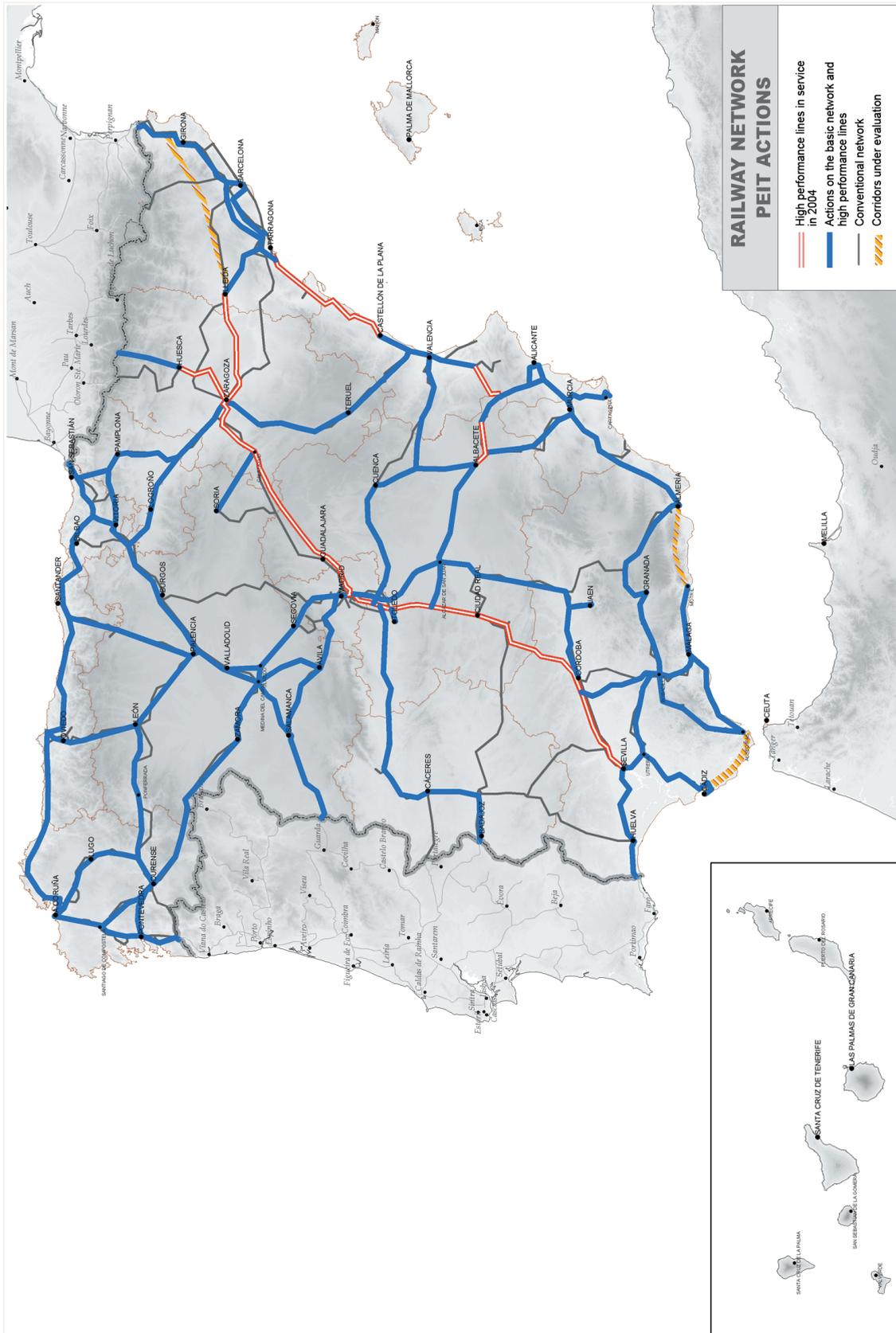


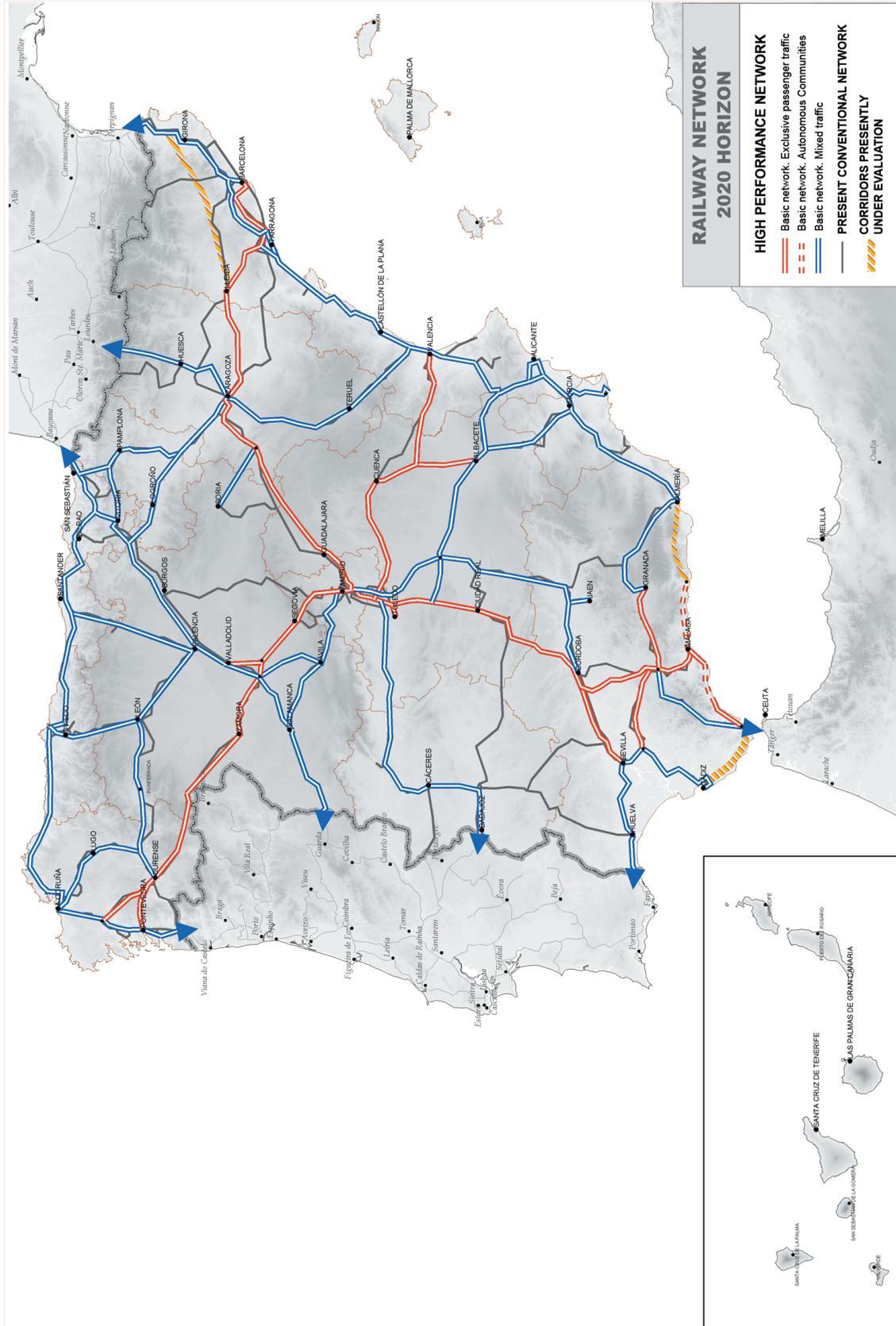
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FIGURE 25. The rail network. Actions under the PEIT



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FIGURE 26. The rail network. The 2020 horizon



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The Directives are articulated in the so-called Technical Specifications for Interoperability (TSI), standards and specifications related to infrastructure, electrification, control and signalling, rolling stock, maintenance and exploitation. These Specifications have already been adopted for the high-speed system, and it is planned to apply them to conventional rail from 2005.

It has been the custom to describe the different gauge in most of the Spanish network from that in many other countries as the only existing problem of interoperability. It is undoubtedly the most important such problem, but it is not the only one. The European States' rail systems have very different technical and operational characteristics, many of them incompatible: signalling systems (of which there are more than 15), electrification specifications, material specifications and operating conditions.

Spain's drive to incorporate the conditions of interoperability foresees the gradual but coordinated introduction of UIC gauge into the country's network, with due provision for the compatibility of traffic on existing and new lines. It also provides for the incorporation of the European signalling system (ERTMS) on new lines, and the adoption of operating standards and protocols in coordination with the countries around us. At the same time, the inclusion of interoperability requirements has to respect the conditions of the existing rail system, so that operations both there and on new lines allow for the greatest compatibility between them, making it possible to take enhanced quality of service and the time-saving obtained with the new lines to most of the country.

Correct European network integration must be based on the addition to the European rail system of a coherent and functional mesh operating at different speeds and with different parameters, but competitively, connecting the Autonomous Communities among themselves and to the European system. In other words, to give internal coherence to the domestic rail system so that it can contribute to the development of the European network, at the same time as more effectively and efficiently satisfying its basic function in the Spanish transport system.

6.4.2.3. Maintenance of the conventional network

The quality demands society places on public rail services require radical changes to the technologies supporting the rail assets in operation. Thus, in the context of the PEIT, ADIF has begun preparing a maintenance plan for its conventional network, medium-term, for action on track, infrastructure, electrification, signalling and telecommunications.

The proposals are divided into four types of action:

- Urgent action, whose impact will be immediate in improvements to safety and reliability and which can be implemented short-term, although some will remain in place throughout the Plan's 8-year term.
- Specific action designed to avoid the functional deterioration of installations awaiting technological modernisation or integrated actions.
- thorough action, defined by the necessity or otherwise for track renewal. If affirmative, the section to be renewed will incorporate the measures necessary to form a fully modernised route.
- Technological modernisation, including specific modernisation procedures due to obsolescence.

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6.4.2.4. Eliminating level crossings or improving their safety

All the world's rail systems share the problem of level crossings. Countries with very advanced rail and road networks still however have a high number of level crossings. The average distance between level crossings is just 1.3 km in the United States, 2 km in the United Kingdom, or 1.7 km in France, compared with 3 km in Spain. This country is therefore in a comparatively good position in comparison with others, although continuing accidents (some 30 per annum) mean that stronger action is required.

Expenditure must be aimed above all at level crossings affecting public routes currently in service; others, still in place, are on private routes, and require different treatment, since most of them are conditional on authorisations.

It must be kept firmly in mind that level crossings fall within the competence of two Administrations, that owning the railway (the Ministry of Public Works and Transport) and the owner of the path, street or road (for the most part Municipal Authorities, province *Diputaciones* and Autonomous Communities), which have to agree on a decision to eliminate a level crossing, requiring coordinated action by the Administrations concerned, and including drafting of a specific project which takes up the proposals and arguments submitted by the locality affected.

In such situations, it becomes advisable in addition to eliminating level crossings to take other complementary action to enhance safety at existing crossings, while they await their removal. This can achieve appreciable safety improvements in the short and medium terms.

6.4.2.5. The environmental integration of rail

This program must include action on landscape integration, a reduction of the barrier effect and fragmentation, and controls on emissions or noise from rail traffic. On the other hand, the rail heritage offers many openings, for the development of "green ways" in the proximity of some lines, or for the recovery and upgrading of line infrastructures not in use.

On this last point, action has to be linked to similar projects in other networks (roads) being implemented by other Departments (the Ministry of the Environment) and other Administrations. The Ministry of Public Works and Transport must propose new upgrading and recovery methodologies, draft plans for the use of the infrastructures and the planning of their environmental surroundings, and for the development of a coherent network throughout the territory. Operation and conservation of this network will be managed through concessions to local corporations, public or private entities, or foundations. As an estimate, it is calculated that the PEIT will assign 1% of its expenditure on transport infrastructures to this type of action.

6.4.3. Rail services and operators

The progressive liberalisation of rail services for passenger and goods is an opportunity and a basic point of reference for the PEIT, of particular importance given the relevance assigned to rail in the development of intermodality.

The Ministry of Public Works and Transport draws on two components which are key to promoting the revitalisation of rail: the provisions enabling the Rail Sector Act, Act No.

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39/2003, and the policy of the public operators, particularly *RENFE Operadora*. It is essential to define a stable relation frame between the Administration and the public rail operator which facilitates *RENFE Operadora's* adaptation to the new situation (demand requirements, the new institutional framework and the commissioning of new infrastructures) and facilitates the role which *RENFE Operadora* can play at this new stage in energising rail services. Stocks will be concluded with the State Administration, with the necessary tools, making it possible to promote innovation and the modernisation of Program-Contracts, improvements to management systems and training, the adaptation of human resources to the new technological situation, and competition. Aspects such as significant improvements to service quality, linked to the multiple actions proposed in rail infrastructure (with the use of adequate rolling stock during this phase of thorough reform of the rail system), or the definition of service standards and services of general interest, must find the channels for their clarification in these Program-Contracts.

Consistent with the guidelines in Section 5.2.2, the activity of *RENFE Operadora* must be directed toward meeting the demand for the mobility of persons and goods as a defining element in the intermodal chain of public transport services. Three clearly differentiated types of demand must be distinguished in passenger transport: long-distance, regional and metropolitan. Rail services must therefore be oriented in each case in terms of models which are differentiated, although complementary:

- Long distance: the creation of high-frequency services in the high-performance corridors, coordinating timetables and facilitating interchange with other rail services and with road transport.
- Regional: coordination with long-distance services (timetable and pricing coordination to facilitate interchange), the search for complementarity with public passenger transport services by road, and the structuring of services in line with the Autonomous Communities' strategies.
- Goods: concentrating intermodal transport services on trunks where demand is greatest (the central corridor, the Ebro and the Mediterranean) boosting international activity, with complementary strategic partners from among operators in other countries.
- Commuter: progressive integration in metropolitan public transport services, centred on corridors where demand is strong and which require high frequency. These services are discussed in the section on urban mobility.

For its part, FEVE's strategy must focus on metropolitan mobility in the centres where it is already providing service. Other services (regional and goods) must adapt to the development of the high-speed network provided for in the Rail Transport Sector Plan.

6.4.3.1. Long-distance

Long-distance includes services with very different characteristics:

- Intercity services, with travelling times of about 2-3 hours, and a high frequency.
- Transversal services, generally with high travel times, a marked seasonal component and a varied offer: night services, international, etc.
- Radial services, carried progressively on the high-performance routes and which, from the operators' standpoint, demand the creation of adequate transition strategies as new infrastructures come on stream.

The operators' strategy will probably be aimed at classifying and standardising the offer, seeking complementarity between high-speed and regional services (ultimately establishing interchanges to optimise total travel time) and with support from road

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transport services, the identification of unprofitable services, and the quest by new operators for new openings or market niches.

The good image of the high-speed services is a major attraction for rail operators compared with existing transport modes (air and private vehicle), which may serve as a catalyst for the overall long-distance rail offer.

6.4.3.2. Regional

These services start from a position of weakness: they are very unevenly distributed, their social and political standing is low, service quality is poor (reliability and the train fleet) and demand is stagnating. However, because of their development in other countries as well as of some positive experiences in Spain, the demand for these services is growing, and will be driven in the future by the new relation which may come into being between *RENFE Operadora* and the Autonomous Communities, and by the openings for optimisation of supply with the use of rolling stock better adapted in terms of costs and operability to this service's requirements. Such an outlook points to a growth scenario of some 30% in passengers transported during the first phase of the PEIT.

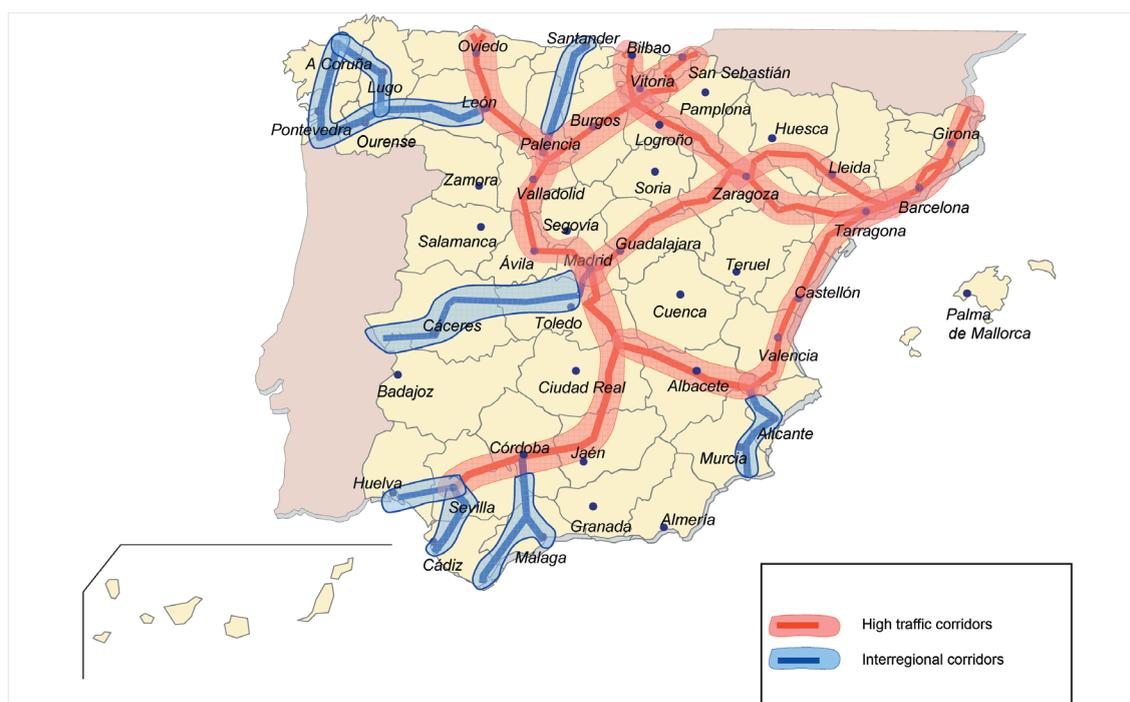
Operators' priorities must address the following:

- Renewed rolling stock, with the acquisition of more efficient models.
- The creation of specific strategies with the Autonomous Communities to identify the services to be provided.
- The integration of regional services with the other public passenger transport networks.

6.4.3.3. Goods

Here, the point of departure is one of declining offer in terms of both quality and market share, and a weak social and commercial image. Available infrastructures and resources prove inadequate: slack presence in ports, maximum gradients, station lengths, sectors not electrified, sidings, etc.

FIGURE 27. The main corridors for rail transport of goods



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The growth of the rail offer in this sector is concentrated on lines with the greatest flows and, in most cases, linked to the development of intermodal chains. Rail operator strategy must therefore target logistic marketing, enhancing productivity (including adjustments to the offer and a review of commercial strategies) and radical advances in quality (speed, punctuality, processing at terminals, ...).

RENFE Operadora must play a fundamental role in the development of these services in the new liberalised framework: along with its transport offer, it must design a traction strategy which enables the offer to be extended to new demands by others. The interoperability of the Spanish and French systems is crucial to the development of an international strategy by this country's rail operators, including marketing alliances, or the development of international services. Another element of the greatest significance is the relation established between rail operators and terminals (logistic centres, ports, ...).

6.5. SEA TRANSPORT

6.5.1. Priorities

Sea transport priorities are directed in a first phase of the PEIT to the consolidation of ports as intermodal modes of reference, backing up the progressive deployment of the intermodal goods network and securing safer sea transport services which are respectful of the environment (see Table).

Sea transport system priorities. 2005-2008

- To promote the safety and environmental efficiency of sea transport with a more active presence in the international realm (the IMO and the EU) and the development of inspection, security and rescue services.
- To foment the functional structuring of logistic port nodes and integrate them into the intermodal transport system in a balanced framework of port-to-port cooperation and jurisdiction, taking account of ports' current dimensions and potential, their radius of geographical influence in the foreland and hinterland, and traffic strategies (specialisation and diversification) and functional development (hub, gateway or import/export) in relation to current and forecast market trends.
- Review of the port regulations, principally concerning economic-financial aspects, public planning and management, and the provision of port services, in this last case taking account of the recently-initiated process of review of the EU provisions (the new ports package).
- The implementation of effective solutions to eliminate obstacles and promote the development of short sea shipping and the Sea Motorways.
- Substantial improvements and, where necessary, new action on rail access to ports with significant traffic potentially transferable to rail, according to type of merchandise, volumes, distances and the development priorities of the intermodal goods system.
- Priority programs on land access to ports using *ad hoc* coordination and financing procedures.
- The development of ITS in coordination with the other modes.

These actions will in turn make it possible from 2009 to progressively consolidate intermodal transport services. The port authorities will have to act as reference agents for the development of intermodal logistic facilities not just in port service areas but also inland, participating actively in coordinating administrations for the progressive consolidation of the link represented by rail in the intermodal chain.

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FIGURE 28. State Ports. 2020 traffic forecast

