponsors: the French Treasury; the French National Institute of Statistics and Economic Studies (INSEE); the French Support Mission for Public-Private Partnerships (MAPPP); Banque de France; the French Court of Auditors (Cour des Comptes); various Directorates-General of the European Commission (DG ENER, DG MARKT, DG CLIMA, DG ECFIN, etc.); France Domaine⁷⁸; the French Department of Housing, Urban Planning and Landscape (DHUP); the French General Commission for Sustainable Development (CGDD); the French Scientific and Technical Centre for Building (CSTB); the EIB; KfW; the French Environment and Energy Management Agency (ADEME); the French Financial Markets Authority (AMF); BPIE; EEFIG; and more.

Through its various activities, the study has identified and analysed the following issues (among others):

- confirming the existence of a significant potential for financially viable energy renovation operations, representing investment of around €30bn over 10 years, and at least €70bn to meet the Grenelle commitments (40% reduction in energy consumption);
- the need for the state guarantee mechanism (total or partial), based on a systematic analysis of credit risks, increasingly cited as a crucial public policy tool, especially for stimulating very long-term infrastructure funding;
- the necessary and expected contribution of international institutional investors to finance the very long-term component of receivables, alongside the EIB;
- the capacity of energy performance contracting (EPC) as a key facility subject to its improvement (transparency, governance, flexibility over time, accessibility to SMEs and mid-caps, standardisation, pooling in certain cases, etc.): this capacity should be recognised as soon as possible by Eurostat for the financing of renovation and similar projects, whether in connection with special-purpose vehicles (SPVs), mixed-economy companies or local public companies;
- the obstacle posed by the small size of operations: pooling by public entity, while a good idea, will probably not be effective or quick enough. An effort must be made to group together similar operations at funder level so that they can be securitised in packages in line with our proposal.

As part of a European economic recovery plan, the SFTE project could quickly yield results. It offers unrivalled potential for stimulating recovery through public investment, in compliance with fiscal rules and within the framework established by the Maastricht Treaty. Clearly the operational launch of the SFTE project calls for a strong commitment from all stakeholders (state, banks, industry players, local authorities, etc.), for which A.F.T.E.R. has attempted to lay the foundations.

This is its weakness and its strength.

The rollout of the SFTE project now depends on the decision and the full and active involvement of public authorities.

⁷⁸ A government agency which plays a key role in the property management of state-owned real estate in France.



VI. Annexes

VI.A. Members of the SFTE consortium

The SFTE project is supported by a **consortium of industry players, financial institutions, local authorities and NGOs/foundations** (see below) and also receives support from **Plan Bâtiment Durable**.

Industry players and operators

EDF
Fédération Française du Bâtiment
GDF SUEZ Energie Services
Schneider Electric
Vinci

Financial institutions

ARKEA Banque Entreprises et Institutionnels
Caisse des Dépôts et Consignations
Crédit Agricole
Groupe BPCE
Meridiam

Local authorities

Aquitaine
Centre
Landes
Rhône-Alpes

Other contributors

European Climate Foundation
Fondation pour la Nature et l'Homme
Plan Bâtiment Durable
The Shift Project

VI.B. Work structure

A.F.T.E.R. teamed up with three consultancies for the SFTE study:

- **Carbone 4** (energy and carbon strategy): <http://carbone4.com/>
> represented by **Alain Grandjean**, Founding Partner
- **Global Warning** (energy and finance strategy): <http://global-warning.fr/WordPress3/>
> represented by **Michel Lepetit**, Chairman
- **Lefèvre Pelletier & associés** (law firm): <http://www.lpalaw.com/>
> represented by **Olivier Ortega**, Partner and Head of the Public Business Law Department

Carbone 4 is a leading consulting firm specialising in carbon strategy and the management of the energy transition. The mission of Carbone 4 is to adapt the strategy and management of organisations to create low-carbon, resilient activities that generate value.

Global Warning is a strategy consulting firm for decision-makers in the finance industry, conducting studies and projects (Riskergy, SFTE, Beyond Ratings, Energie & Prospérité academic chair) on the financial and macroeconomic challenges of the energy/climate transition.

Founded 30 years ago, **Lefèvre Pelletier & associés** is one of the largest law firms in France, with 130 lawyers including 34 partners. The firm has developed cutting-edge expertise in all areas of business law, including public business law.

Work officially began in November 2013 under the supervision of a **steering committee**, comprising various stakeholders. Activities were split between **four working groups**:

- European compatibility;
- technical eligibility and analysis of energy efficiency potential;
- financial structuring;
- legal structuring of operations.

VI.C. Experts and stakeholders

We would like to thank the SFTE consortium and the many specialists who have agreed to contribute to the work of A.F.T.E.R., with more than 200 experts, stakeholders and officials consulted in France and Europe, including the following stakeholders in particular:

Members of the SFTE consortium

Aquitaine (Regional Council) Julien Jimenez

ARKEA Banque Entreprises et Institutionnels

Charlotte Lavit d'Hautefort - Valentine Gamot

CDC - CDC Climat Pierre Ducret - Jean-Pierre Sicard - Emmanuel Legrand - Sophie Huet

CDC - Innovation and Sustainable Development Department Thomas Sanchez

CDC - Exerimmo Annabelle Cazes - Sébastien Illouz

CDC - Fonds d'épargne Jean-Sébastien Saulnier d'Anchald

Centre (Regional Council) Gilles Deguet - Céline Dupont-Leroy - Benoît Faucheux

Crédit Agricole Jérôme Courcier - Philippe Barraud - Nathalie Piar - Olivier Masseran - Nadine Fédon - Laurent Le Mouël

EDF Renaud Crassous - Stéphane Taupin - Frédéric Thébault - Nicolas Renault - Ronan Gourvil

European Climate Foundation Patty Fong - Stephen Boucher

Fédération Française du Bâtiment Bernard Coloos - Loïc Chapeaux

Fondation pour la Nature et l'Homme Nicolas Hulot - Matthieu Orphelin

GDF SUEZ Energie Services Frédéric Hug - Vincent Bryant - Patrick Laugier - Philippe Deramecourt

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Bertrand Dumont - Felicia Stanescu

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European Commission - DG Economic and Financial Affairs Gerassimos Thomas - Giorgio Chiarion Casoni - Ioanna Metaxopoulo - Andreas Fischer-Kalambokis

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VI.D. Summary note for decision makers – General note

A €420bn investment programme for the European Union Massive financing of the energy transition in schools, hospitals, etc. for a competitive EU

The SFTE⁷⁹ project aims to establish a broad partnership between public and private entities to stimulate the economy and deliver between €180bn and €420bn of investment in Europe over 10 years for the benefit of medium-sized projects (in the order of €1m) that are necessary for the energy transition. It will enable EU banks to finance the energy renovation of public buildings under excellent – cheap and long-term – conditions. It is a strategic opportunity for the €300bn investment programme announced by President Juncker.

A feasibility study has been conducted by the AFTER association with an exemplary consortium of public and private stakeholders⁸⁰ in France: local authorities, industry players, banks/financial institutions, NGOs, Plan Bâtiment Durable⁸¹. Many European institutions have expressed their interest in the initiative. Now the implementation of the SFTE project requires a commitment from European and national public authorities. Such a proactive real-estate policy would significantly contribute to economic recovery, cut costs, CO2 emissions and the external deficit, and improve energy independence, and could quickly create jobs.

1. Background and issues

a. Economic environment

The economic environment has changed considerably over the past year. The inflation rate in the euro area is extremely low, and long-term interest rates have entered territory uncharted for the past 200 years. The ECB is attempting to massively boost the funding of the “real economy” through banks. However, the lending market has yet to recover, and Europe is facing a worrying lack of quality long-term investment. Policy decision-makers are wondering how their long-term projects will ever be funded. In addition, the ECB’s clear desire to act on exchange rates should further increase imported energy prices. In this context, many institutions – EC, EIB, ECB, G20, OECD, IMF and others – are calling for increased infrastructure investment. The key fact recognised by these organisations is the need to “do it now” and to “choose the right projects”⁸².

b. Prioritising the energy efficiency of public buildings as a quality investment

Since buildings represent 40% of energy consumption in Europe, they are a major segment of the energy transition, accounting for hundreds of billions of euros. The share of public buildings (excluding social housing) is estimated at around 10% of total surface area. The SFTE project builds on the duty of European, national and local authorities to set an example and stimulate quality investment. In Europe, public buildings (schools, offices, hospitals and so on) are estimated to be a largely untapped source of potential of financially sustainable renovation (entirely funded by energy savings as opposed to subsidies) of at least €180bn, that is to say €120bn more than the current investment trend (BAU of €60bn or even less over 10 years). This untapped potential, which urgently needs to be more accurately assessed in the EU, is reason enough for action by public authorities:

- public accounting standards are a burden on projects and their “conventional” financing mechanisms;
- project finance mechanisms remain ill-suited to these medium-sized operations;
- stimulating demand (currently weak and politically undervalued) calls for a clearly articulated long-term real estate strategy and key projects to achieve it;
- current financing capacities and regulations would be insufficient for such a proactive policy.

c. Unrivalled socio-economic benefits

Energy renovations bring key socio-economic benefits:

- local job creation, in part through SMEs: with about 15 jobs/year per million euros invested, a €420bn programme of investment in public buildings would result in more than 600,000 additional jobs/year over 10 years;
- the development of an industry of excellence which would boost EU exports to globally expanding energy efficiency markets;
- improvement of the EU’s highly skewed energy trade balance;

79 Société de Financement de la Transition Énergétique; Energy Shift Financing Agency (ESFA) in English.

80 We want to thank the SFTE consortium (Aquitaine, ARKEA, CDC, Centre, Crédit Agricole, EDF, ECF, FFB, FNH, GDF SUEZ, BPCE, Landes, Meridiam, Ministry of Ecology SD & Energy, Rhône-Alpes, Schneider, The Shift Project, Veolia, Vinci) and the many specialists who have already agreed to contribute to the SFTE works with about 200 experts, stakeholders and officials interviewed in France and Europe.

81 IMF. [The Time Is Right for an Infrastructure Push](#). September 2014.

82 Energy consumption for heating in public buildings: 50% gas and 20% fuel oil (France).

- energy independence⁸³: the EU28 imports more than 50% of the energy it consumes and the Ukraine crisis is currently underlining Europe's vulnerability;
- investment spurring the EU's competitiveness: fossil-fuel imports represent more than €1bn per day but energy savings would enable the EU to use these resources to generate more added value;
- exemplary reduction of CO2 emissions in the context of COP21, in accordance with European targets⁸⁴. Investing €180bn in public buildings (+€120bn versus BAU) would reduce their energy consumption by 20%. Investing €420bn (+€360bn versus BAU) would reduce their CO2 emissions by 40%.

2. AFTER's proposal of a quality investment programme for an EU economic recovery plan

a. A key European dimension

We have seen broad demand for innovative proposals through our European contacts: the EIB, the European Commission (DGs ENER, CLIMA, MARKT, ECFIN and others), KfW, NGOs and so on. European organisations are also showing a strong interest in the development of energy efficient buildings. The EU is reviewing a number of quality investments in infrastructure. At this time, the SFTE's proposal could be considered as a highly relevant energy-climate project for a European economic recovery plan. While it is proposed to kick off the SFTE project as a national experiment, its scope will be very much European.

b. High-quality financial engineering

Our proposals respond to the need for the long-term financing of the European economy⁸⁵ focusing on the "real economy", without increasing the public debt. They will improve the traceability of that financing to facilitate safe and transparent monitoring of the scheme by public authorities. AFTER has produced another note describing the SFTE scheme and its broad partnership between public and private entities.

c. A strong commitment from European and national public authorities

The SFTE project requires a strong mobilisation of public authorities in the EU and Member States. Their commitment is essential to improve public project management capacity, pool operations, promote economies of scale, standardise projects, and ultimately to significantly increase the volume of operations. As recently stated by the G20: "Governments should build public sector institutional capability in project development and implementation, and foster greater knowledge sharing and transparency across levels of government, jurisdictions, the private sector and other stakeholders."⁸⁶ In addition, energy savings performance commitments will provide for reliable and demanding public policy assessments. The programme should be widely publicised to make it easier for local elected representatives to politically promote their energy efficiency projects.

3. EU NEXT STEPS

We hope the Commission will put the energy renovation of public buildings at the top of the agenda in its selection of quality investments. The SFTE project now requires a strong mobilisation of all stakeholders⁸⁷:

a. European Union

- Public buildings selected as a quality investment target for the EU
- Creation of a dedicated task-force including the EIB on this very subject
- Creation of a European knowledge sharing platform: observatory network on energy expenses, renovations, energy saving performance contracts, costs/savings, RFP, energy efficiency techniques...

b. National public authorities

- National public building strategy with strengthening of public project development capabilities
- Massive pipeline of projects selected by national and local authorities

c. European private sector

- Commitment and support by industrials, construction SMEs, banks and institutional investors

⁸³ Energy consumption for heating in public buildings: 50% gas and 20% fuel oil (France).

⁸⁴ European Commission. [2020 climate and energy package and 2030 framework for climate and energy policies](#).

⁸⁵ European Commission. [Communication on long term financing of the European economy](#), March 2014.

⁸⁶ G20. [A set of Leading Practices on Promoting and Prioritising Quality Investment](#), September 2014.

⁸⁷ Another note gives more details on the technical agenda. See "420 Bn€ quality investments for EU – technical"

VI.E. Summary note for decision makers – Technical note

A €420bn investment programme for the European Union Massive financing of the energy transition in schools, hospitals, etc. for a competitive EU

The SFTE⁸⁸ project aims to establish a broad partnership between public and private entities to stimulate the economy and deliver between €180bn and €420bn of investment in Europe over 10 years for the benefit of medium-sized projects (in the order of €1m) that are necessary for the energy transition. It will enable EU banks to finance the energy renovation of public buildings under excellent – cheap and long-term – conditions.

A feasibility study has been conducted by the AFTER association with an exemplary consortium of public and private stakeholders⁸⁹ in France: local authorities, industry players, banks/financial institutions, NGOs, Plan Bâtiment Durable⁹⁰. Many European institutions have expressed their interest in the initiative. Now the implementation of the SFTE project requires a commitment from European and national public authorities. Such a proactive real-estate policy would significantly contribute to economic recovery, cut costs, CO2 emissions and the external deficit and improve energy independence, and could quickly create jobs.

1. Background and issues

a. Economic environment

The economic environment has changed considerably over the past year. The inflation rate in the euro area is extremely low, and long-term interest rates have entered territories uncharted for the past 200 years. The ECB is attempting to initiate a programme to massively boost the funding of the “real economy” through banks. However, the lending market has yet to recover, and Europe is facing a worrying lack of quality long-term investment. Policy decision-makers are wondering how their long-term projects will ever be funded. In addition, the ECB’s clear desire to act on exchange rates should further increase imported energy prices.

b. Prioritising the energy efficiency of public buildings as a quality investment

Since buildings represent 40% of energy consumption in Europe, they are a major segment of the energy transition, accounting for hundreds of billions of euros. The share of public buildings (excluding social housing) is estimated at around 10% of total surface area. The SFTE project builds on the duty of European, national and local authorities to set an example and stimulate quality investment. In Europe, public buildings (schools, offices, hospitals and so on) are estimated to be a largely untapped source of potential of financially sustainable renovation (entirely funded by energy savings as opposed to subsidies) of at least €180bn, that is to say €120bn more than the current investment trend (BAU of €60bn or even less over 10 years). These projects would benefit from growing market demand for “green bonds”. This untapped potential is reason enough for action by public authorities:

- public accounting standards are a burden on projects and their “conventional” financing mechanisms;
- project finance mechanisms remain ill-suited to these medium-sized operations;
- stimulating demand (currently weak and politically undervalued) calls for a clearly articulated long-term real estate strategy and key projects to achieve it;
- current financing capacities and regulations would be insufficient for such a proactive policy.

c. Strong potential of socio-economic benefits

Energy renovations bring key socio-economic benefits: local job creation through SMEs⁹¹, development of an industry of excellence which would boost EU exports, improvement of the trade balance⁹², reduction of CO2 emissions in the context of COP21, and – last but not least – energy independence⁹³. In France alone, €30bn of investment in public buildings (+€20bn versus BAU) would reduce their energy consumption by 20%, whereas €70bn of investment (+€60bn versus BAU) would reduce their CO2 emissions by 40%.

d. A key European dimension

While it is proposed to kick off the SFTE project as a national experiment, its scope will be very much European.

⁸⁸ Société de Financement de la Transition Énergétique ; Energy Shift Financing Agency (ESFA) in English.

⁸⁹ We would like to thank the SFTE consortium (Aquitaine, ARKEA, CDC, Centre, Crédit Agricole, EDF, ECF, FFB, FNH, GDF SUEZ, BPCE, Landes, Meridiam, Plan Bâtiment Durable, Rhône-Alpes, Schneider, The Shift Project, Vinci) and the many specialists who have already agreed to contribute to AFTER’s work with around 200 experts, stakeholders and officials interviewed in France and Europe.

⁹⁰ Ministry of Ecology, Sustainable Development and Energy.

⁹¹ Approximately 15 jobs/year per million euros invested.

⁹² EU-28 imports about 50% of the energy it consumes and the Ukraine crisis has recently underlined Europe’s vulnerability.

⁹³ Energy consumption for heating in public buildings: 50% gas and 20% fuel oil (France).

We have seen a broad demand for innovative proposals through our European contacts: the EIB, the European Commission (DGs ENER, CLIMA, MARKT, ECFIN and others), KfW, NGOs and so on. The EU is reviewing a number of quality investments in infrastructure. At this time, AFTER's proposal could be considered as a highly relevant energy-climate project for a European economic recovery plan.

2. AFTER's proposal for an EU economic recovery plan

a. Financial, industrial and political tools

At the core of the scheme, the SFTE will provide a high-quality guarantee (counter-guaranteed by the national state) for dedicated loans by commercial banks, in order to improve the investment climate. Simple, transparent and safe securitisation will enable the refinancing of these very long-term loans, 100% high-quality "green bond" assets, by institutional investors, the EIB, or even directly by the ECB whose policy, in 2014, is ostensibly moving towards targeted funding of the real economy. Economic and industrial levers will also need to be used to maximum advantage: economies of scale, pooling of operations, standardisation and adaptation of project finance practices. Finally, this widely publicised initiative should make it easier for local elected representatives to politically promote their energy efficiency projects.

b. Energy Performance Contracting (EPC) as a key public policy tool

EPC is perfectly adapted to investment in the energy renovation of public buildings. It is based on a contractual commitment to achieve a given energy efficiency target, subject to actual and systematic *ex post* monitoring. AFTER proposes several adaptations to EPC that will increase its integrity and enable to justify European and national investment through demanding impact assessments. Moreover, EPC benefits from strong European support («EPC Campaign» of DG Energy, Energy Efficiency Directive, IEE, JRC work on the ESCOs market, EESI 2020, etc.). In a nutshell, the SFTE proposal represents a shift from tailor-made to standardised, ready-made EPC projects, for wide-scale use with the help of the state guarantee.

c. A massive impact without increasing the public debt

Like a number of leading participants in the European debate, AFTER recommends applying a specific accounting treatment to these public investments. In the absence of a revision of European treaties, the SFTE will benefit from: (1) an off-balance sheet treatment of the public guarantee and (2) the funding of projects under EPC partnerships (PPP-EPCs) that really transfer a significant level of risk to private operators or semi-public companies. Not all of the projects will be financed under PPPs or EPCs, but PPP-EPCs should at least be promoted for operations performed in addition to current low BAU volumes. Like other institutions in Europe with which it is in contact, AFTER is calling for a technically limited evolution of the European accounting framework so as to better adapt it to energy efficiency improvement projects: the accounting of PPP-EPCs outside the scope of public debt is paramount to bringing about a change of scale in Europe.

3. EU NEXT STEPS

The SFTE project requires a strong mobilisation of all stakeholders:

a. European Union

- Public buildings selected as a quality investment target for the EU
- Creation of a dedicated task-force by the Commission on this very subject
- Creation of a European knowledge-sharing platform: observatory network on energy expenses, renovations, EPCs, costs/savings, RFPs, energy efficiency techniques, etc.
- Fine-tuning of the Eurostat methodology to enable an accurate treatment of PPP-EPCs
- EIB intervention and public balance sheet optimisation: loans, equity (SFTE and/or SPVs), expertise, etc.
- Adaptation of the regulation (EBA/EIOPA) to stimulate the private funding of such quality investments
- Calibration and assessment of the intrinsic level of risk in operations: National Central Banks & ECB

b. National public authorities

- National public building strategy with the strengthening of public project development capacity
- Massive pipeline of projects selected by national and local authorities; consumption track-records
- Specific business plan and creation of SFTE-like entities: bylaws, analysis of existing state-guarantee mechanisms, potential shareholders, governance, team, regulator approval, etc.

c. Industrials, SMEs, banks and institutional investors

- Ramp-up of operations, productivity gains and development of a European industry
- Securitisation Funds bringing together energy efficiency medium-sized projects for investors

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