PRELIMINARY REPORT OF THE EVALUATION PLANS

Single Programme 5G REDES – backhaul FIBRA ÓPTICA

6 April 2024

1 Executive summary

The Single State aid measure 5G REDES backhaul FIBRA ÓPTICA (hereinafter Single 5G backhaul) is subject, by its characteristics, to an ex-post evaluation plan as set out in paragraph 211 *of the Communication from the Commission 12.12.2022 C (2022) 9343 final of the Guidelines on State aid for broadband networks.*

The objective of the Single Measure 5G backhaul is to contribute to boosting the digital transformation by deploying 5G in certain territorial areas to contribute to their economic development and to reducing the digital divide between rural and urban areas and also by providing the necessary capacity to withstand the new services and applications enabled by 5G technology.

Its funding comes from the **Recovery and Resilience Facility (RRF)** regulated under Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021. Under that mechanism, and to contribute to the recovery of the Spanish economy, the Recovery and Resilience Plan was born, which points to one of its levers ('Digital connectivity, boosting cybersecurity and 5G deployment') towards boosting the digital transformation by focusing on 5G deployment across all territorial areas, thereby promoting the elimination of the digital divide between rural and urban areas.

In this regard, this aid measure contributes to the achievement of the objectives of Component 15 (C15) of the Recovery and Resilience Plan (RRP) on 'Digital connectivity, boosting cybersecurity and 5G deployment', in particular, it will contribute to the fulfilment of the following sub-projects of Investment I6 (C15.I6):

1) Deployment of 5G shall be boosted and accelerated on the main transport corridors (roads and railways) both national (secondary corridors in certain areas) and cross-border (primary corridors). These initiatives are in line with the 5G corridors defined by the European Commission and will enhance the corridors between Spain and Portugal and Spain and France. This measure covers those secondary routes which shall not be covered by the obligations imposed in spectrum tenders.
2) 5G deployment in certain areas with the objective of achieving 75 % coverage of the population by 31 December 2 025 in the 5G preference bands. In order to facilitate this deployment, actions shall also be undertaken to increase the capacity of the existing network so that it can respond to the high bandwidth demand and density of base stations that will be required for 5G deployment (at least 7000 new or existing sites with new 5G equipment; and at least 4000 existing sites with actions to increase the capacity of their backhaul network). This measure provides coverage for areas that shall not be covered by the obligations imposed in spectrum tenders.

As set out in the Commission Decision on State aid reference **SA.103451, paragraph (174),** the evaluation plan notified to the Commission contains all the necessary elements and a first report of information is drawn up to the Commission in March 2024 concerning the ex-post evaluation of the measure.

The assessment of the measure must make it possible to analyse the direct incentive effect on the aid beneficiaries (i.e. whether the aid has induced the beneficiary to adopt a different course of conduct and the significance of the impact of the aid). In addition, it must also give a general indication of the positive and negative effects of the aid in achieving the objectives described above and will examine the proportionality and appropriateness of the aid.

The Single Measure 5G backhaul has a direct link with the Single Measure 5G – Active Networks concerning the granting of aid for the provision of active equipment and ancillary infrastructure necessary for the provision of 5G mobile communications services in areas where there is no 4G mobile coverage with a service of at least 50 Mbps. It is considered that the combination of both measures on certain areas will effectively determine the social and economic impact in these environments. On the date of submission of this report, the single call 5G – Active Networks is in the process of evaluating the proposals submitted.

Indeed, the European Commission itself in its decision SA.104933 RRF – *Support for 5G equipment and infrastructure*, in recital 14, states that the Active Networks measure continues and complements the aid measure for the deployment of fibre-based backhaul for mobile connectivity approved by the Commission Decision of 17 October 2022.

This report responds to the commitment of the Spanish authorities to submit a first report of information, the main characteristics and conclusions of which are set out below and developed under the relevant headings of the text.

The scope of the assessment remains in this first report restricted to the questions that can be answered at the current date.

Spain is currently in a position to request the information required for the indicators reported to the Commission (which, in almost all cases, will coincide with the situation prior to the granting of aid).

As regards the effective implementation of the evaluation plan, specifications for the procurement or agreement with an independent body are being drawn up, which will ultimately implement the plan designed.

It is also confirmed that Spain is in a position to choose the control groups against which the evaluation plan will be analysed and developed.

As explained above, it is considered that the Single Measure 5G backhaul has a direct link with Single Measure 5G – Active Networks, and that the combination of the two measures on certain areas will effectively determine their social and economic impact, and we would therefore inform you that, provided there is no objection from the European Commission, a joint evaluation plan will be carried out, including the ex-post evaluation of the single measures 5G backhaul and single 5G Active networks, given the synergies between them. with the approved timetable for Single Measure 5G Active Networks, in order to be able to measure the impacts of the joint implementation of both programmes on the deployment of 5G in rural areas, also bearing in mind that this is the ultimate aim pursued by both measures.

1.1 Objective and scope of this document

This report sets out the actions taken in relation to the single measure 5G backhaul.

Firstly, it describes the process of granting the aid, the activities implemented to monitor the implementation of the winning projects and the actions already started to implement the evaluation plan notified to the Commission.

Given that only around 6 months have elapsed since the award of the call for applications for aid, the procedures in place to obtain information relevant to the ex-post evaluation of the measure, as well as the main sources of information selected and the process of identifying the independent unit assessing the impact of the measure on the scope of the measure will be detailed.

2 Introduction.

The Single Measure 5G backhaul is channelled through grants, with a total budget of EUR 450 000 000. The aid is intended to provide fibre optic connection to the backhaul network to those sites of electronic communications networks for mobile wireless broadband services (public mobile telephone networks) in municipalities with fewer than 5.000 inhabitants and which are or are intended to be part of the network providing 5G services, which do not currently have fibre optic backhaul and for which no such provision of fibre backhaul is foreseen for the next three years from the date of identification of the eligible sites. The first call for applications for the Single State aid measure 5G backhaul was published in the BOE on 4 November 2022. The deadline for submission of applications was 14 November 2022 and the call decision took place **on 26 September 2023**.

The aided projects have an approved implementation period ending on 30 June 2025, unless extended by the competent body.

Beneficiaries are legal persons having the status of duly authorised operator, in accordance with Articles 6 and 7 of General Telecommunications Law 9/2014 of 9 May.

The following table summarises the number of sites allocated and the aid granted by area. competition (province), Annex I indicates the beneficiaries for this same competitive area.

Area Concurrence	Sites Assigned	Aid (EUR)	Area Concurrence	Sites Assigned	Aid (EUR)
ALBACETE	165	10.090.636,00	JAÉN	116	6.275.961,00
ALICANTE/ALACANT	105	5.162.585,00	LEON	371	18.241.346,00
ALMERIA	159	7.768.609,00	LLEIDA	204	12.362.799,00
ARABA/ÁLAVA	85	5.162.176,00	LUGO	241	11.797.116,00
ASTURIAS	177	9.219.590,00	MADRID	103	5.416.469,00
AVILA	129	7.980.975,00	MALAGA	109	6.272.586,00
BADAJOZ	207	10.117.445,00	MURCIA	10	491.786,00
BALEARS, ILLES	35	1.918.179,00	NAVARRA	237	11.651.634,00
BARCELONA	162	7.957.379,00	OURENSE	205	10.078.871,00
BIZKAIA	98	5.710.568,00	PALENCIA	156	7.669.723,00
BURGOS	414	20.227.595,00	PALMAS, THE	9	484.681,00
CÁCERES	117	11.507.758,00	PONTEVEDRA	75	3.687.586,00
CADIZ	26	1.360.374,00	RIOJA, THE	135	7.053.871,00
CANTABRIA	185	9.095.650,00	SALAMANCA	271	13.324.133,00
CASTELLÓN/CASTELLÓ	182	8.948.523,00	SANTA CRUZ DE TENERIFE	58	3.441.821,00
REAL CITY	118	7.422.466,00	SEGOVIA	63	8.837.208,00
CORDOBA	110	5.408.429,00	SEVILLE	103	5.063.907,00
CORUÑA, A	149	7.326.424,00	SORIA	191	9.390.188,00
BASIN	318	15.634.649,00	TARRAGONA	138	6.753.502,00
GIPUZKOA	40	2.490.898,00	TERUEL	293	18.232.472,00
GIRONA	159	7.768.497,00	TOLEDO	248	12.121.306,00
GRENADA	190	11.275.236,00	VALENCIA/VALÈNCIA	269	13.226.136,00
GUADALAJARA	367	18.044.522,00	VALLADOLID	158	10.069.805,00
HUELVA	100	4.917.145,00	ZAMORA	187	12.047.358,00
HUESCA	94	15.345.101,00	ZARAGOZA	315	15.487.219,00

	Sites Assigned	Aid (EUR)
Total	**8.156**	**447.340.893,00**

Overall, the following beneficiaries have received support:

BENEFICIARY	NIF	Total Sites allocated	Total grant (EUR)	Total bankable budget (EUR)
ADAMO TELECOM IBERIA, S.A.	A65232357	1.677	82.460.939,00	91.702.845,00
AVATEL TELECOM, S.A.	A93135218	2.697	132.261.366,00	146.988.755,00
GURBTEC TELECOM, S.L.	B66110792	65	3.188.886,00	3.543.995,00
LYNTIA NETWORKS, S.A.	A61648069	2.889	142.029.376,00	374.914.398,00
RANGE ESPAÑA FIXED COMMUNICATIONS, S.L.U.	B87706305	37	5.729.278,00	6.367.283,00
TELEFONICA DE ESPAÑA, S.A.	A82018474	768	73.558.048,00	86.308.209,00
TOTEM TOWERCO SPAIN, S.L.U.	B16951881	19	7.846.181,00	8.719.921,00
TRADIA TELECOM, S.A.	A61902045	4	266.819,00	296.513,00
	Overall total	**8.156**	**447.340.893,00**	**718.841.919,00**

3 Awarding procedure

3.1 Applicable law

The following are the various regulatory documents on which the development of this measure has been based from its design to its practical implementation:

- Regulation (EU) 2021/241 of THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 February 2021 establishing the Recovery and Resilience Facility.
- State Aid SA.103451 (2022/N) – Spain (Commission decision approving the aid and without which the corresponding aid may not be granted, in accordance with Article 108 (3) of the Treaty on the Functioning of the European Union (TFEU) and Article 3 of Council Regulation (EU) 2015/1589).
- Law 38/2003 of 17 November 2003 on Subsidies and its implementing regulations, approved by Royal Decree 887/2006 of 21 July 2003.
- Royal Decree-Law 36/2020 of 30 December 2015 approving urgent measures for the modernisation of the public administration. (as an exceptional measure deriving from the PRTR, the Bases Order, in this case Order ETD/1054/2022, and the Resolution were published in a unified manner).
- Order HFP/1030/2021, of 29 September, setting out the management system for the recovery, transformation and resilience plan.
- Law 11/2022 of 28 June 2014 on telecommunications.

- Order ETD/1054/2022 of 21 October 2012 establishing the regulatory basis for granting aid for the provision of fibre optic backhaul connection to sites in public mobile telephone networks and launching a first call for applications, as part of the recovery, transformation and resilience plan, financed by the European Union – NextGenerationEU. Programme "5G Redes-Backhaul Fibra Optica"

3.2 Prior request for information

In order to obtain a clear preliminary list of potential eligible sites, so that the list was subsequently submitted for public consultation in accordance with *the guidelines laid down in Commission Communication 12.12.2022 C (2022) 9343 final on Guidelines on State aid for broadband networks,* in May and June 2022 a request for information was made to electronic communications operators and infrastructure deployment and management entities capable of providing mobile coverage. In particular, information was requested from the following entities on the sites owned by them that are part of electronic communications networks for mobile wireless broadband services (public mobile telephone networks) or are expected to be part of the network providing 5G services, which currently do not have an optic fibre backhaul located in municipalities with less than 20.000 inhabitants:

- Union of Broadcasting and Telecommunications Network Operators (UNIRED), of which they are members:
  - Aragonesa telematics services (AST)
  - Axion
  - Entitat publica Empresario de Telecomunicacions i innovación de les Illes Balears (Ibetec) or Itelazpi
  - Nasertic
  - Telecommunication Networks Galegas (Retegal) or Telecom-CLM
  - Istec
- Range Espagne
- Telefónica Móviles de España
- Vodafone España
- Mobile
- American Tower
- TOTEM
- Vantage Tower
- Cellshall

The information received was processed to unify the formats, clear geographical coordinates, identify existing backhaul technology, identify operators located at the sites, clarify duplication and uniquely identify each site potentially eligible to use this code in the calls for aid. Furthermore, all areas subject to coverage obligations were removed, excluding municipalities and roads where coverage obligations have been established in accordance with Appendices II, VI, X and XI to the specific administrative specifications and technical requirements for the award by auction of concessions for private use of public radio in the 700 MHz band, approved by Order ETD/534/2021 of 26 May.

3.3 Public consultation

Following the completion of the request for information referred to above, all interested parties (Operators1, Public Administrations, National Commission on Markets and Competition and other actors) were submitted for public consultation in July 2022 on the preliminary list of sites located in municipalities with fewer than 20.000 inhabitants for which it has been identified that they do not currently have an opt-in fibre optic connection option and for which there are no plans to provide such a connection in the next three years (eligible sites), as well as the main features of the measure and the draft Order on "Background BACKS".

As regards the number of inhabitants of the municipalities in which the aided sites are located, although initially during the information request phase it was limited to municipalities with fewer than 20.000 inhabitants, the measure was finally designed and communicated to the European Commission for municipalities with a population of less than 10.000 inhabitants and in the case of the 2022 call for applications for aid, the aid was envisaged only for municipalities with fewer than 5.000 inhabitants.

Following this public consultation, as mentioned above, the final list of eligible sites, located in municipalities with fewer than 5.000 inhabitants, for which public aid could be granted for the provision of fibre optic backhaul connections so that those sites have a return connection with sufficient capacity to support the provision of 5G services.

In addition, the replies received from operators, public administrations and other actors made it possible to clarify the material scope and assessment criteria of the measure.

https://portal.mineco.gob.es/es-es/ministerio/participacionpublica/consultapublica/Paginas/Consulta-publica-identifications-redes-public.aspx

3.4 Notification of the measure to the European Commission.

Under State aid rules, the single measure 5G backhaul was notified to the European Commission on 21 June 2022, including the relevant supplementary information sheet for the notification of an evaluation plan (Part III.8).

On 17 October 2022, the Commission Decision was adopted with regard to the measure to deploy backhaul networks in mobile communications State Aid SA.103451 (2022/N) – Spain – Deployment of backhaul networks for mobile connectivity.

In the Decision, the Commission decided not to raise objections to the aid as compatible with the internal market under Article 107(3)(c) TFEU, and with regard to the notified Evaluation Plan it was concluded that, in addition to the objectives to be assessed, the questions to be carried out, indicators to be analysed, the methodology followed and the timetable established.

The objective of the Evaluation Plan is to make it possible to analyse, by qualitative and quantitative means, the direct effects of the measure, whether the measure is proportionate and appropriate to the intended purpose and whether there are other indirect effects affecting the functioning of the market.

Spain agreed to send a preliminary report **in March 2024** and the final report on 30 June 2025, as well as additional information in 2028 with prominent information on the progress of the measure.

3.5 Main characteristics of the measure

Competing areas

This call for tenders includes 50 competition zones corresponding to the provinces into which the territory of Spain is administratively divided. The Autonomous Cities of Ceuta and Melilla are not included as no eligible sites have been identified in those areas.

Maximum aid intensity

The maximum aid intensity was set at 90 % of the eligible budget.

Eligible concepts

The eligible concepts (detailed in Article 14 of the corresponding order of bases) consist of:

a) Infrastructure and civil engineering.

b) Equipment and other materials.

c) Staff expenditure.

d) Other general or indirect costs attributable to the project.

The establishment of irrevocable rights of use (IRUs) for connecting the eligible site to fibre backhaul will also be considered as an investment in eligible and eligible costs.

Responsibilities of beneficiaries

Thebeneficiaries are subject to obligations to access the subsidised infrastructure as laid down in Article 7 ofthe Basic Order (Order ETD/1054/2022) and to compliance with the obligations set out in Article 10 thereof, in particular, they must provide a certificate of completion of the provision of fibre optic backhaul to the sites allocated by 31 December 2025. These certifications per beneficiary and intervention area are part of the compliance verification mechanism of the sub-project related to increasing the existing network capacity in at least 4.000 existing sites, corresponding to investment I6 of Component 15 of the Recovery and Resilience Plan concerning 5G deployment.

Evaluation criteria for projects submitted

Projects that pass the pre-evaluation stage go to the evaluation phase, which is carried out in accordance with the assessment criteria detailed in Article 23 and Annex III of Order ETD/1054/2022, which are as follows:

CRITERIA	**MAXIMUM SCORE**
1. Objective of providing fibre optic backhaul connection to sites which do not have such a connection.	35
2. Target for the provision of fibre optic backhaul connection to sites that do not have such a connection where the largest number of mobile service operators are located.	25
3. Objective of improving the supply of wholesale services.	10
4. Reuse of existing infrastructure.	10
5. Degree of definition of the project: Technical description, implementation plan, exploitation and communication of the project, including the gender dimension and environmental objectives of DNSH.	10
6. Targets for net job creation in Spain, participation of SMEs, micro-SMEs, self-employed and start-ups, and territorial cohesion.	5
7.Business plan. The quality and accuracy of the business plan, demand estimation and long-term income and expenditure will be assessed.	5
TOTAL	100

3.6 Award of the aid.

The call for applications was issued **on 26 September 2023**.

Annex I lists the sites allocated and the aid allocated per beneficiary and per competing area. The list of eligible sites with aid allocated to be equipped with fibre optic backhaul under this measure is published in the document entitled 'List of assigned sites'.

4 Monitoring of the measure. Established procedure. Actions taken so far.

The body responsible for monitoring the aid, in accordance with Article 29 (6) of Order ETD/1054/2022 and the third section of the award decision, defined the expected content of the monitoring reports on the technical and economic progress in the implementation of the project, which details the degree of temporary progress, the degree of implementation of the investments and the allocated sites implemented in the competing area.

The first report was to be submitted by the beneficiaries between 1 and 30 January 2024 and the remaining reports every six months thereafter.

The template for the six-monthly report was published on the next page of the aid portal. https://portalayudas.mineco.gob.es/unico5g-backhaul/Concesion/Paginas/Tramites_Postres_concession.aspx, and the template was shared from the call mailbox with all beneficiaries, recalling the obligation to submit the information by the deadline.

The template of the six-monthly monitoring report includes instructions for completing it. The first section sets out the progress of the deployment, with a table where the beneficiary must fill in for each assigned site, identified by the 15-digit site code, the deployment status of 5 pre-defined states, as set out in the table below.

Deployment status	**Definition of status**
Processing permits	The tasks carried out have enabled all the actors involved in the sliding to be carried out, both public and private, in the processing of the licences.
Rethinking	The measurements and constraints of the resurveys carried out in the field have been carried out in the region or area.
Project carried out	In accordance with the results of the reconsideration, the project has been drawn up to construct the network.

Deployment status	Definition of status
Execution	The execution of the work has been initiated or carried out using the project carried out in the previous phase as a reference.
RAC – Enabling	The site has been covered and run up with which the deployment can be considered completed

The monitoring template includes information to be completed for each site assigned on the different dates relevant for deployment, as indicated in the table below.

Date	Definition
Start Deployment Date	The date on which the implementation phase has started, i.e. the start date of the works.
End date of deployment	The date on which the stage of completion of the 'Enquification' phase has been completed.
Start date of commercialisation of services	The date by which the service may be contracted.

There is also an observation field where beneficiaries can provide additional comments on each of the sites allocated.

Finally, a field is included to indicate whether the site is included in the Natura 2000 network, as the Natura 2000 network of protected areas is included under the specific conditions to be respected in relation to the DNSH principle.

The budget implementation section contains a table to be completed by the beneficiary with the eligible budget, the amount implemented during the period and the cumulative amount executed, covering the entire project, with a breakdown by budget item. Specifically, the table is as follows:

Departure	Bankable budget	Implemented during the period	Cumulative implemented
Infrastructure and civil engineering			
Equipment and other materials			

Departure	Bankable budget	Implemented during the period	Cumulative implemented
Expenditure for personnel			
Other overheads or indirect costs			

From the analysis of the 103 monitoring files received in January 2024, taking into account that the projects are at an early stage, as the award decision was published on 26 September 2023, the following conclusions can be drawn:

- 15 sites are in 'Certification' status, indicating that the deployment has already been completed.
- 41 sites are located in 'Implementation', indicating that works have already started.
- 1.452 sites are in the status 'Project carried out', indicating that it has already been the drafting of the constructive project of the network has been finalised.
- The rest of the site is in the status 'Permit processing' or 'rethinking'.
- 2 beneficiaries have already published the wholesale offer on their website.

The budget implemented by the beneficiaries at the date of the report amounts to EUR 929.674, representing 0.13 % of the eligible budget. When consulting beneficiaries on the reduced budget, they indicate that internal costs have been incurred and did not reflect them.

It should also be noted that this programme is an infrastructure project in rural and isolated areas, which is an additional complexity to the mere deployment of backhaul connections.

5 objective of the Evaluation Plan. Main indicators and data sources.

5.1 Introduction

In the Commission decision on State aid reference **SA.103451, which approves this scheme,** reference is made to the evaluation plan in the following recitals.

Point 2.16, referring specifically to the Evaluation Plan, states that:

> *"(91) the Spanish authorities have notified, together with the measure, an evaluation plan taking into account the best practices contained in the Commission Staff Working Document on a common methodology for State aid assessment.*
>
> *The main elements of the evaluation plan are described below.*

(92) The evaluation plan describes the objectives of the measure and comprises evaluation questions which, through a quantitative and qualitative analysis, address the direct effects of the measure, its proportionality and appropriateness, as well as a number of indirect effects, including potential distortive effects on competition.

(93) The proportionality and appropriateness of the measure are assessed by checking whether the objectives of the measure could be achieved with a lower aid intensity.

(94) The evaluation plan describes the result indicators that will be used to assess the extent to which the objectives of the measure have been achieved and which correspond to the evaluation questions, as well as the methodology applied to identify the impact of the measure.

(95) The Spanish authorities confirm that the final evaluation report will be published on the official website of the Spanish Government.

(96) An interim report shall be submitted to the Commission within two years after the approval of the measure and shall focus on the analysis of the compatibility of tenders with the relevant principles of EU law as well as with the notified measure. In addition, this report shall contain a first assessment of the impact of the measure, based on the data available at that time.

(97) The final evaluation report for the period 2022-2025 shall be submitted to the Commission by 31 December 2025. It will focus on the assessment of the direct and indirect impacts of the measure in the medium term.

(98) The Spanish authorities have committed to continue the evaluation beyond the duration of the Measure and to submit in 2028 an additional evaluation report assessing the overall effectiveness of the measure (to be finalised in December 2025).

The Spanish authorities have submitted an evaluation plan in the context of the notification as an integral part of the notification. The purpose of the report is set out below in the following recitals:

(99) (3) the objective of the evaluation plan is to demonstrate, through quantitative and qualitative analyses, the direct effects of the measure, its proportionality and appropriateness; as well as a number of indirect effects including potential distortive effects on competition.

(174) The Commission considers that the notified evaluation plan contains all the necessary elements: the objectives of the measure to be evaluated, including evaluation questions; the results indicators; the envisaged methodology to conduct the evaluation; and the proposed timetable for the evaluation, including the date of submission of the final evaluation report. The Commission notes that

(a) the scope of the assessment is adequately defined. It includes a list of evaluation questions with corresponding result indicators. In addition, the plan of

evaluation explains the main methods that will be used to identify the impact of the measure.

(b) the Spanish authorities commit that the assessment will be carried out by an independent assessment body in accordance with the criteria set out in the notified assessment plan;

(c) the proposed modalities for the publication of the evaluation results are adequate to ensure transparency;

(d) the commitment made by Spain to submit to the Commission an interim report by March 2024, a final evaluation report by 30 June 2025 and an additional evaluation report in 2028 is appropriate, as those reports will contain relevant information on the implementation and progress of the measure as well as data relevant for the assessment of the effectiveness of the measure.

(175) The Commission notes that Spain should communicate to the Commission any difficulties that may significantly affect the agreed assessment in order to identify and implement possible solutions.

(176) Furthermore, the Commission notes that the measure should be suspended if the final evaluation report is not submitted in time or is not of sufficient quality."

5.2 Characteristics of the Evaluation Plan

The evaluation plan defines the scope of evaluation, including specific **questions** that can be answered quantitatively, accompanied by the necessary supporting documentation.

The analysis should be carried out following an ***ex-post*evaluation** approach attributable to the implementation of the aid and taking into account relevant assumptions that may influence the implementation of the actions. In addition, some impacts will be analysed using indicators that reflect quantified information on the results achieved by the action.

The **questions** focus on the **impact of the action** and should deepen all relevant impact areas and are classified as:

1. Direct impacts

a) To what extent has the aid been an incentive for operators to increase investment in these areas of the territory?

b) Has the aid increased the number of operators who have contracted backhaul services at the sites?

c) Did the aid improve the performance of the network (in terms of transmission speed, latency and reliability of operators' aggregated traffic)?

d) What impact has the aid had on the volume of traffic at the sites?

2. Indirect impacts:

a) To what extent do wholesale access conditions applied to mobile retail operators contribute to the balance between the positive and negative effects on the competitive structure of the market?

b) On what average has it contributed to reducing energy consumption and improving the visual impact?

3. Proportionality and adequacy of the model used

a) Is the amount of State aid proportionate to the problem to be addressed?

b) What is the main evidence in terms of efficiency (cost) and effectiveness (transmission speed, latency and reliability of connection) of the model used?

c) What was the rate of use of the existing infrastructure by the aid beneficiaries and what impact did this have on overall efficiency?

The plan aims to assess the impact of the scheme on all three levels, addressing issues relevant to the objectives. Furthermore, as mentioned above, the assessment of the direct effects of the aid is of paramount importance as it can provide valuable information on the impact of the aid.

The indicators2 to be used for this purpose are the following:

Direct impacts

Evaluation question	Result indicator	Description	Unit	Source	Frequency	Level
To what extent has the aid been an incentive for operators to increase investment in these areas of the territory?	Number of operators located on the site	Operators that install or start operating from the site as the fibre backhaul connection is available	Number	Beneficiaries and operators	Annual	National
Has the aid increased the number of operators that have contracted fibre optic backhaul services at the sites?	Number of wholesale connections at 1 Gbit contracted for sites where aid has been granted	Wholesale connections to be contracted on the links of the sites where the aid is granted	Number	Beneficiaries and operators	Annual	National

The2 approach to the questions proposed in the 'Common methodology for State aid evaluation' (SWD (2014) 179 final) has served as a guide for the identification of indicators capable of capturing information on the results achieved with the aid. These indicators identify both the direct and indirect impact, including the potential effects on competition and trade, as well as the appropriateness and proportionality of the measure.

Evaluation question	Result indicator	Description	Unit	Source	Frequency	Level
Did the aid improve the performance of the network (in terms of transmission speed, latency and reliability of connections)?	Latency from the connections fro m *networking* backhauling created (ms)	Transmission time of a data package within the network. The unit of measurement is the ping (Packet Internet Groper), which serves to test the connection between two network nodes by sending parcels to a remote server and returning a time measurement in ms.	Milisegun Two (ping)	Beneficiaries and Operators	Annual	National
	Availability (%) of connections fro m backhauling created	Network availability represents the ability of the network to respond to connectivity and performance requirements.	Percentage	Operators	Annual	National
What impact has the aid had on site traffic?	Increase in service traffic of operators at sites in assisted areas	Rate of increase in average traffic of operators connecting to optical fibre in the areas where aid is granted	Percentage	Operators	Annual	National
	Transmission rate (Gbit/s) of backhauling connections	Number of Gbit/s transmitted via backhauling connection	Gbit/s	Operators	Annual	National

Indirect impacts

Evaluation question	Result indicator	Description	Unit	Source	Frequency	Level
To what extent do wholesale access conditions applied to mobile retail operators contribute to the balance between the positive and negative effects on the competitive structure of the market?	Percentage of wholesale services price development in policy areas.	Evolution of prices established for wholesale services, which shall be based on the principles of fixing from prices established by the CNMC	Percentage	Beneficiaries y Operators / CNMC optionally	Annual	National
	Number of wholesale services in each category provided in the action area.	Evolution of the different active and passive wholesale services provided.	Number	Beneficiaries and Operators	Annual	National
To what extent has it contributed to reducing energy consumption and improving the visual impact?	Radio link to fibre enhancing landscape effect by reducing the visual impact of antennae	Number of radiolink connections replaced by fibre for fibre access in the area	Number	Beneficiaries and Operators	Annual	National

	Energy savings by having fibre for backhaul connection	% Energy savings compared to similar sites without fibre connection	%	Beneficiaries	End of Plan	National

Proportionality and adequacy of the model used

Evaluation question	Result indicator	Description	Unit	Source	Frequency	Level
Is the amount of State aid proportionate to the problem to be addressed?	Indicators relating to backhaul optical fibre infrastructures in *other* countries that are selected in advance with a set of criteria identifying countries with similar characteristics to the case of Spain and which may be comparable	International *benchmarking* analysis of aid granted in Europe	N/A	*Benchmarking*	End of the Plan	National
What was the rate of use of the existing infrastructure by beneficiaries and what impact did this have on overall efficiency?	Rate of reuse of existing infrastructure	Reuse from infrastructures already	Percentage	Beneficiaries	End of the Plan	National
What is the main evidence in terms of efficiency (cost) and effectiveness (transmission speed; latency and reliability of connection) of the model used?	Percentage deviation in realised investment	Deviation between actual investment and estimated investment	Euro	Beneficiaries	End of Plan	National
	Analysis of the performance indicators of the network set up	Analysis from the technical indicators for latency and availability of backhauling	N/A	Beneficiaries *See section 5*	End of the Plan	National

In this regard, the identification of the direct impacts, indirect impacts and the appropriateness and proportionality impacts will make it possible to analyse in detail the full impact of the aid, considering its effects on the beneficiaries of the aid, as well as the justification for the aid.

As indicated above, the objective of the action is to provide support for the provision of fibre optic backhaul connection to existing sites of electronic communications networks for mobile wireless broadband services (public mobile telephone networks) that are or are expected to be part of the network providing 5G services, which currently do not have a fibre optic backhaul to cope with current and foreseeable future services resulting from the deployment of the capacities and characteristics of 5G networks.

The use of public funds to subsidise actions that may have a potentially significant impact on the internal market must be accompanied, as requested by the European Commission, by an analysis of the ex post causal effects generated by this public aid, especially for those impacts that are considered socially relevant and, in order to verify that the aid was adequate and the expenditure proportional to the objective.

In this respect, a State aid scheme may have implications at very different levels. It is normally expected to have a direct effect on the beneficiary. Understanding the magnitude of this effect is therefore crucial for assessing the level of efficiency and effectiveness of aid. However, since such interventions target undertakings active in regions competing to attract economic activities, State aid normally also has indirect effects. These spill-over effects materialise both the potential damage and the benefits stemming from State intervention in the economy. Therefore, the assessment of public measures also requires an assessment of the magnitude of these spill-over effects.

Normally, the measurement of the direct and indirect effects of aid requires the use of various instruments. In this respect, the indicators raised do not require the specific use of an econometric methodology, as the calculation of these depends specifically on the collection of information by beneficiaries and operators primarily. This is due to the nature of the aid submitted. The aid submitted is intended to secure backhaul optical fibre infrastructure which will subsequently facilitate the deployment of networks and the provision of services with 5G characteristics, either through another aid call or because of the market's own inertia. Therefore, the impact of the aid will be measured according to the infrastructure and not according to the service or the end use of the user in relation to 5G. This is why the indicators raised will be calculated by collecting information from operators and beneficiaries mainly.

Therefore, as set out in the next chapter, it is considered appropriate to assess the possibility of carrying out a joint evaluation plan with the active programme, since the impact of the infrastructure and the final service for the 5G user would be assessed.

In any case, it is particularly important to introduce an ex-post quantitative analysis methodology to help quantify indicators that may arise in relation to the causal effects of public intervention.

5.3 Methodology for ex post quantitative analysis

Causation analysis requires the use of very specific econometric evaluation techniques to isolate the effect of public aid from other possible competing factors. It is not only necessary to establish a correlation between the use of public funds, the realisation of infrastructure and a specific output variable, but it is necessary to go into detail to assess the causal effect of public subsidies on the achievement of a given policy objective net of other concurrent factors (so-called confusing variables).

Where required in the framework of the evaluation of the Single Programme 5G backhaul, the Difference in Differences (DID) method will be considered as an ex-post evaluation method. This method is a technique used in econometrics that measures the effect on the dependent or quantitative response variable over a period of time.

Overview of the Difference in Differences methodology

The DID methodology is an analytical approach that facilitates causal inference even when randomisation is not possible. In this respect, cautious conclusions should not be drawn from the observation of simple changes in the results before and after, as other factors than intervention may influence the outcome over time; in addition, the comparison between interventilated and non-intercepted groups would also not be considered accurate due to the selection bias and differences in unobservable characteristics between the groups. Therefore, the DID methodology combines these two methods to compare before and after changes in treatment and control group results and estimate the overall impact of the aid.

Thus, the DID methodology provides for the following factors that allow the comparison to be accurate:

- The methodology considers the difference of both before and after in the treatment group (the group involved). By comparing the same group with itself, the first difference controls factors that are constant over time in that group.
- To capture time-varying factors, the methodology takes the difference from before and after in the control group, which was exposed to the same set of environmental conditions as the treatment group.
- Finally, the difference in 'clean' differences all the time-varying factors of the first difference by subtracting the second difference. This leaves us with the estimation of the overall impact.

In this respect, the DID methodology requires data on the results in the target group and the group that does not receive it, both before and after the programme.

In summary, the DID methodology generates an econometric model to compare whether the effect of the aid has had an effect in terms of a change in the variable response under study, and to be able to give a certain magnitude to that impact, which will be defined in a numerical manner.

Thus, in this case, the idea would be to compare the reference result in areas that do not have fibre backhaul coverage, receiving the aid, with other areas not receiving aid, before and after the intervention. In other words, comparing the effect on the areas that received the aid and implemented the actions with those which have not yet received aid, these being an example of what would have happened in the absence of public aid.

In summary, the method works if, over time, both beneficiaries and the control group are affected by the other factors that also affect performance in the same way. It can then be concluded that the aid is the only relevant factor explaining the observed change in the beneficiaries' performance in relation to the control group. The crucial assumption is that the differences between the

beneficiaries and the control group are stable over time and both groups are equally affected by common shocks (deviations from the average) during the period.

Use of the Event Study Design

However, if the areas subject to the aid scheme do not survive the impacts at the same time (i.e. they do not receive the aid at the same time), what could happen is that the DID model would be distorted as there would be no real control group where all units are in the same conditions in the observation period.

Therefore, the estimation method to be used is the Event Study Design methodology, which makes it possible to study the ex-post dynamics of the aid, in order to analyse the speed with which impacts materialise.

A Event Study is a generalisation of the DID in which all units of the study group are involved at different points of time. This method provides for the allocation of fictitious variables that capture the impact of the action before and after it occurs, thus allowing the ex post dynamics of the aid to be studied. In other words, we would generate a dynamic DID model, using statistical methods that allow us to use time as a dependent variable and search for variables that explain the duration of the event.

However, a potential problem with this analysis would be the existence of sites where network infrastructure is already in place, but without fibre optic connection. To take this into account, it would be necessary to collect data prior to the launch of the programme.

To this end, SETELECO launched a public consultation in which actors related to the measure, operators, owners or operators of wireless broadband electronic communications services networks, provided relevant information on their sites.

Analysis of the appropriateness and proportionality of the aid

The analysis to be carried out will also consider an assessment of the appropriateness and proportionality of the action.

The level of adequacy would be assessed by looking at how the result variables over time evolve depending on the degree of infrastructure deployment. This correlation will be assessed both by simple qualitative indicators and by the results that would be obtained from a causation analysis of those described above. Where, therefore, the econometric analysis would show that the action incentivised through the aid programme has a positive and significant impact on the take-up of the service by the end user (to this extent this 'end-user' is the operators of electronic communications services that can provide their services from the site).

On the other hand, in order to assess the proportionality of the aid, that is to say, to assess whether the action has not led to excessive expenditure in relation to the intended objective, reference will be made to data from public aid.

similar implemented in other European countries. In this regard, a number of selection criteria or variables will be established to enable countries with similar characteristics to be identified, with a view to drawing conclusions comparable to the Spanish case.

The feasibility of the evaluation plan depends on the implementation of the action in the expected time and form, and the availability of data. If, for any reason, implementation deviates from what is planned, SETELECO undertakes to contact the Commission as soon as possible in order to be able to define an alternative evaluation strategy which, in any event, is in line with the Common methodology for State aid evaluation.

5.4 Collecting data

The data for the Evaluation Plan shall be collected through a process of comparison and validation between primary sources, and different secondary sources ensuring the robustness and reliability of the data, and the results obtained in the evaluation. In this respect, additional sources may be incorporated into the identification of information throughout the assessment.

In any event, the call for applications itself included a number of obligations for the successful tenderer to provide information, and as far as possible, to the potential contractor for fibre optic backhaul services (mobile operator)

In this respect, the **primary sources,** considered as the main sources in the extraction of information, are detailed below:

- ***Ministry of Economic Affairs and Digital Transformation (Ministry for Digital Transformation and the Civil Service) supported by SETELECO (with the support of the selected assessment body):*** to find information and documentation related to:
  - Information and documentation related to the selection of the target sites and the need for investment
  - Procedures for consultation and selection of beneficiaries
  - Ongoing projects
  - Follow-Up Processes
  - Etc.

- ***Aid beneficiaries, in*** order to obtain information on the projects submitted to the aid programme, with particular reference to the expected and actual costs incurred, the progress of the projects, the technological and architectural details, the services provided, the use of existing infrastructure, etc.

- ***Operators contracting access to subsidised backhaul***, to obtain information on service procurement, user traffic, investment plans, etc.

- ***Infrastructure operators in the areas concerned***, in order to obtain information on the telecommunications infrastructure available in those areas.

In addition, primary sources will be accompanied by the following **secondary sources** (non-exhaustive list) to strengthen the information:

- ***Comisión Nacional de los Mercados y la Competencia (CNMC),*** to obtain information on electronic communications markets, the applicable regulations and regulations and other relevant information.

- National***Institute of Statistics (INE),*** to obtain social, economic and demographic data at municipal and regional level.

- ***Local authorities which have been affected by the aid***, in order to obtain any relevant information on the areas under investment.

The primary sources referred to in the previous point may provide information with a frequency of detection and an appropriate level of territorial detail for the assessment. In addition, the collection of information and data involves the use of several methods, including:

- Sending documentation and reports between the various parties involved in the actions.

- Meetings with project leaders.

- Meetings with representatives of the main relevant institutions.

- Questionnaires if deemed necessary.

5.5 Delay in the resolution and implementation of the programme

As stated in previous sections, the final decision did not take place until the end of September 2023, which meant that this programme started with approximately nine months' delay compared to the original planning at the time the aid programme was notified and the deadlines for delivery of the various deliverables associated with the evaluation plan were discussed.

In addition, it is an infrastructure deployment plan (in which it is not possible to observe its impact until the installation and its commissioning) and are deployments that involve a prior process of redesigning, obtaining permits and constructing the infrastructure itself, which means that in practice most sites will not have relevant information until at least six to nine months.

Indeed, due to the case described and with the experience that Spain has in infrastructure deployment programmes in rural areas, it is highly likely that most deployments will be completed in the first half of 2025 (if no extensions are requested by the beneficiaries to finalise the projects). Account must be taken of the predominantly rural nature of these sites, with very specific cases, in order to complete the deployment of each infrastructure.

Therefore, at this stage, this document only confirms that Spain is in a position to request the information required for the indicators (which, in almost all cases, will coincide with the situation prior to the granting of aid), that it will confirm that it will use the DID method and that, at the end of the recruitment process of the Independent Entity carrying out the Evaluation Plan, it is in a position to choose the control groups against which the Evaluation Plan will be analysed and developed.

6 Appropriateness of merging with the future evaluation plan of the active measure given the synergies between the two measures.

Following the approval of this 5G backhaul scheme, another scheme to finance active 5G equipment at sites was subsequently approved by Commission Decision *State Aid SA.104933 RRF – Support for 5G equipment and infrastructure.*

Decision SA.103451 allows the provision of fibre-optic backhaul connectivity to certain sites which do not have such connectivity and which will be necessary to enable 5G services to be provided with the characteristics they require. The new scheme SA.104933 allows the provision of active equipment to offer 5G Stand Alone services with a speed of 100 Mbps downwards and Edge computing and Network slicing services. Indeed, this second scheme would also make it possible to provide fibre optic backhaul connections if no aid had been granted under the single measure 5G backhaul or to build additional sites if necessary, always without overlapping aid between the two schemes and always excluding areas subject to coverage obligations.

Indeed, the European Commission itself in its decision SA.104933, in recital 14, states that the Active Networks measure continues and complements the aid measure for the deployment of fibre-based backhaul for mobile connectivity approved by the Commission Decision of 17 October 2022.

The active measure and backhaul measure are complementary and contribute to the same objective, i.e. deploy 5G networks covering at least 75 % of the population, but do not provide double funding for the same network elements. To the extent necessary to ensure the deployment of the target 5G autonomous networks and the provision of target services in the target areas, aid may be granted to deploy, where necessary, new base stations ('BTS'); to install the necessary equipment and infrastructure in existing or new eligible BTS benefiting from the return network13 measure; to deploy, where relevant, new BTS (including relevant additional equipment and infrastructure); or to deploy new equipment in other existing BTS that have not received prior funding (not covered by the backhaul measure because they are already connected by fibre), in the same target areas indicated in the backhaul measure, it is decir. i.e. municipalities with less than 10 000 inhabitants, extra-urban roads and TEN-T corridors. Fibre-based backhaul connections are eligible under the asset measure only if they are not covered by the specific backhaul measure.

When negotiating the active measure itself, a joint assessment plan was envisaged. This new aid scheme assumes an evaluation plan that incorporates the provisions of this evaluation plan for the single measure 5G backhaul together with other indicators aimed at assessing the provision of 5G services through aid for active equipment, which de facto measures the uptake of 5G retail services by citizens and businesses.

Annex II shows the references to the Evaluation Plan for the new measure, and the method used for the evaluation, which coincides in the most relevant aspects with that described for this measure (Difference in Differences and Event Study Design).

Thus, the various indicators to be used to measure are as follows, highlighted in red, those used for this scheme (in any case, for the single measure 5G backhaul, sites in municipalities with fewer than 5.000 inhabitants that receive this aid would have to be overestimated).

Direct impacts

Evaluation question	Result indicator	Source	Frequency	Level	Population
Has the aid increased the uptake of 5G MIS by end-users? (incentive effect)	Number of operators providing 5G services	Operators	Annual	National	Municipalities with fewer than 10.000 inhabitants
	Percentage of end-users adopting the 5G MIS in the sites covered	Operators	Biannual	National	Municipalities with fewer than 10.000 inhabitants
To what extent has the aid been an incentive for operators	Number of operators located on the site	Operators	Annual	National	Municipalities with fewer than 10.000 inhabitants

Evaluation question	Result indicator	Source	Frequency	Level	Population
increase investment in these areas of the territory? (incentive effect)	Number and type of services provided by operators in the action areas	Operators	Biannual	National	General
Has the aid increased the number of operators that have contracted fibre optic backhaul services at the sites?	Number of wholesale connections at least 1 Gbit contracted for aided sites	Beneficiaries/ Operators	Annual	National	Municipalities with fewer than 10.000 inhabitants
Did the aid improve the performance of the network (in terms of transmission speed and reliability of connections)?	Latency of network *backhauling* connections created (ms)	Beneficiaries/ Operators	Annual	National	Municipalities with fewer than 10.000 inhabitants
	Availability (%) of backhauling *connections* created	Operators	Annual	National	Municipalities with fewer than 10.000 inhabitants
	Number of users using*Edge*Computing	Beneficiaries/ Operators	Quarterly	National	Municipalities with fewer than 10.000 inhabitants
	Number of users using "*Network slicing*"	Beneficiaries/ Operators	Quarterly	National	Municipalities with fewer than 10.000 inhabitants
What impact has the aid had on site traffic?	Transmission speed (Mbit/s) achievable by end-users under peak-time conditions	Operators	Annual	National	Municipalities with fewer than 10.000 inhabitants
	Transmission rate (Gbit/s) of backhauling connections	Operators	Annual	National	Municipalities with fewer than 10.000 inhabitants

Indirect impacts

Evaluation question	Result indicator	Source	Frequency	Level	Population
To what extent has the aid contributed to job creation and reduction of	Percentage increase in 5G coverage in action areas	Beneficiaries/BIPs	Annual	National	Municipalities with fewer than 10.000 inhabitants

Evaluation question	Result indicator	Source	Frequency	Level	Population
digital divide in municipalities with fewer than 10.000 inhabitants?	Evolution of the unemployment rate in municipalities with less than 10.000 inhabitants	Spanish Public Employment Service	Annual	National	Municipalities with fewer than 10.000 inhabitants
To what extent do wholesale access conditions applied to mobile retail operators contribute to the balance between the positive and negative effects on the competitive structure of the market?	Percentage of price evolution of wholesale services in policy areas	Operators/ Beneficiaries/ CNMC optionally	Biannual	National	Municipalities with fewer than 10.000 inhabitants
	Number and type of wholesale services provided in the policy areas	Beneficiaries and Operators	Biannual	National	Municipalities with fewer than 10.000 inhabitants
On what average has it contributed to reducing energy consumption and improving the visual impact?	Radio link to fibre enhancing landscape effect by reducing the visual impact of antennae	Beneficiaries and Operators	Annual	National	Municipalities with fewer than 10.000 inhabitants
	Indicators derived from identified studies on the benefits of 5 g for energy consumption	Public sources	End of the Plan	National	Municipalities with fewer than 10.000 inhabitants

Proportionality and adequacy of the model used

Evaluation question	Result indicator	Source	Frequency	Level	Population
Is the amount of State aid proportionate to the problem to be addressed?	Indicators relating to assistance for backhaul and its results in other countries that are selected in advance with a set of criteria identifying countries with similar characteristics to the case of Spain and which may be comparable	*Benchmarking*	End of the Plan	National	Municipalities with fewer than 10.000 inhabitants
	Indicators relating to aid granted in other countries for active equipment and performance evaluation, in those countries that are pre-selected with a set of criteria identifying characteristic countries	*Benchmarking*	End of the Plan	National	Municipalities with fewer than 10.000 inhabitants

Evaluation question	Result indicator	Source	Frequency	Level	Population
	similar to the case of Spain and which may be comparable				
What was the rate of use of the existing infrastructure by beneficiaries and what impact did this have on overall efficiency?	Rate of reuse of existing infrastructure	Beneficiaries	End of the Plan	National	Municipalities with fewer than 10.000 inhabitants
*What**is the main evidence in terms of efficiency (cost) and effectiveness (transmission speed and reliability of connection) of the model used?***	Percentage deviation in realised investment	Beneficiaries	End of the Plan	National	Municipalities with fewer than 10.000 inhabitants
	Analysis of the performance indicators of the network set up	Beneficiaries *See section 5*	End of the Plan	National	Municipalities with fewer than 10.000 inhabitants
Has the intervention tool used proved to be the most effective in relation to the achieved 5G coverage?	Temporal evolution of 5G coverage in action areas	Operators *See section 5*	Annual	National	General

It should be considered that a joint evaluation plan could see more accurately the impact of both measures on the deployment of 5G in rural areas. Questions should be asked to beneficiaries in both measures (to assess the individual impact of each of the measures, as they do not have to coincide), but a joint plan would clearly show the impact and synergies obtained from both.

The Decision of 6 October 2023 of the State Secretariat for Telecommunications and Digital Infrastructure called for aid for the provision of active equipment and ancillary infrastructure necessary for the provision of 5G mobile communications services in areas where there is no 4G mobile coverage with a minimum service of 50 Mbps (ÚNICO 5G Active Networks), as part of the Recovery, Transformation and Resilience Plan and the corresponding call for proposals was launched.

The call is expected to be resolved in the coming months. The existence of this aid will boost and accelerate the deployment of fibre optic backhaul connections for those sites that do not have such support (in municipalities with fewer than 5.000 inhabitants) that will require such connectivity to provide the service they are required to provide.

Therefore, the completion of a joint evaluation plan for both measures, with the approved timetable for Single Measure 5G Active Networks, is considered more efficient in order to be able to measure the impacts that the joint implementation of both programmes entails on the deployment of 5G in rural areas, given that this is the ultimate aim pursued by both measures.

7 Actions taken in respect of the Evaluation Plan.

At the first monitoring meeting with the beneficiaries, they were reminded of the existence of an ex-post evaluation plan to assess the impact of the measure to be submitted to the European Commission and the need to provide the quantitative indicators provided for in the plan. They were informed that contracts with site operators and owners should include an obligation to collaborate to submit the information required in the evaluation plan.

In this regard, it should be noted that both the regulatory bases, the call for applications and the individual decision granting the aid refer to the provision of information requested by the competent Ministry (currently the Ministry for Digital Transformation and the Civil Service), the State Secretariat for Telecommunications and Digital Infrastructure or the European Commission. Specifically, in the individual decisions granting aid, paragraphs 5 and 6 of the decision provide as follows:

> ***5.- submission of information after completion and certification of the project.*** *After the end of the project and for at least the following three years, the beneficiary must provide the following information referring to 31 December of each year:*
>
> - *the date of entry into service of the subsidised infrastructure,*
> - *(the number of service providers using the supported infrastructure),*
> - *the number of operators served*
> - *the number of operators that have been located on the site,*
> - *number and type of wholesale access product offered,*
> - *number of accepted and rejected wholesale access requests,*
> - *the number of wholesale connections at least 1 Gbit contracted*
> - *latency of network backhauling connections created (ms)*
> - *availability (%) of backhauling connections created*
> - *transmission rate (Gbit/s) of backhauling connections*
> - *Fibre-to-fibre radio crossings improving landscape effect by reducing the visual impact of antennae*
> - *Rate of reuse of existing infrastructure*
>
> *The beneficiaries are also obliged to provide any additional information required by the European Commission.*

The report shall be in the format sent to it by the managing body responsible for monitoring and, failing that, with the model that will be available on the aid portal hosted on the Ministry's website.

6.- summary of obligations that remain in force after certification

- *The beneficiary must operate the infrastructure in its entirety for at least 10 years from the end of the implementation of the project.*
- *The beneficiaries must provide a certification of completion of the fibre optic backhaul envelope to the allocated eligible sites by 31 December 2025. These certifications per beneficiary and intervention area are part of the compliance verification mechanism of the sub-project related to increasing the existing network capacity in at least 3.500 existing sites, corresponding to investment I6 of Component 15 of the Recovery and Resilience Plan concerning 5G deployment.*
- *The beneficiaries must provide after the completion of the project, for 15 years in the first quarter of the following year, the final income and cost balance of the project with related cash flow. This final balance must be certified by the company designated to audit the beneficiary's financial statements. Provide other operators with full and non-discriminatory access to information on the infrastructure deployed so that they can easily establish the possibility of access to that infrastructure. (Article 7.6 of the regulatory bases)*
- *Provide wholesale access to infrastructure for a minimum period of 10 years and to dark fibre and other civil engineering elements for an unlimited period of time (Article 7 of the regulatory bases)*
- ***Facilitate ex post controls that may be carried out by the competent bodies (Article 30 of the regulatory bases**).*
- *Provide, after the completion of the project and for at least the following three years, the information referred to in the Broadband Aid Guidelines (2013/C 25/01), summarised in the previous point.*
- *Keep the supporting documents in place, ensuring that they are available to the bodies responsible for carrying out checks as long as the right of the administration to demand recovery is not time-barred and, at least, for a period of 10 years from the date of the final certification issued by the body responsible for monitoring the aid.*
- *Maintain the reference to the Ministry of Economic Affairs and Digital Transformation as a financing entity (Article 10.10 of the regulatory bases).*

On 22 November 2023, a communication containing the list of indicators provided for in the evaluation plan was sent to each of the beneficiaries from the official mailbox of the call for applications, together with the website where Decision SA.103451 was published, which mentions this evaluation plan.

The file submitted contained the following indicators:

Direct impacts

Evaluation question	Result indicator	Description	Unit	Frequency
To what extent has the aid been an incentive for operators to increase investment in these areas of the territory?	Number of operators located on the site	Operators that install or start operating from the site as the fibre backhaul connection is available	Number	Annual
Has the aid increased the number of operators that have contracted fibre optic backhaul services at the sites?	Number from connections wholesalers at 1 Gbit contracted for sites where aid has been granted	Wholesale connections to be contracted on the links of the sites where the aid is granted	Number	Annual
Did the aid improve the performance of the network (in terms of transmission speed, latency and reliability of connections)?	Latency of network *backhauling* connections created (ms)	Transmission time of a data package within the network. The unit of measurement is the ping (Packet Internet Groper), which serves to test the connection between two network nodes by sending parcels to a remote server and returning a time measurement in ms.	Milliseconds (ping)	Annual
	Availability (%) of backhauling connections created	Network availability represents the ability of the network to respond to connectivity and performance requirements.	Percentage	Annual
What impact has the aid had on site traffic?	Increase in service traffic of operators at sites in assisted areas	Rate of increase in average traffic of operators connecting to optical fibre in the areas where aid is granted	Percentage	Annual
	Transmission rate (Gbit/s) of backhauling connections	Number of Gbit/s transmitted via backhauling connection	Gbit/s	Annual

Indirect impacts

Evaluation question	Result indicator	Description	Unit	Frequency
To what extent do wholesale access conditions applied to operators mobiles retailers contribute to the balance between positive and negative effects on the competitive structure of the market?	Percentage of wholesale services price development in policy areas.	Evolution of prices established for wholesale services, which will be based on the pricing principles established by CNMC	Percentage	Annual
	Number of wholesale services in each category provided in the action area.	Evolution of the different active and passive wholesale services provided.	Number	Annual
To what extent has it contributed to reducing energy consumption and improving the visual impact?	Radio link to fibre enhancing landscape effect by reducing the visual impact of antennae	Number of radiolink connections replaced by fibre for fibre access in the area	Number	Annual
	Energy savings by having fibre for backhaul connection	% Energy savings compared to a sites similar, not fibre bonded	%	End of the Plan

Proportionality and adequacy of the model used

Evaluation question	Result indicator	Description	Unit	Frequency
Is the amount of State aid proportionate to the problem to be addressed?	Indicators relating to backhaul optical fibre infrastructures in other countries that are selected in advance with a set of criteria identifying countries with similar characteristics to the case of Spain and which may be comparable	Analysis benchmarking international aid in Europe	N/A	End of the Plan
What was the rate of use of the existing infrastructure by beneficiaries and what impact did this have on overall efficiency?	Rate of reuse of existing infrastructure	Reuse of existing infrastructure on each of the links	Percentage	End of the Plan
What is the main evidence in terms of efficiency (cost) and effectiveness (transmission speed, latency and reliability of connection) of the model used?	Percentage deviation in realised investment	Deviation between actual investment and estimated investment	Euro	End of Plan
	Analysis of the performance indicators of the network set up	Analysis of technical indicators of latency and availability of backhauling	N/A	End of the Plan

8 next steps

In order to establish an initial situation, the beneficiaries were sent a request for information relating exclusively to the evaluation plan containing information relating to this plan and requesting the relevant data to be collected in order to determine the situation existing before the aid was received.

These data are expected to be provided at the same time as the monitoring and monitoring information on the implementation of each project will be submitted for the next semester.

The corresponding budget item has been allocated, and work is ongoing on drafting the specification or agreement, to select the independent body that will implement the evaluation plan and analyse how to use synergies between the Single Measure 5G backhaul and Single 5G Active Networks.

The Independent Entity shall comply with the requirements and constraints set out in the Supplementary Sheet for the notification of an evaluation plan (Part III.8), included in the Notification Process.

The European Commission is informed that, as discussed in the negotiation of the design of the measure, and provided that there are no objections from the European Commission, a joint assessment plan will be carried out, including this measure and the one approved with *State Aid SA.104933 RRF – Support for 5G equipment and infrastructure,* with the timetable approved for the latter, in order to be able to measure the impacts that the joint implementation of the two programmes entails on the deployment of 5G in rural areas, given that this is the ultimate aim pursued by both measures.

The Independent Authority implementing the Evaluation Plan, designed in Q4 of 2024, is expected to be available. Once elected, the Monitoring Committee will be set up and its work plan will be established in order to comply with the commitments set out in Decisions SA.103451 (2022/N) and SA.104933 (2023/N).

Annex I. List of Aid Beneficiaries Call 2022 Single Measure 5G-Red backhaul fibre optic.

Area Concurrence	Business name	Assigned sites	Bankable budget (EUR)	Aid (EUR)
ALBACETE	AVATEL TELECOM S.A.	123	6.754.053,00	6.077.296,00
ALBACETE	TELEFONICA DE ESPAÑA, S.A.	42	4.760.784,00	4.013.340,00
ALICANTE/ALACANT	AVATEL TELECOM S.A.	63	3.442.572,00	3.097.625,00
ALICANTE/ALACANT	LYNTIA NETWORKS, S.A.	42	5.071.122,00	2.064.960,00
ALMERIA	AVATEL TELECOM S.A.	64	3.444.032,00	3.098.939,00
ALMERIA	LYNTIA NETWORKS, S.A.	95	12.989.350,00	4.669.670,00
ARABA/ÁLAVA	TELEFONICA DE ESPAÑA, S.A.	22	2.294.908,00	2.064.957,00
ARABA/ÁLAVA	LYNTIA NETWORKS, S.A.	63	8.005.221,00	3.097.219,00
ASTURIAS	ADAMO TELECOM IBERIA SA	174	9.522.846,00	8.556.276,00
ASTURIAS	RANGE ESPAÑA FIXED COMMUNICATIONS S.L.U.	3	737.181,00	663.314,00
AVILA	ADAMO TELECOM IBERIA SA	97	5.308.228,00	4.769.442,00
AVILA	TELEFONICA DE ESPAÑA, S.A.	31	3.385.665,00	3.046.759,00
AVILA	TRADIA TELECOM, S.A.	1	183.104,00	164.774,00
BADAJOZ	AVATEL TELECOM S.A.	83	4.467.641,00	4.019.982,00
BADAJOZ	ADAMO TELECOM IBERIA SA	124	6.777.220,00	6.097.463,00
BALEARS, ILLES	AVATEL TELECOM S.A.	25	1.366.100,00	1.229.216,00
BALEARS, ILLES	TELEFONICA DE ESPAÑA, S.A.	2	71.308,00	64.162,00
BALEARS, ILLES	TRADIA TELECOM, S.A.	3	113.409,00	102.045,00
BALEARS, ILLES	RANGE ESPAÑA FIXED COMMUNICATIONS S.L.U.	5	580.970,00	522.756,00
BARCELONA	LYNTIA NETWORKS, S.A.	97	11.704.699,00	4.768.493,00
BARCELONA	GURBTEC TELECOM, S.L.	65	3.543.995,00	3.188.886,00
BIZKAIA	LYNTIA NETWORKS, S.A.	75	8.663.100,00	3.687.014,00
BIZKAIA	TELEFONICA DE ESPAÑA, S.A.	23	2.248.894,00	2.023.554,00
BURGOS	AVATEL TELECOM S.A.	166	8.929.804,00	8.035.036,00
BURGOS	LYNTIA NETWORKS, S.A.	248	34.374.288,00	12.192.559,00
CÁCERES	TELEFONICA DE ESPAÑA, S.A.	88	9.031.968,00	6.964.550,00
CÁCERES	RANGE ESPAÑA FIXED COMMUNICATIONS S.L.U.	29	5.049.132,00	4.543.208,00
CADIZ	AVATEL TELECOM S.A.	16	874.304,00	786.698,00
CADIZ	TELEFONICA DE ESPAÑA, S.A.	10	767.050,00	573.676,00
CANTABRIA	ADAMO TELECOM IBERIA SA	74	4.046.986,00	3.638.644,00

Area Concurrence	Business name	Assigned sites	Bankable budget (EUR)	Aid (EUR)
CANTABRIA	LYNTIA NETWORKS, S.A.	111	14.840.922,00	5.457.006,00
CASTELLÓN/CASTELLÓ	AVATEL TELECOM S.A.	109	5.956.196,00	5.359.384,00
CASTELLÓN/CASTELLÓ	LYNTIA NETWORKS, S.A.	73	8.441.063,00	3.589.139,00
REAL CITY	ADAMO TELECOM IBERIA SA	91	4.975.607,00	4.474.562,00
REAL CITY	TELEFONICA DE ESPAÑA, S.A.	27	3.953.205,00	2.947.904,00
CORDOBA	AVATEL TELECOM S.A.	66	3.606.504,00	3.245.131,00
CORDOBA	LYNTIA NETWORKS, S.A.	44	5.377.328,00	2.163.298,00
CORUÑA, A	AVATEL TELECOM S.A.	60	3.278.640,00	2.950.775,00
CORUÑA, A	LYNTIA NETWORKS, S.A.	89	10.884.700,00	4.375.649,00
BASIN	AVATEL TELECOM S.A.	190	10.382.360,00	9.342.047,00
BASIN	LYNTIA NETWORKS, S.A.	128	18.051.072,00	6.292.602,00
GIPUZKOA	LYNTIA NETWORKS, S.A.	33	4.126.254,00	1.622.442,00
GIPUZKOA	TOTEM TOWERCO SPAIN S.L.U.	1	292.989,00	263.630,00
GIPUZKOA	TELEFONICA DE ESPAÑA, S.A.	6	672.180,00	604.826,00
GIRONA	AVATEL TELECOM S.A.	64	3.443.520,00	3.098.478,00
GIRONA	LYNTIA NETWORKS, S.A.	95	12.308.960,00	4.670.019,00
GRENADA	ADAMO TELECOM IBERIA SA	138	7.543.080,00	6.785.754,00
GRENADA	TELEFONICA DE ESPAÑA, S.A.	52	5.063.708,00	4.489.482,00
GUADALAJARA	AVATEL TELECOM S.A.	220	12.021.680,00	10.817.107,00
GUADALAJARA	LYNTIA NETWORKS, S.A.	147	18.964.617,00	7.227.415,00
HUELVA	AVATEL TELECOM S.A.	41	2.240.404,00	2.015.914,00
HUELVA	ADAMO TELECOM IBERIA SA	59	3.227.536,00	2.901.231,00
HUESCA	TOTEM TOWERCO SPAIN S.L.U.	8	4.332.968,00	3.898.804,00
HUESCA	TELEFONICA DE ESPAÑA, S.A.	86	13.483.682,00	11.446.297,00
JAÉN	AVATEL TELECOM S.A.	84	4.245.276,00	3.819.899,00
JAÉN	TELEFONICA DE ESPAÑA, S.A.	32	2.865.216,00	2.456.062,00
LEON	ADAMO TELECOM IBERIA SA	149	8.143.148,00	7.326.389,00
LEON	LYNTIA NETWORKS, S.A.	222	30.043.926,00	10.914.957,00
LLEIDA	ADAMO TELECOM IBERIA SA	151	8.256.680,00	7.425.232,00
LLEIDA	TELEFONICA DE ESPAÑA, S.A.	53	6.148.901,00	4.937.567,00
LUGO	AVATEL TELECOM S.A.	97	5.241.589,00	4.716.381,00
LUGO	ADAMO TELECOM IBERIA SA	144	7.875.360,00	7.080.735,00
MADRID	LYNTIA NETWORKS, S.A.	78	9.529.884,00	3.834.824,00
MADRID	TELEFONICA DE ESPAÑA, S.A.	25	1.757.775,00	1.581.645,00

Area Concurrence	Business name	Assigned sites	Bankable budget (EUR)	Aid (EUR)
MALAGA	AVATEL TELECOM S.A.	77	4.207.588,00	3.785.987,00
MALAGA	TELEFONICA DE ESPAÑA, S.A.	32	3.194.912,00	2.486.599,00
MURCIA	AVATEL TELECOM S.A.	10	546.430,00	491.786,00
NAVARRA	LYNTIA NETWORKS, S.A.	142	18.140.358,00	6.980.409,00
NAVARRA	ADAMO TELECOM IBERIA SA	95	5.196.025,00	4.671.225,00
OURENSE	AVATEL TELECOM S.A.	123	6.721.212,00	6.047.745,00
OURENSE	LYNTIA NETWORKS, S.A.	82	9.948.486,00	4.031.126,00
PALENCIA	AVATEL TELECOM S.A.	93	5.081.892,00	4.572.685,00
PALENCIA	LYNTIA NETWORKS, S.A.	63	8.746.227,00	3.097.038,00
PALMAS, THE	AVATEL TELECOM S.A.	2	156.122,00	140.477,00
PALMAS, THE	TELEFONICA DE ESPAÑA, S.A.	7	470.225,00	344.204,00
PONTEVEDRA	AVATEL TELECOM S.A.	45	2.458.980,00	2.212.589,00
PONTEVEDRA	LYNTIA NETWORKS, S.A.	30	3.669.150,00	1.474.997,00
RIOJA, THE	LYNTIA NETWORKS, S.A.	134	18.332.004,00	6.586.688,00
RIOJA, THE	TOTEM TOWERCO SPAIN S.L.U.	1	519.209,00	467.183,00
SALAMANCA	ADAMO TELECOM IBERIA SA	109	5.960.338,00	5.359.535,00
SALAMANCA	LYNTIA NETWORKS, S.A.	162	21.654.702,00	7.964.598,00
SANTA CRUZ DE TENERIFE	AVATEL TELECOM S.A.	21	1.515.612,00	1.363.898,00
SANTA CRUZ DE TENERIFE	TELEFONICA DE ESPAÑA, S.A.	37	2.309.318,00	2.077.923,00
SEGOVIA	TOTEM TOWERCO SPAIN S.L.U.	9	3.574.755,00	3.216.564,00
SEGOVIA	TELEFONICA DE ESPAÑA, S.A.	54	6.245.856,00	5.620.644,00
SEVILLE	AVATEL TELECOM S.A.	61	3.333.284,00	2.999.288,00
SEVILLE	LYNTIA NETWORKS, S.A.	42	5.079.018,00	2.064.619,00
SORIA	AVATEL TELECOM S.A.	114	6.229.416,00	5.605.228,00
SORIA	LYNTIA NETWORKS, S.A.	77	10.584.343,00	3.784.960,00
TARRAGONA	AVATEL TELECOM S.A.	56	3.025.288,00	2.722.153,00
TARRAGONA	LYNTIA NETWORKS, S.A.	82	10.586.528,00	4.031.349,00
TERUEL	AVATEL TELECOM S.A.	227	12.404.188,00	11.161.287,00
TERUEL	TELEFONICA DE ESPAÑA, S.A.	66	7.858.620,00	7.071.185,00
TOLEDO	AVATEL TELECOM S.A.	100	5.384.800,00	4.845.242,00
TOLEDO	LYNTIA NETWORKS, S.A.	148	19.366.688,00	7.276.064,00
VALENCIA/VALÈNCIA	AVATEL TELECOM S.A.	108	5.901.552,00	5.310.215,00
VALENCIA/VALÈNCIA	LYNTIA NETWORKS, S.A.	161	18.964.834,00	7.915.921,00
VALLADOLID	ADAMO TELECOM IBERIA SA	125	6.832.125,00	6.146.179,00

Area Concurrence	Business name	Assigned sites	Bankable budget (EUR)	Aid (EUR)
VALLADOLID	TELEFONICA DE ESPAÑA, S.A.	33	4.360.554,00	3.923.626,00
ZAMORA	ADAMO TELECOM IBERIA SA	147	8.037.666,00	7.228.272,00
ZAMORA	TELEFONICA DE ESPAÑA, S.A.	40	5.363.480,00	4.819.086,00
ZARAGOZA	AVATEL TELECOM S.A.	189	10.327.716,00	9.292.878,00
ZARAGOZA	LYNTIA NETWORKS, S.A.	126	16.465.554,00	6.194.341,00
TOTAL		**8.156**	**718.841.919,00**	**447.340.893,00**

ANNEX II Details of the Evaluation Plan for Single Measure 5G Active Networks

The Commission's decision on State aid reference SA.104933, point 2.16**,**referring specifically to the Evaluation Plan, states that:

(1) (1) the Spanish authorities have notified, together with the measure, an evaluation plan, taking into account the best practices recalled in the Staff Working Document on a common methodology for State aid assessment. The main elements of the evaluation plan are described below.

(132) *The evaluation plan describes the objectives of the measure and includes evaluation questions which, through a quantitative and qualitative analysis, address the direct effects of the measure, its proportionality and appropriateness, as well as some indirect effects, including potential distortive effects on competition.*

(133) *The proportionality and appropriateness of the measure are assessed by checking whether the objectives of the measure could be achieved with a lower aid intensity.*

(134) *The evaluation plan describes the result indicators that will be used to assess the extent to which the objectives of the measure have been achieved, and which correspond to the evaluation questions, as well as the methodology applied to identify the impact of the measure.*

(135) *The suggested methodology makes it possible to separate the effect of the aid on the selected result variables from other confounding factors and to consider that the intervention differs depending on the target area.*

(136) *To assess the direct effects of the aid, Spain has committed to use assessment methodologies of a group of quasi-experimental techniques belonging to the counterfactual assessment methods. As part of the evaluation of the Measure, the Differences in Differences (DID) method will also be used. This method is the one which, taking advantage of the longitudinal nature of the available data, is considered to be the most robust in view of the presence of unobservable differences between the undertakings benefiting from the aid under the scheme under assessment and the undertakings belonging to a control group, provided that these differences remain constant over time (parallel trend scenarios).*

(137) *In addition, Spain will also test the possibility of using the methodology of the Event Study Design, which makes it possible to study the ex-post dynamics of the aid to analyse the speed at which impacts materialise. An Event Study is a generalisation of the DID in which all units of the study group receive the intervention at different points in time. This method provides for the allocation of fictitious variables that capture the impact of the action before and after it occurs, thus allowing the ex-post dynamics of the aid to be studied.*

(138) *The Spanish authorities confirm that the final evaluation report will be published on the official website of the Spanish Government.*

(139) *The final report will be submitted to the Commission in December 2025 and will focus on the analysis of the compatibility of tenders with the relevant principles of EU law as well as with the notified Measure. In addition, this report will contain a first assessment of the impact of the Measure, based on the data that will be available at that time.*

(140) *The first additional evaluation report shall present the results of the evaluation for the period 2024-2027 and shall be submitted to the Commission by 30 June 2028. It will focus on the assessment of the direct and indirect impacts of the Medium Term Measure.*

(141) *The Spanish authorities have committed to continue the evaluation beyond the implementation of the Measure and to submit a second additional evaluation report by 31 December 2029. The report will assess the overall effectiveness of the Measure, which will become operational on 17 February 2026.*

(142) *The Spanish authorities indicate that since the feasibility of the evaluation plan depends on the timely implementation of the measure and the availability of data, if for any reason the implementation deviates from the plan, the Spanish authorities will notify the amendments to the measure to the Commission. In addition, the Spanish authorities also commit to contact the Commission as soon as possible in order to define an alternative evaluation strategy which, in any event, is in line with the "Common Methodology for State Aid Evaluation".*

The Spanish authorities have submitted an evaluation plan in the context of the notification as an integral part of the notification. The purpose of the report is set out below in the following recitals:

(143) *) Ex-post evaluation plan. The Broadband Guidelines stipulate that, in order to further ensure that distortions of competition and trade are limited, the Commission may require schemes to be subject to an ex post evaluation in order to verify (a) whether the assumptions and conditions that led to the compatibility decision have been met; (b) the effectiveness of the aid measure in the light of its predefined objectives; (c) the impact of the aid measure on markets and competition and that no undue distortive effects arise throughout the duration of the aid scheme that are contrary to the interests of the Union125. Ex post evaluation shall be necessary for schemes with large aid budgets, or containing novel features, or where significant market, technology or regulatory changes are expected. 126 The Spanish authorities have submitted an assessment plan in the context of the notification as an integral part of the notification, in line with the Broadband Guidelines:*

(a) The objective of the evaluation plan is to demonstrate, through quantitative and qualitative analyses, the direct effects of the measure, its proportionality and appropriateness, as well as several indirect effects, including potential distortive effects on competition.

(b) The Commission considers that the notified evaluation plan contains all the elements necessary to meet the objectives set: the objectives of the measure to be evaluated, including evaluation questions; the results indicators; the methodology envisaged for carrying out the assessment; and the proposed timetable for the evaluation, including the date of submission of the final evaluation report (see also section 2.16). The Commission states that:

1. The scope of the assessment is adequately defined. It includes a list of evaluation questions with corresponding result indicators. In addition, the evaluation plan explains the main methods that will be used to identify the impact of the measure.

2. The Spanish authorities commit that the assessment will be carried out by an independent assessment body in accordance with the criteria set out in the notified assessment plan;

3. The proposed modalities for the publication of the evaluation results are appropriate to ensure transparency.

4. The commitment made by Spain to submit to the Commission a final report by December 2025, a first additional evaluation report by 30 June 2028 and a second additional evaluation report by 31 December 2029 is appropriate, as these reports will contain relevant information on the implementation and progress of the measure as well as data relevant for the assessment of the effectiveness of the measure.

5. The commitment made by Spain to notify the Commission of the amendments to the Measure and to contact the Commission as soon as possible, in the event that, for any reason, the implementation deviates from the plan, in order to define an alternative evaluation strategy which, in any event, complies with the "Common Methodology for State Aid Evaluation", is appropriate.

(c) The Commission notes that Spain should communicate to the Commission any difficulties that may significantly affect the agreed assessment to identify and implement possible solutions.

(d) Furthermore, the Commission notes that the measure should be suspended if the final evaluation report is not submitted in due time or is not of sufficient quality."

Characteristics of the Evaluation Plan

The evaluation plan defines the scope of evaluation, including specific **questions** that can be answered quantitatively, accompanied by the necessary supporting documentation.

The analysis should be carried out following an ***ex-post*evaluation** approach attributable to the implementation of the aid and taking into account relevant assumptions that may influence the implementation of the actions. In addition, some impacts will be analysed using indicators that reflect quantified information on the results achieved by the action.

1. **Direct impacts**

   a) *To what extent has the aid been an incentive for operators to increase investment in 5G standalone services with the characteristics of edge computing and network slicing, and with a minimum speed of 100 Mbps for downlink and 5 Mbps for uplink, in different areas per population area of the territory? (incentive effect)*

b) Has the aid increased the uptake of 5G MISs with the above specifications by end-users, especially undertakings? (incentive effect)
c) Has the aid increased the number of operators that have contracted fibre optic backhaul services at the sites?
d) Did the aid improve the performance of the backhaul network (in terms of transmission speed, latency and reliability of operators' aggregated traffic)?
e) What impact has the aid had on the volume of traffic at the sites?

2. Indirect impacts:

f) To what extent has the aid contributed to job creation and the reduction of the digital divide in municipalities with less than 10.000 inhabitants?
g) To what extent do wholesale access conditions applied to mobile retail operators contribute to the balance between the positive and negative effects on the competitive structure of the market?
h) On what average has it contributed to reducing energy consumption and improving the visual impact?

3. Proportionality and adequacy of the model used

i) Is the amount of State aid proportionate to the problem to be addressed?
j) Has the intervention tool used proved to be the most effective in relation to 5G coverage achieved?
k) What is the main evidence in terms of efficiency (cost) and effectiveness (transmission speed and reliability of connection) of the model used?
l) What was the rate of use of the existing infrastructure by the aid beneficiaries and what impact did this have on overall efficiency?

The evaluation will assess the impact of the scheme on all three levels, addressing relevant issues in relation to the objectives. Furthermore, as mentioned above, the assessment of the direct effects of the aid is of paramount importance as it can provide valuable information on the impact of the aid.

The indicators to be measured shall be those referred to in paragraph 6 —

The objective of the action is to provide support for the provision of the active set of equipment and, where appropriate, the additional infrastructure necessary for the provision of 5G standalone services with the value-added characteristics of edge computing and network slicing, and with a minimum speed of 100 Mbps for downlink and 5 Mbps for uplink, in the geographical areas where it has been identified as currently not existing, and is not expected to be provided in the coming years, coverage of 4G mobile communications networks providing at least 50 Mbps downstream.

The use of public funds to subsidise actions that may have a potentially significant impact on the internal market must be accompanied, as requested by the European Commission, by an analysis of the ex post causal effects generated by this public aid, especially for those impacts that are considered socially relevant and, in order to verify that the aid was adequate and the expenditure proportional to the objective. As regards the assessment of the ex post impacts of State aid, it is believed that the analysis must necessarily require a quantitative approach based on econometric methods that are essential to take into account the potential causal effects of public intervention.

In this respect, a State aid scheme may have implications at very different levels. It is normally expected to have a direct effect on the beneficiary. Understanding the magnitude of this effect is therefore crucial for assessing the level of efficiency and effectiveness of aid. However, since such interventions target undertakings active in regions competing to attract economic activities, State aid normally also has indirect effects. These spill-over effects materialise both the potential damage and the benefits stemming from State intervention in the economy. Therefore, the assessment of public measures also requires an assessment of the magnitude of these spill-over effects.

Normally, the measurement of the direct and indirect effects of aid requires the use of various instruments. In this regard, we have indicators that do not require the specific use of an econometric methodology, as their calculation depends specifically on the collection of information by beneficiaries and operators. However, for the calculation of indicators requiring a more complex impact analysis, specific econometric evaluation methods will be used to isolate the effect of aid from other possible factors, in order to measure the causal effect of public support on the achievement of the established policy objectives.

The aid submitted is intended to ensure the provision of infrastructure enabling the provision of 5G standalone services with the value-added characteristics of ‘Edge computing’ and ‘network slicing’. Therefore, the impact of the aid will be measured according to the use of the infrastructure as well as the end use of the user in relation to 5G. It is therefore of particular importance to introduce an ex post quantitative analysis methodology to help quantify indicators that measure the causal effects of public intervention.

Thus, causation analysis requires the use of very specific econometric evaluation techniques that allow the effect of public aid to be isolated from other possible competing factors. It is not necessary to merely establish a correlation between the use of public funds and a specific outcome variable, but it is necessary to go into detail to assess what causal effect public subsidies have had on the achievement of a certain net policy objective of other competing factors (so-called “confusion variables *).

Thus, the Difference in Difference in Differences (DID) method will be considered to be used as an ex-post evaluation method in the context of the evaluation of the programme "ÚNICO 5G Active Networks". This method is a technique used in econometrics that measures the effect on the dependent or quantitative response variable over a period of time.

Overview of the Difference in Differences methodology

The DID methodology is an analytical approach that facilitates causal inference even when randomisation is not possible. In this respect, cautious conclusions should not be drawn from the observation of simple changes in the results before and after, as other factors than intervention may influence the outcome over time; in addition, the comparison between interventilated and non-intercepted groups would also not be considered accurate due to the selection bias and differences in unobservable characteristics between the groups. Therefore, the Difference in Differences (DID) methodology combines these two methods to compare before and after changes in treatment and control group results and estimate the overall impact of the aid.

As in other assessment methodologies, the effectiveness of the DID method depends on the fulfilment of a number of key assumptions in order to be able to interpret this analysis as the effect of the aid in a valid way. In this respect, the DID methodology assumes the parallel trend, which establishes that the trend observed in the variable of interest or result for the control group is equal to the trend that would have been observed in the treatment group if the aid had not been received. Thus, in order to verify that the scenario could be met, trends of both groups in years prior to the start of treatment will be studied. For the correct use of the methodology, it is important to check that the trends of the two groups were identical, and that it is only as from the application of the aid that they have changed. It will also be examined whether there are no concurrent or simultaneous changes to the implementation of the aid that could affect the variabale of interest in a different way in both groups.

Thus, the DID methodology provides for the following factors that allow the comparison to be accurate:

- The methodology considers the difference of both before and after in the treatment group (the group involved). By comparing the same group with itself, the first difference controls factors that are constant over time in that group.
- To capture time-varying factors, the methodology takes the difference from before and after in the control group, which was exposed to the same set of environmental conditions as the treatment group.
- Finally, the 'clean' DID methodology is all the time varying factors of the first difference by subtracting the second difference. This leaves us with the estimation of the overall impact.

The DID methodology requires results data in the group receiving the intervention and the group that does not receive it, both before and after the programme. In this regard, information will be requested and collected throughout the aid period, both before and in intermediate periods and at the end of the Plan. The collection of information throughout the period is essential for the implementation of the methodology.

In summary, the DID methodology generates an econometric model to compare whether the effect of the aid has had an effect in terms of a change in the variable response under study, and to be able to give a certain magnitude to that impact, which will be defined in a numerical manner.

Thus, in this case, the idea would be to compare the reference result in areas with the infrastructure enabling the provision of 5G services with the characteristics mentioned above, which receive the aid, with other areas not receiving aid, before and after the intervention. In other words, comparing the effect on the areas that received the aid and implemented the measures, with the areas that have not yet received it, these being an example of what would have happened in the absence of public aid.

In summary, the method works if, over time, both beneficiaries and the control group are affected by the other factors that also affect performance in the same way. It can then be concluded that the aid is the only relevant factor explaining the observed change in the beneficiaries' performance in relation to the control group. The crucial assumption is that the differences between beneficiaries and the control group are stable over time and that both groups are equally affected by common shocks (deviations from the average) over the period.

Use of the Event Study Design

However, if the areas subject to the aid scheme do not survive the impacts at the same time (i.e. they do not receive the aid at the same time), what could happen is that the DID model would be distorted as there would be no real control group where all units are in the same conditions in the observation period.

Therefore, the estimation method to be used is the Event Study Design methodology, which makes it possible to study the ex-post dynamics of the aid, in order to analyse the speed with which impacts materialise.

A Event Study is a generalisation of the DID in which all units of the study group are involved at different points of time. This method provides for the allocation of fictitious variables that capture the impact of the action before and after it occurs, thus allowing the ex post dynamics of the aid to be studied. In other words, we would generate a dynamic DID model, using statistical methods that allow us to use time as a dependent variable and search for variables that explain the duration of the event. In this respect, dynamic DID models are based on a regression with the following characteristics:

- The aim of regression is to make the coefficients of the pre-treated periods statistically insignificant for each period before and after treatment.
- Test the assumption of parallel trends in DID estimation, showing that the control and treatment group are statistically equal before treatment.

However, a potential problem with this analysis concerns the existence of pre-existing infrastructure and coverage, albeit with a performance below the intervention performance threshold mentioned above, at the time of the launch of the Plan by the various existing operators (e.g. coverage by 4G networks in the areas under intervention), as well as the existence of a 4G MIS by the end-user. To take this into account, it is necessary to collect data prior to the launch of the programme. In this regard, SETELECO launched a public consultation in which the operators of electronic communications services networks provided relevant information on the coverage of their networks. This information will serve as a starting point for the launch of the evaluation.

Analysis of the appropriateness and proportionality of the aid

The analysis to be carried out would also consider an assessment of the appropriateness and proportionality of the action.

The level of adequacy would be assessed by looking at how the result variables over time evolve depending on the degree of infrastructure deployment. This correlation will be assessed both through simple qualitative indicators, as reported in section 3, and through the results that would be obtained from a causation analysis. Where, therefore, the econometric analysis would show that the action incentivised through the aid programme has a positive and significant impact on the take-up of the service by the end user and on the technical performance of the network.

On the other hand, in order to assess the proportionality of the aid, that is to say, to assess whether the action has not been overspent in relation to the intended objective, reference will be made to data from similar public aid implemented in other European countries. In this regard, a number of selection criteria or variables will be established to enable countries with similar characteristics to be identified, with a view to drawing conclusions comparable to the Spanish case.

The feasibility of the evaluation plan depends on the implementation of the action in the expected time and form, and the availability of data. If, for any reason, implementation deviates from what is planned, SETELECO undertakes to contact the Commission as soon as possible in order to be able to define an alternative evaluation strategy which, in any event, is in line with the Common methodology for State aid evaluation.