SERM promises a suburban revolution

Recent legislation has paved the way for the development of high-performing multimodal transport networks in 24 French conurbations, centred around rail as a means of reducing greenhouse gas emissions. Reinhard Christeller explains.

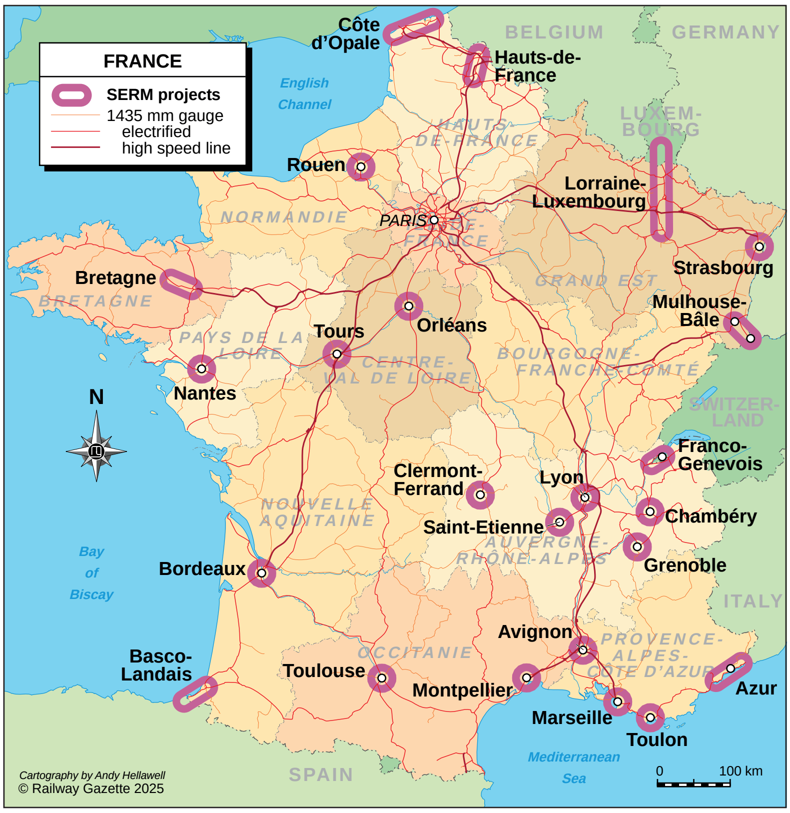
Modal shift to rail has been identified as a priority for the French government, which is targeting short-distance travel in and around the country's principal regional cities as offering the greatest potential in the short to medium term.

Transport now accounts for the highest proportion of greenhouse gas emissions in France. The country's manufacturing, energy, construction and agricultural sectors have all reduced their emissions substantially in recent decades, but the transport sector has made little or no progress. Transport now accounts for 32% of the country's total CO_2 emissions, while the related air pollution in cities causes an estimated 40 000 premature deaths every year.

Passenger travel accounts for 60% of the transport sector's emissions, which is why the government believes this offers the biggest opportunity. It began to take action at the end of 2019 with the passing on December 24 of the *Loi d'Orientation des Mobilités*, aimed at encouraging modal shift to rail. This was followed on December 27 2023 by a law on *Services Express Régionaux Métropolitains*, aimed at establishing express rail services (RER or S-Bahn) for metropolitan areas across the whole of France.

As with the 2010 Île-de-France legislation covering the Greater Paris area, SERM does not just address urban and suburban rail, it takes an all-encompassing perspective that includes co-ordination with trams, buses, cycling and even car sharing. Nevertheless, the centrepiece envisages a substantial strengthening of the rail network aimed at increasing ridership in and around major cities. This would be achieved by improved frequencies, reduced journey times and higher punctuality; the programme is expected to start with short-term improvements on existing lines and extend through upgraded tracks and junctions to the construction of new lines.

So far, 24 SERM projects across mainland France have been declared viable. Work is now in progress in the various régions to develop the schemes in greater detail.



32% of France's total CO_2 emissions are accounted for by transport

At the same time, SERM envisages the introduction of integrated ticketing covering different modes of public transport across the whole area of each network. By offering an attractive alternative to the use of private cars, SERM aims to reduce road congestion and help decarbonise the transport sector.

The legislation calls for the compilation of 10-year forecasts to inform the planning of multiple projects, bringing together national and regional government, local municipalities and a wide range of transport stakeholders. Société du Grand Paris, which was established in 2010 to build the Grand Paris Express automated metro network, has been rebranded as Société des Grands Projets; it will be responsible for the design, project management and financing of the necessary infrastructure improvements, working alongside SNCF Réseau.

A shift of focus

The new legislation marks a significant shift in focus in government thinking from the capital to the *régions*, and

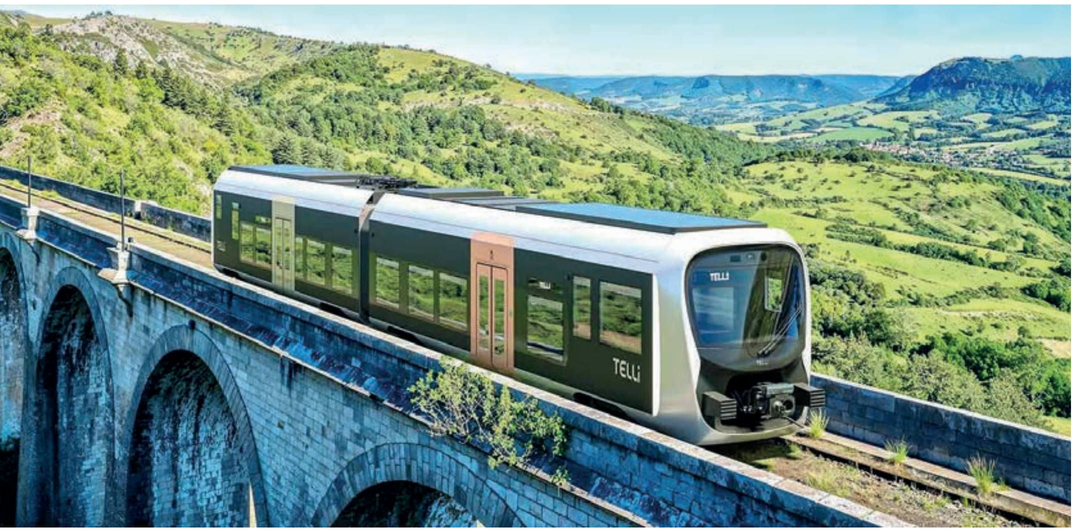


Image: SNCF

TELLi is an innovative lightweight bi-mode train under development by SNCF for use on rural lines. Such trains could also be deployed on lower-demand SERM services, although single and double-deck trainsets with higher capacity would be needed for busier routes.

more specifically the major regional centres. While the 12 million inhabitants of the Greater Paris area benefit from one of the most developed RER networks in Europe, elsewhere, the many millions of people living in and around other French cities lack attractive public transport.

Today, only 9% of all journeys in the *régions* of less than 80 km are made by public transport. Some 85% of French inhabitants do not have a station in their immediate vicinity and outside peak hours the timetables are unattractive or non-existent, forcing them to rely on cars. There is thus a huge potential for development.

On this premise, the state invited regional authorities to develop the 10-year forecasts required by the SERM legislation and submit their proposals for approval.

To date, 24 projects have been prequalified, and this number is expected to reach up to 30 in the medium term. Consultants such as Egis have been brought in to refine the prequalified projects in detail, in terms of scope, timescale, financing and impact. The total envelope for investment is currently estimated at around €40bn for capital works to increase capacity and build some new lines, plus between €1bn and €1·5bn a year to cover the operating costs.

Financing sources

Several sources of finance are envisaged under the legislation. SGP may take out loans to fund individual projects with a payback period of up to 50 years. Meanwhile, the LOM gives local authorities powers to levy a *versement mobilité* on employers to finance public transport initiatives; this payroll tax can be used for both capital investment and to cover ongoing operating costs. The *versement* is calculated as a percentage of salaries, ranging between 0·55 and 1·75%, and the proportion may be increased to finance specific infrastructure projects.

Furthermore, a new tax is under discussion to finance development projects including transport infrastructure. This would be similar to the Île-de-France office tax, which is levied on businesses in the Greater Paris area. Finally, regional or local governments may contribute their own funding to complement or accelerate specific projects.

A national conference on the financing of SERM projects was supposed to be held before July 2024 to decide on these financial instruments, but it is still awaited. The event is intended to bring together all the key players, including the state, the *régions*, the metropolitan areas, SGP and SNCF Réseau.

Reversing the cuts

Over many decades, the quality of public transport in much of France been steadily downgraded, by the reduction of off-peak and weekend services and the closure of rural lines. In parallel to the SERM initiative, there is a programme to revive these lines through their transfer to local control (p24) or the introduction of innovative technology (RG 12.24 p18).

However, various regional governments are reportedly expressing concern at having to pay for the maintenance of their rural railways, which they feel should be the state's responsibility, having seen their budgets cut for this year. Many of these lines are served by just one or two trains a day, while SNCF or regional operators run subsidised bus services on parallel routes. There has been a big outcry over the continuing decline of rural rail services, but SERM's focus on improvements in the metropolitan areas is likely to increase the pressure on regional budgets.

Even before the long-term vision set out in the legislation can bear fruit, the first SERM projects are expected to start in the next few months. One immediate step will be to eliminate the many off-peak gaps in suburban services around regional cities by the end of 2025. As these additional trains would use the existing infrastructure and could be worked by the current rolling stock, the marginal cost is estimated at about €300m per year.

However, a substantial improvement to the transport offer would require additional capacity, both infrastructure and rolling stock. The SERM promotors optimistically believe that most expansion projects could be delivered by 2030, with the more complex schemes running to 2035-40. Yet it has to be borne in mind that it would be difficult to accelerate the process of analysing traffic requirements, planning the service offer, getting authorisation, calling tenders and building the infrastructure or equipment.

Nevertheless, the anticipated growth in usage could lead to a welcome surge

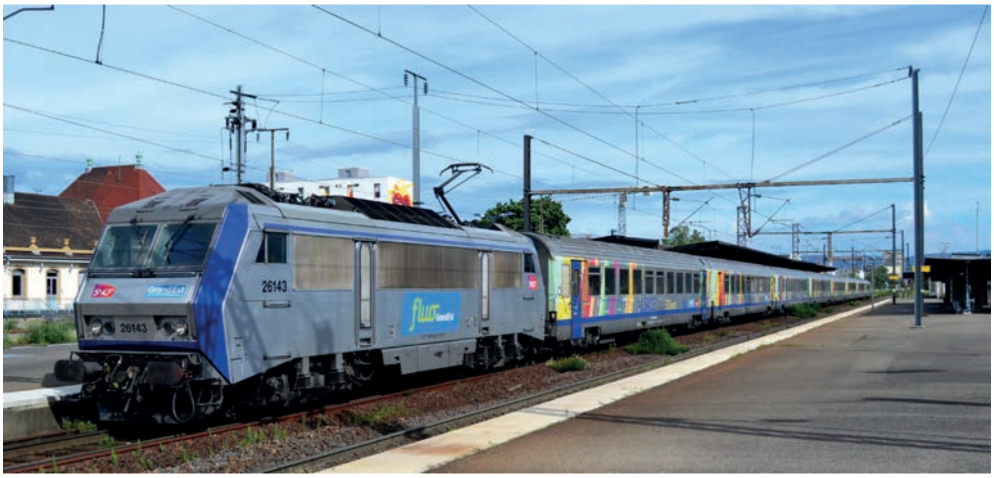
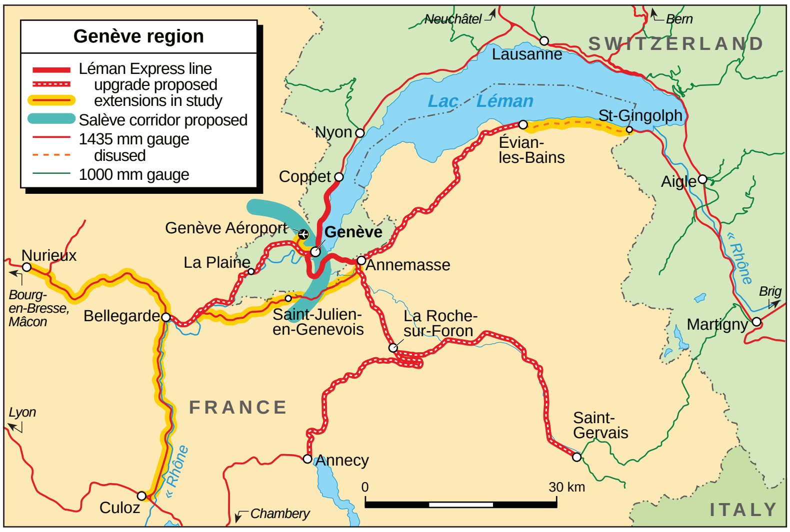


Photo: Rudolf Schulter

A 5·6 MW BB 26100 Sybic locomotive pulling a 200 km/h Fluo Grand Est Corail train from Strasbourg to Basel, crossing the Swiss border at Saint-Louis.



A map of the Léman Express network, showing proposed upgrades and extensions.

of regional metropolitan centres becoming '10-minute cities' over the next couple of decades.

Learning from precursors

Even if the SERM vision was initiated by the national government, some *régions* had already been developing similar initiatives over many years. One early example was the VAL metro network in Lille, which opened in 1983 with close integration to the city's bus and tram networks.

Another could be found in the former Alsace-Lorraine *région*, where rail services on existing lines were gradually stepped up from 1970 onwards, initially branded as *Metrolor* and after 1986 as TER Alsace. This network extended steadily over the years, with routes branching off the Strasbourg – Mulhouse – Basel main line where regional expresses run at up to 200 km/h. The core now sees well-loaded trains operating at half-hourly intervals all day. The Strasbourg tram network and Mulhouse – Thann tram-train route were tied into the network, with interchanges at the railway stations and convenient park & ride facilities. Since the regional reforms, these services have been integrated into the *Fluo* transport network covering the whole of Grand Est *région*.

Leman Express

Perhaps the most spectacular regional rail system is the 230 km Léman Express cross-border network, which opened in 2019. Serving 45 stations, this links Genève to its hinterland in the French Auvergne-Rhône-Alpes region, which surrounds it on three sides. The greater Genève conurbation has a million inhabitants, of which around 40% live in France, while two-thirds of the jobs are in Genève. This generates around 150 000 cross-border trips per day.

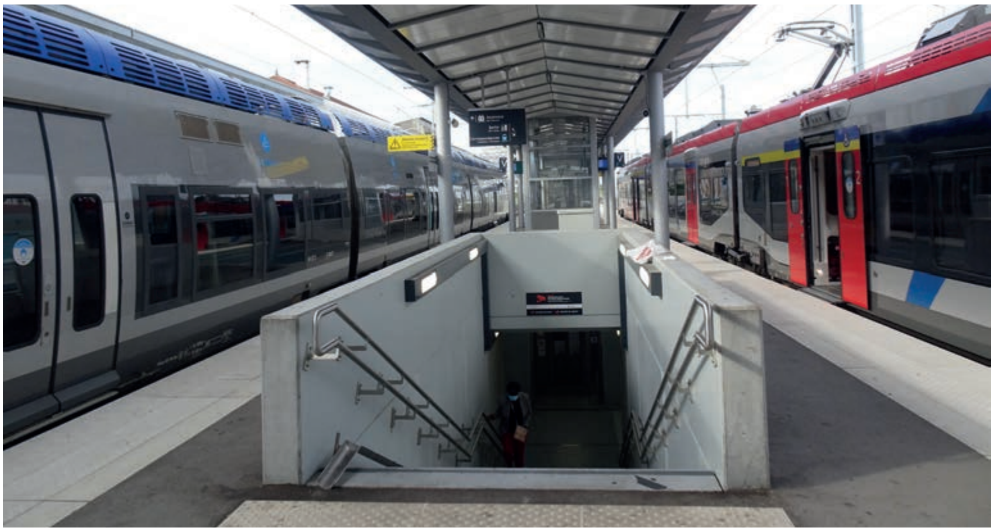


Photo: Reinhard Christeller

A Léman Express train (right) provides interchange with an SNCF TER train to Bellegarde at Annemasse.

The central core of the network is a newly built link from Genève's main station to the neighbouring French town of Annemasse, with five new stations. Branded as CEVA, the link finally fulfilled after 138 years the terms of a Franco-Swiss Treaty concluded in 1881. On the French side, the number of trains serving Annemasse has increased from 80 to 270 per day, and the station has been completely rebuilt with four platforms. Thonon-les-Bains station has been refurbished, and 16 others have been upgraded to meet accessibility standards, with lengthened platforms, and some level crossings have been removed.

Léman Express services operate from 05.00 to 00.30 each day. A number of transfer hubs have been established to ensure good connections, including Annemasse, Bellegarde, Genève-Cornavin and La Roche-sur-Foron.

The network has been a great success. It was initially designed to handle 50 000 passengers/day, but ridership has increased to a peak figure of 80 000; further growth has been constrained by a shortage of trains. Short platforms and mostly single track routes with obsolete manual block signalling are also limiting capacity on the lines radiating from Annemasse into the French hinterland.

The increased ridership and the line extensions envisaged under the SERM framework will probably require the provision of double-deck trains to increase capacity; these are expected to be delivered from around 2030. In parallel, line upgrades and platform lengthening will be needed, particularly on the French side.

Among the proposed extensions is the reopening of the 17 km link between Évian-les-Bains and St. Gingolph on the south side of Lac Leman, connecting to the Swiss RegionAlps network up the Rhône valley. This line has been closed since 1988, but is expected to be rebuilt to help relieve road congestion. A new direct service between Annemasse and Genève airport via an existing tunnel currently used for freight traffic is planned to start in 2026.

230 km

cross-border Léman Express network serves 45 stations

In the south and west, it is planned that services will be extended beyond Bellegarde-sur-Valserine to Nurieux and Culoz. Meanwhile, the regional line between Annemasse and Bellegarde, which is currently operated by SNCF TER trains, is set to be integrated into the Léman Express network. And for the longer term, there are proposals for a completely new 'Salève' line to connect French towns in the south and north of the conurbation via Genève and the airport, but without passing through Annemasse.