

## Draft GSR-23 Best Practice Guidelines Consultation

### “Regulatory and economic incentives for a sustainable and inclusive digital future”

To contribute to the objective of the consultation, [Draft GSR-23 Best Practice Guidelines Consultation](#), to explore a regulatory framework and economic incentives to promote the implementation of infrastructures for Information and Communication Technologies (ICTs) and guarantee a sustainable and inclusive digital future, a successful and already with expressive results Brazilian experience is presented.

The experience includes regulatory and economic incentives that can accelerate sustainable digitization, encourage the private sector to continue investing in rural, isolated, and non-profit areas, and create business opportunities and models to increase revenues, to enable better network coverage, connectivity affordable digital technology for sustainable development and accelerate digital transformation.

**Proposal of Regulatory and Economic Framework and Incentive for the private sector to continue investing in rural, isolated, and non-profit areas, creating business opportunities and models to increase revenues.**

[Public Notice No. 01/2021-SOR/SPR/CD-ANATEL](#), known as **5G Public Notice**, corresponded to the largest offer of spectrum in the history of the National Telecommunications Agency - **Anatel**. Four radio frequency bands were auctioned (700 MHz, 2.3 GHz, 3.5 GHz, and 26 GHz), which provided a greater volume of spectrum resources for the expansion of telecommunications networks in the country.

The auction was characterized by the prioritization of investment in telecommunications infrastructure, without collection bias, with the objective of promoting the expansion of access, in line with the public policy of expanding the coverage of mobile access networks, in broadband, in cities, towns, isolated urban areas, rural areas and federal highways that do not have this type of infrastructure.

The total obligations contracted as a result of the Auction represented an economic value of R\$ 47.2 billion (USD 9.3 billion, March 2023 quotation).

Of the total value of the Auction, R\$ 3.1 billion (USD 608 million, March 2023 quotation), from the 26 GHz band, were linked to the commitment to connectivity projects for public basic education schools, with the quality and speed necessary for the pedagogical use of ICTs in educational activities regulated by the Connected Education Innovation Policy (PIEC), established by [Law No. 14.180, of July 1, 2021](#).

Thus, instead of the winning companies paying Anatel for the acquisition of frequencies, they assumed, as provided in the 5G Public Notice, the commitment to carry out connectivity

projects in public basic education schools, with the quality and speed necessary for pedagogical use of ICTs in educational activities.

In order to guarantee the coordinated implementation of the projects, the 5G Notice also provided the constitution of a **Monitoring Group for the Costing of School Connectivity Projects (GAPE)**, composed by representatives of Anatel, the Ministry of Communications, the Ministry of Education and each one of the winning bidders for the 26 GHz band.

The group has been meeting monthly since its implementation in December 2021 and has been producing significant results. Among the work products already delivered by the GAPE, the following stand out:

- The [School Connectivity Panel](#), which consolidates information about connectivity in Brazilian schools, unifying several different databases. Among the data sources used are: [School Census](#), [Broadband Program in Schools \(PBLE\)](#), [Connectivity in Rural Schools](#), [Connected Education Meter](#), [Electronic Government - Citizen Assistance Service \(GESAC\)](#) and [Nordeste Conectado](#);
- The Guidelines for the Development of Connectivity Projects in Public Basic Education Schools, approved by [Internal Ordinance No. 2347](#), of May 9, 2022, which consolidates the assumptions to be considered in school service initiatives.
- The Pilot Project for 181 (one hundred and eighty-one) schools, which were distributed in 10 Brazilian municipalities, 2 (two) per region of the country:
  - Pau D'Arco (PA) and Espigão do Oeste (RO) in the North;
  - Baía da Traição (PB) and Santa Luzia do Itanhy (SE) in the Northeast;
  - Gaúcha do Norte (MT) and Cavalcante (GO) in the Midwest;
  - Berilo (MG) and Silva Jardim (RJ) in the Southeast; and
  - Entre Rios (SC) and Coronel Domingos Soares (PR) in the South.

For the implementation of the project, the Notice foresaw the creation of a non-profit entity, with the objective of making the development of the projects feasible, with the implementation of the infrastructure and equipment necessary to meet the criteria defined by GAPE. In this sense, the **School Connectivity Administrator - EACE** was created.

The GAPE Pilot Project consists of serving, with broadband internet, 181 public elementary schools that are currently without internet connection or with inadequate connection.

In order to select the schools for the Pilot Project, the first step was to observe the Schools Connectivity Panel, with a total of 138,803 public schools in operation, of which 12,082 did not have access to the Internet, thus ranking at the top of the service priority order.

As it is a Pilot Project, the universe of schools to be connected should meet the criteria established in the guidelines without, however, making the pilot's objective unfeasible, to serve as a learning experience for the connection of the other schools in the GAPE.

The second step for the selection of municipalities was the definition of the attendance of all schools in the municipal network, to allow the planning of the network as a whole to be carried out considering that all school units would have full internet connection. In addition, this choice was made thinking that, by serving all schools in the municipalities, the Pilot Project would achieve its purpose of finding schools in different situations of service, thus providing the learning it sought.

To guide the selection of municipalities for the Pilot Project, an index was created based on the following indicators:

- Municipal Human Development Index (IDH-M), which reflects socioeconomic conditions;
- percentage of disconnected students, which reflects the number of students impacted by the program;
- Multimedia Communication Service (SCM, fixed broadband) density, which indicates the pre-existing availability of broadband infrastructure; and
- differentiated location, which includes serving indigenous communities, remaining quilombo communities and rural settlements.

For this choice, municipalities with a lower IDH-M, with a greater number of disconnected students, with a greater density of SCM accesses and with a greater number of schools with different locations received a higher score.

To guarantee a diversity of realities for the pilot to learn, municipalities in all geographic regions of Brazil were selected.


Service to schools in the pilot consisted of hiring broadband internet, with at least 50 Mbps of download speed, with the implementation of telecommunications networks whenever necessary to reach schools, urban and rural, with the best economically viable technology.

After connecting the schools with download speeds ranging from 50 Mbps to 200 Mbps, EACE implemented an internal network solution to provide all classrooms with a stable Wi-Fi network, protected with no-breaks and firewalls.

The third stage of the project consists of equipping schools with IT kits that will make educational laptops available to students and teachers, as well as a storage trolley and projectors for use in the classroom.

Currently, the project has 86% of schools already connected with broadband internet and 72% with an internal Wi-Fi network. The detailed values per municipality can be consulted below and on the Anatel website (<https://www.gov.br/anatel/pt-br/composicao/grupos-de-trabalho/gape/projeto-piloto>):


## Connectivity - External Network (by municipality)

❖ 153/177 escolas ativadas 

Município	Acesso - Rede Externa						% Ativadas
	Total	Ativadas	Implantação (Projetos Especiais)	Em reforma	Desativada	*Em contratação	
Baía da Traição/PB	17	16		1			94%
Berilo/MG	23	23					100%
Cavalcante/GO	22	14	7		1		64%
Coronel Domingos Soares/PR	15	9	6				60%
Entre Rios/SC	10	10					100%
Espigão D'Oeste/RO	22	21	1				95%
Gaúcha do Norte/MT	15	8				7	53%
Pau D'Arco/PA	11	10		1			91%
Santa Luzia do Itanhyl/SE	21	21					100%
Silva Jardim/RJ	21	21					100%
<b>Total</b>	<b>177</b>	<b>153</b>	<b>14</b>	<b>2</b>	<b>1</b>	<b>7</b>	<b>86%</b>

(\*) Aguarda definição pelo GAPE da solução a ser contratada - Alto risco de impacto no Cronograma

## Connectivity - Internal Network (by municipality)

✦ 128/177 escolas ativadas 

Município	Acesso - Rede Interna						
	Total	Ativadas	Em implantação	Projeto	Em reforma	Desativada	% Ativadas
Baía da Traição/PB	17	16			1		94%
Berilo/MG	23	23					100%
Cavalcante/GO	22			21		1	
Coronel Domingos Soares/PR	15	8	7				53%
Entre Rios/SC	10	10					100%
Espigão D'Oeste/RO	22	21	1				95%
Gaúcha do Norte/MT	15			15			
Pau D'Arco/PA	11	10			1		91%
Santa Luzia do Itanhhy/SE	21	21					100%
Silva Jardim/RJ	21	19			2*		90%
<b>Total</b>	<b>177</b>	<b>128</b>	<b>8</b>	<b>36</b>	<b>4</b>	<b>1</b>	<b>72%</b>

(\*) 2 escolas entraram em reforma

Regarding the preliminary results of the project, it is possible to verify that of the 153 schools that have already been effectively connected, 132 of them were connected with fiber optic networks, 16 with high-capacity radio solutions and 5 with mixed fiber and radio solutions to allow assistance to schools more than 200 km away from the center of their municipalities.

Such expressive results of fiber optic connection in small municipalities with low IDH were possible with hiring local providers, who are aware of the region's challenges, and with the financial incentives arising from the resources of the 5G Public Notice.

The experience has the potential to transform the reality of education in the contemplated municipalities, by connecting all schools with high-speed internet at once and with an internal Wi-Fi network available to all students, in addition to encouraging local providers that obtain three year contracts with the resource management entity, in addition to enabling the expansion of their fiber optic networks to regions in the rural areas of the municipalities, allowing services to communities that were previously not possible.

The project to provide services to schools with broadband internet and an internal Wi-Fi network has so far cost BRL 63,220.34 (US\$ 12,400.00, March 2023 quotation) per school, including maintenance of the internal network and connection broadband for a period of 3 years. The costs of the acquisition of computers have not yet been accounted for, as they are in the process of contracting.

The progress of GAPE's activities can be followed on Anatel's website, through the link: [www.gov.br/anatel/pt-br/composicao/grupos-de-trabalho/gape](http://www.gov.br/anatel/pt-br/composicao/grupos-de-trabalho/gape) .