NT.F-0017-2021

FINAL TECHNICAL

REVISION OF SABESP'S TARIFF STRUCTURE

April 2021

TABLE OF CONTENTS

No table of contents entries found.

1. INTRODUCTION

The origin of Sabesp's tariff structure dates back to the 1970s-1980s, when *Plano Nacional de Saneamento* [National Sanitation Plan] - Planasa was being created, just like most state companies. Since then, some changes have been made, most recently in 1997.

Through the tariff structure, how much each consumer class will pay is established, considering the region the consumer is located in and the volume consumed. The amount of resources obtained by applying the tariff structure to the service provider's customer base is expected to be equal to the required revenue calculated in the tariff review processes, which ensures its neutrality.

The regulatory framework for basic sanitation, which establishes the national guidelines and the federal policy for basic sanitation, established by Federal Law 11.445/2007, amended by Federal Law 14.026/2020, gives the regulatory agencies the authority to issue rules related to the system, structure and tariff levels, as well as the procedures and terms for setting, adjusting and reviewing them[1].

State Complementary Law 1.025/2007, which creates Arsesp, entrusts this agency, in the case of basic sanitation services, with defining and setting the tariffs of municipalities whose regulation has been delegated to Arsesp or is state-owned[2].

The cooperation agreements signed between the São Paulo State Government and the municipalities regulated by Arsesp also give Arsesp this responsibility.

In the case of the tariffs applied by *Companhia de Saneamento Básico do Estado de São Paulo* - Sabesp, Arsesp defined the economic regulation regime to be adopted in the company's tariff revision processes during the 1st Ordinary Tariff Revision (1st OTR), finalized in 2014. The Agency also concluded the 2nd tariff revision process (2nd RTO), which comprised the 2017-2020 tariff cycle, introducing improvements to the previously established methodology.

In both processes, despite occasional initiatives by Agency, the tariff structure practiced by Sabesp was maintained, with no changes. Its application is regulated by State Decree no. 41.446, of December 16, 1996, which provides for the regulation of the tariff system for services provided by Sabesp. It is important to point out that this decree predates the creation of Arsesp.

In view of the complexity and the challenges to be faced when reviewing Sabesp's tariff structure, Arsesp opted to carry out a specific regulatory action, aiming to deepen the studies and allow the participation of several players in the sector. Thus, the action DEF5 - Review of the Tariff Structure of Sabesp was included in the Regulatory Agenda for the 2019-2020 biennium and, subsequently, the action DEF11 in the Agenda for the 2020-2021 biennium.

In relation to tariff aspects, the regulatory framework also establishes the minimum factors to be observed when defining tariffs for basic sanitation services, as presented below:

[1] See item IV of Art. 23 of Federal Law 11.445/2007.
[2] See item IV of Art. 10 of Supplementary State Law 1.025/2007.

> *Art. 30. Subject to the provisions of art. 29 of this Law, the compensation and billing structure for basic public sanitation services will consider the following factors:*
> *I - categories of users, distributed by increasing ranges or quantities of use or consumption;*
> *II - required use or quality standards;*
> *III - minimum quantity of consumption or use of the service, aiming to ensure social objectives such as the preservation of public health, adequate service to low-income users and environmental protection;*
> *IV - minimum cost necessary for availability of the service in an adequate quantity and quality;*
> *V - significant cycles of increased demand for the services, in distinct periods; and*
> *VI - payment capacity of the consumers.* (cf. Law no. 11.445/2007)

The adoption of tariff subsidies aimed at serving low-income users and between municipalities is also allowed, for services provided by region:

> *Art. 31. The subsidies intended to serve determined low-income users will depend on the origin of the resources:*
> *I - (repealed)*
> *II - tariffs, when they are part of the tariff or fiscal structure, when they result from the allocation of budget resources, including by means of subsidies; and*
> *III - internal to each holder or between holders, in the hypotheses of regionalized provision.* (cf. Law no. 11.445/2007)

These factors were considered by Arsesp during the studies and definition of the project's premises, which also guided the proposal prepared by Sabesp and submitted for Arsesp's consideration.

Arsesp started the project by holding a Symposium, with widespread participation from various sector players, namely: universities, Public Prosecutor´s Office, Procon, agencies and service providers from other states, Sabesp, institutes, consultants, FIESP among others, to debate all aspects involving the review of Sabesp's tariff structure and obtain subsidies to define regulatory guidelines.

Six panels were held, composed of debaters representing the invited institutions, who offered different points of view on the topic at hand. The topics were divided as follows:

Table 1 – Symposium Panels of the Review of Sabesp's Tariff Structure

THEME	DATE	PLACE
Panel 1 – Opening Definition of tariffs (tariff level and tariff structure)	October 10, 2018 (full time)	Auditorium of the Social Development Secretariat (*Secretaria de Desenvolvimento Social*) Address: Rua Bela Cintra, 1032 – São Paulo, SP
Panel 2 – Distinguished tariffs by type of service (water, sewage collection, removal and treatment)	October 30, 2018 (morning)	Auditorium of the Social Development Secretariat (*Secretaria de Desenvolvimento Social*) Address: Rua Bela Cintra, 1032 – São Paulo, SP
Panel 3 – Minimum consumption vs. fixed and variable tariff portion	October 30, 2018 (afternoon)	Auditorium of the Social Development Secretariat (*Secretaria de Desenvolvimento Social*) Address: Rua Bela Cintra, 1032, São Paulo, SP
Panel 4 – Social Tariff	November 13, 2018 (morning)	Auditorium of the Justice and Citizenship Defense Office (*Secretaria da Justiça e Defesa da Cidadania*) Address: Largo Páteo do Colégio – São Paulo, SP
Panel 5 – Non-residential tariffs	November 13, 2018 (afternoon)	Auditorium of the Justice and Citizenship Defense Office (*Secretaria da Justiça e Defesa da Cidadania*) Address: Largo Páteo do Colégio – São Paulo, SP
Panel 6 – Closure Tariff subsidies	December 5, 2018 (full time)	Auditorium of the Justice and Citizenship Defense Office (*Secretaria da Justiça e Defesa da Cidadania*) Address: Largo Páteo do Colégio – São Paulo, SP

Source: *Relatório Simpósio sobre a estrutura tarifária da Sabesp* [Symposium report on Sabesp's tariff structure], 2019, p.18

The details of what was discussed in each panel can be found in the "*Simpósio sobre a Estrutura Tarifária da Sabesp* [Symposium on Sabesp's tariff structure]" Report, available on Arsesp´s website[3].

After conclusion of the Symposium and the debate, it became evident that there is a need to review Sabesp's tariff structure, modernizing concepts and criteria to make them compatible with society's current scenario and demands.

[3] Consult at: http://www.arsesp.sp.gov.br/Documentosgerais/seminario-revisao-tarifaria.pdf

As a result, Arsesp presented to society a proposal for revision of Sabesp's tariff structure through Public Consultation no. 04/2021, open from 02/09/2021 to 03/10/2021. The proposals were also presented in Public Hearing no. 02/2021, held on March 2, 2021. In addition, Arsesp presented its proposals in other discussion forums with civil society organizations and city halls.

The contributions received were assessed and answered in a Circumstantial Report.

The purpose of this Technical Note is to present the results of the studies developed for Sabesp's new tariff structure. This document presents the main aspects and foundations considered by Arsesp, the legal and normative context that supports the assessment activities of the alternatives for Sabesp's tariff structure, including the concept of tariff structure. It also presents the steps of the structure's revision process. All contributions fully or partially accepted in the Circumstantial Report have already been included in this Technical Note

2. CURRENT TARIFF STRUCTURE

The current tariff system is regulated by the provisions of State Decree no. 41.446, of December 16, 1996. The aforementioned Decree establishes that the tariffs will be calculated for "water supply, collection and sewage disposal services as well as others provided by Sabesp, related to its objectives" (cf. art. 1). It also establishes that the differences and peculiarities of the provision and the areas of provision. Art. 4 establishes a charge for minimum consumption, never lower than 10 m³/month.

In terms of the Decree's validity and effectiveness today, it is important to emphasize that the concept that determined its guidelines at the time was before the creation of the Regulatory Agency, having been edited in a different context.

The implementation of the new tariff structure should be accompanied by a technical study regarding the effectiveness of the Decree, where its tacit revocation will be determined or the legal institute that fits this case will be adopted in order to consolidate Arsesp's competence to promote the changes that may be necessary to improve the structure, since it is up to Arsesp to promote the tariff regulation, by means of a normative, resulting from its capacity as a regulatory agency.

Arsesp has the regulation, control and inspection as its legal attributions, comprising, within the scope of its powers, the establishment of technical standards or recommendations and procedures for rendering services, disciplining the respective contracts and deliberating on the interpretation of the laws, standards and contracts, as well as on omitted cases (cf. art. 7, III and XVI, of Supplementary Law no. 1.025/2007).

Such legal prerogatives converge to enable the adequate performance of Arsesp in search of the accomplishment of the principles and guidelines established in Supplementary Law no. 1.025/2007, among which we highlight the application of methodologies that, one hand, provide tariff affordability (cf. art. 2,

item IX of Supplementary Law no. 1.025/2007), as the maximum expression of protection of the interests of the final consumer, who is the main recipient of the service; and on the other hand, ensure the economic-financial balance by means of adequate compensation compatible with the market to the provider (cf. art. 36, IV, of Supplementary Law no. 1.025/2007).

Sabesp's current tariff structure was presented by Arsesp through Resolution no. 1.021, dated July 15, 2020. The resolution, which is reviewed annually, on Sabesp's reference date (May 10, with publication 30 days earlier due to the provisions of Law 11.445/2007), presents the general pricing conditions, including criteria for social tariffs.

The tariffs are of the binomial type, with a component referring to minimum consumption of 10 m³/month and a volumetric component for consumption above the minimum. The tables are divided by region (Sabesp has 12 Business Units[4]).

Currently Sabesp's tariff structure is composed of six tariff tables, grouped by region and business units[5]:

- Metropolitan Executive Board (GT-M): MC (except for the municipalities of Santo André and Mauá), ML (including the municipalities of Guararema and Santa Isabel), MO, MN (except for the municipalities of: Bragança Paulista, Joanópolis, Nazaré Paulista, Pedra Bela, Pinhalzinho, Piracaia, Socorro, Vargem and Guarulhos) and MS;
- Metropolitan Executive Board (GT-M): MN (only the municipalities of: Bragança Paulista, Joanópolis, Nazaré Paulista, Pedra Bela, Pinhalzinho, Piracaia, Socorro and Vargem);
- Regional Systems Executive Board (RS and RN): Baixada Santista and Litoral Norte;
- Regional Systems Executive Board (RR): Registration Area (except the municipalities of: Apiaí, Barra do Chapéu, Itaóca, Itapirapuã Paulista and Ribeira);
- Regional Systems Executive Board (GT-Interior): RA (except the municipality of Tejupá), RB, RG (except the municipalities of Aguaí and Tapiratiba), RJ (except the municipality of Saltinho), RM, RR (for the municipalities of: Apiaí, Barra do Chapéu, Itaóca, Itapirapuã Paulista and Ribeira) and RT (except the municipality of Lins); and
- Regional Systems Executive Board (RV): RV (except the municipalities of Guararema and Santa Isabel where the tariffs used are RMSP-ML).

The metropolitan region table has 06 categories: Social Residential; Favela Residential; Normal Residential; Commercial / Industrial / Public without Contract; Commercial: Social Assistance Entities; and Public with Contract. The Social Residential and Favela Residential categories have 05 consumer ranges: 0 – 10 m³; 11 – 20 m³; 21 – 30 m³; 31 – 50 m³; and Over 50 m³. For the other categories, there are 04 ranges: 0 – 10 m³; 11 – 20 m³; 21 – 50 m³; and Over 50 m³. The tariffs are the same for

[4] Metropolitan, except for the Bragança Region (M); Bragança Region (BRAG); Alto Paranapanema (RA); Baixo Paranapanema (RB); Pardo and Grande (RG); Capivari/Jundiaí (RJ); Médio Tietê (RM); Litoral Norte (RN); Vale do Ribeira (RR); Baixada Santista (RS); Baixo Tietê and Grande (RT); and Vale do Paraíba (RV).

[5] See ARSESP Resolution no.1.021, of July 15, 2020. Available at:http://www.arsesp.sp.gov.br/LegislacaoArquivos/ldl10212020.pdf

water and sewage services and have a progressive increase between ranges with very significant variations (it can reach more than 200% in some ranges for some categories).

The table for the Bragança region is quite similar, without tariffs for the Residential Favela category. The water tariffs are different from the table of the other municipalities in the metropolitan region. In addition, the tariffs for sewage collection are set at 80% of the water tariffs. The table for the Bragança region also presents tariffs for tank cars and permit holders.

There is an additional table with tariffs for permit holders from the metropolitan region (in the current table, Mogi das Cruzes and São Caetano do Sul).

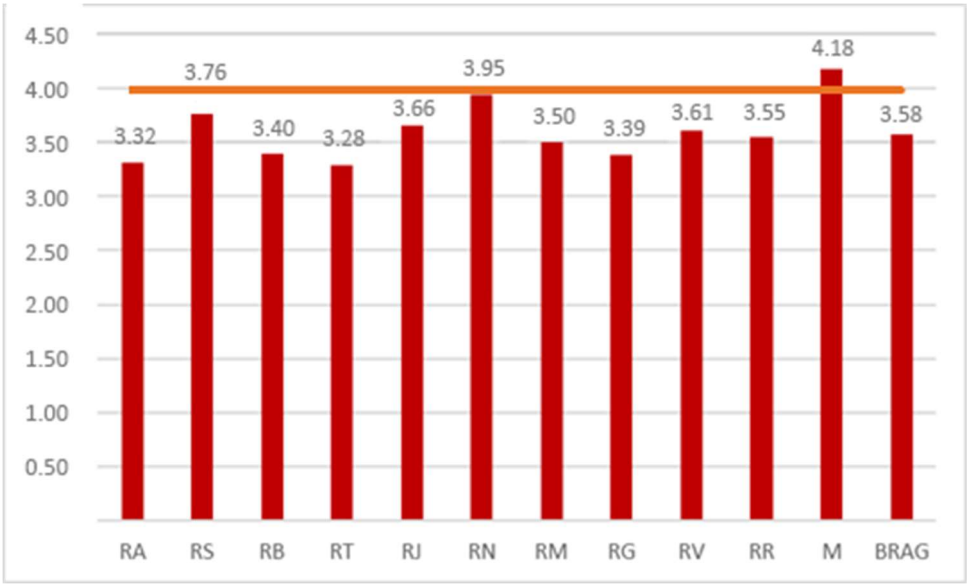
The Regional Systems Executive Board has 06 tables: Baixada Santista and Litoral Norte (RS and RN); Vale do Ribeiro (RR); Interior (RA, RB, RG, RJ, RM, part of the municipalities of RR and RT); Vale do Paraíba (RV); Adamantina and Pirapozinho; and Presidente Prudente.

The tables for RS and RN and Vale do Ribeira (RR) have 05 categories (Social Residential; Normal Residential; Commercial / Industrial / Public without Contract; Commercial: Social Assistance Entities; and Public with Contract), with ranges equal to those of the metropolitan region. Water and sewage tariffs are the same. It also has tariffs for tank cars, boats, and ships.

The tables for the Interior and Vale do Paraíba (RV) are similar to the other regional tables, but have sewage tariffs equivalent to 80% of the water tariffs. The municipalities of Adamantina and Pirapozinho have a specific table just for the Special Commercial segment, with lower tariffs than for the Normal Commercial segment. For Presidente Prudente, there are tables for Special Residential and Special Commercial.

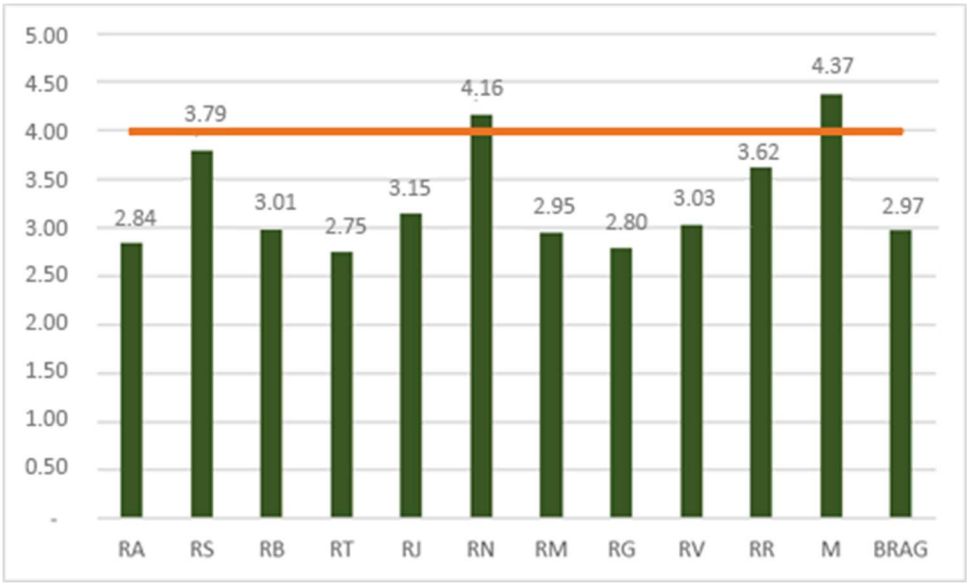
Based on Sabesp´s consumption and billing histograms in the year 2019, it is possible to assess the average tariffs observed by users in each of the Business Units. Arsesp chose to use 2019 as a reference to analyze the current tariff structure. Due to the effects of the COVID-19 pandemic, the share of residential categories in Sabesp's total volume significantly increased, which could distort the results.

Graph 1 – Current water tariffs per Business Unit (R$/m³). The orange line represents Sabesp's weighted average.



Source: SABESP. Prepared by: ARSESP.

Graph 2 – Current sewage tariffs per Business Unit (R$/m³). The orange line represents Sabesp's weighted average.



Source: SABESP. Prepared by: ARSESP.

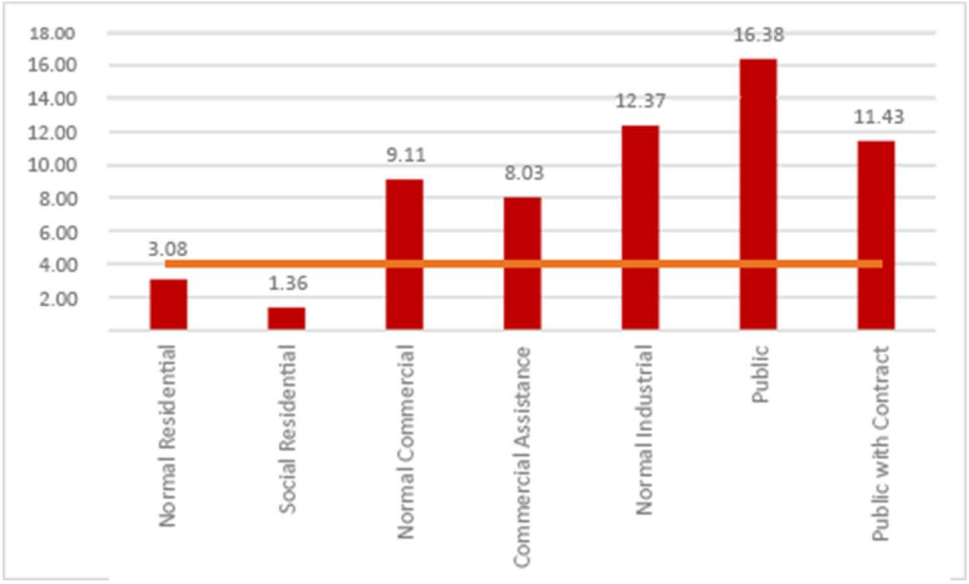
Note that the metropolitan region has a higher average tariff than the other regions for water distribution. For sewage collection, Litoral Norte's tariff is also higher than the average. In Sabesp's aggregate, the average water and sewage tariffs are quite similar (R$ 3.98/m³ for water and R$ 4.00/m³ for sewage). The amounts presented herein are in local currency and include PASEP/Cofins.

It is important to note that the graph can show differences between the average tariffs caused by two effects: firstly, differences in the tariff tables - the Metropolitan Executive Board and Litoral Norte and Litoral Sul have higher tariffs in the higher consumption ranges (the first range has equal tariffs for all regions, except for the sewage tariff in some places); moreover, there are differences in the consumption mix - in regions with a higher share of users with higher tariffs, such as non-residential, or with higher consumption, the average tariff will be higher. Thus, it is not possible to say that the difference observed exclusively represents cross-subsidies. However, the comparison can be considered a proxy for the reality of existing cross-subsidies.

It should be noted, however, that the regions have different costs for providing the services. This subject will be covered later on.

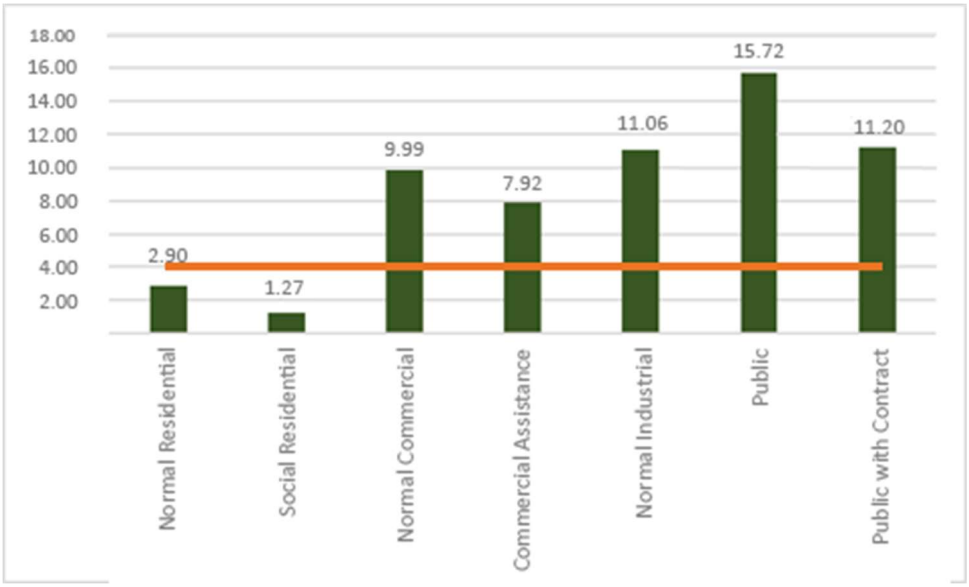
The same analysis can be done by user segments.

Graph 3 – Current water tariffs per user segment (R$/m³). The orange line represents Sabesp's weighted average.



Source: SABESP. Prepared by: ARSESP.

Graph 4 – Current sewage tariffs by user segment (R$/m³). The orange line represents Sabesp's weighted average.

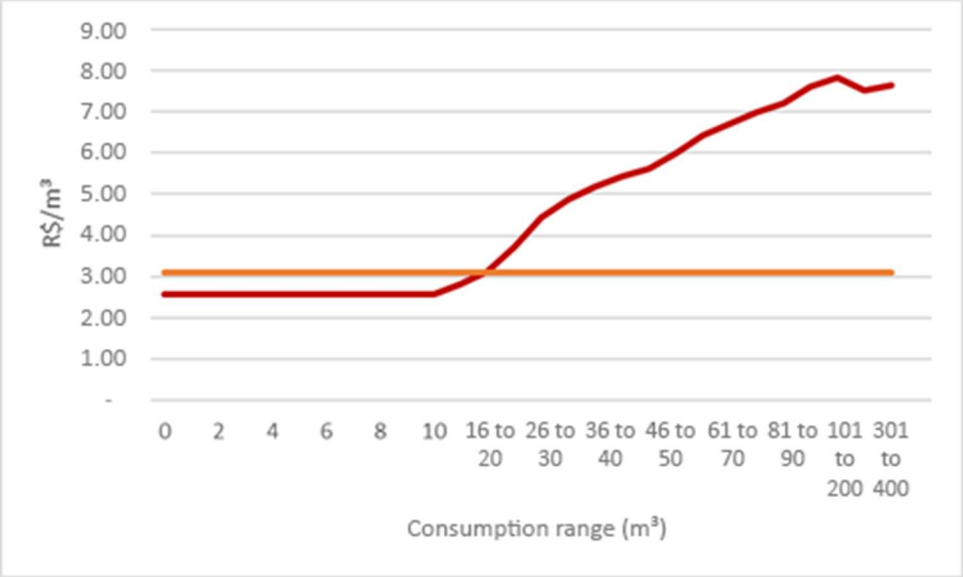


Source: SABESP. Prepared by: ARSESP.

Here, too, one must consider the differences in consumption between segments before concluding that cross-subsidies exist. However, considering that there is no technical evidence of cost difference between user segments (unlike regions where investments and costs are not homogeneous), the tariff difference exposes the logic of cross-subsization in the current tariffs: both residential categories, social and normal, are well below the average tariff, while non-residential users are responsible for covering the tariff subsidy. This is one of the reasons why Sabesp has firm demand contracts with non-residential users, with non-regulatory discounts (i.e., they are liberalized by the service provider and are not covered by the tariff) that contribute to the competitiveness of the service provided by Sabesp compared to alternatives.

Finally, it is possible to evaluate the effect of the progressivity of the tariff table on the average tariff of users.

Graph 5 – Current water tariffs per user range (R$/m³) in the Normal Residential segment. The orange line represents the average tariff per segment.



Source: SABESP. Prepared by: ARSESP.

The graph shows an almost constant average tariff up to 10 m³ due to the existence of the minimum consumption component. From this threshold on, the average tariff increases, following the progressive pattern of the tariff table. The same behavior is observed for sewage tariffs and in the tariffs of the other segments, the only difference is in the growth rate between ranges.

Such a move reflects a premise adopted in the original model that is to discourage expressive consumption by giving a scarcity warning in the tariff structure.

3. TARIFF STRUCTURE REVIEW

As discussed in the previous section, Sabesp's current tariff structure presents differences in tariffs for residential (Normal Residential, Social Residential, Shantytown Residential) and non-residential users (Commercial/Industrial/Public without contract, Commercial: Social Assistance Entities, Public with contract), differences between the São Paulo metropolitan region, interior and coastal regions and differences in water and sewage tariffs in some cases. In addition, the structure contains charges for a minimum consumption of 10 m³/month and differences in tariffs per range with progressive growth.

The tariff structure, throughout Sabesp´s periodic tariff review and annual tariff adjustment processes, carried out by Arsesp, was not reviewed, despite several contributions in the consultation and public hearing processes. Their values have been linearly updated based on the repositioning indexes or the annual readjustment index calculated in these processes.

The tariff repositioning index is calculated by comparing a maximum calculated tariff for Sabesp, with no distinction of services (water or sewage) and regions of provision, with the maximum calculated for the tariff of the previous tariff cycle (discounting inflationary effects).

The maximum tariff is obtained by means of a prospective cash flow for the tariff cycle under analysis (period of 04 calendar years), which includes an assessment of efficient operational costs and prudent investments required to meet the water demand and sewage volume collected in the period. The cash flow considers a rate of return on capital calculated for each process as an opportunity cost.

Arsesp has already concluded two ordinary tariff review processes and one extraordinary tariff review process for Sabesp, whose technical notes with methodological and calculation details can be obtained at the Agency's website. Together with this discussion of the tariff structure, Arsesp presented to public consultation the process for the 3rd Ordinary Tariff Revision, which established the maximum tariff for the 2021-2024 cycle.

Amid the tariff review processes, Arsesp also linearly updates the tariff structure considering the inflation accumulated in the twelve-month period prior to the process (IPCA), discounting a component that estimates Sabesp's productivity gains in the period. The adjustment also considers a quality performance component (GQI) that can either reduce or increase the adjustment percentage.

The tariff structure should reflect the way the different users of the regulated service pay for their provision. Ideally, the tariff structure should be set so that each user pays exactly the measure of their share of the total cost covered by the tariffs. This statement is consistent with the Principle of Cost Responsibility.

The weighted average of consumption of the different tariffs billed to each user in the structure must be equal to the maximum tariff calculated in the tariff review processes. This is called the Neutrality Principle. In other words, the revenue earned by the provider by applying the different tariffs to different users should be equal to the required revenue calculated in the regulatory model.

To determine what the tariffs are for each user, in addition to the two principles indicated, the regulator must also take other principles into consideration, the most relevant of which are:

- The Principle of Non-Discrimination: similar users must be treated the same, which also reflects the principle of Isonomy;
- The Stability Principle: prioritizing price predictability for end users;
- The Principle of Universalization: bear in mind that the sanitation service is essential for the well-being of society and for human dignity. In addition to generating relevant positive externalities (reduction of diseases and associated costs), the tariffs must be reasonable so as to facilitate access for the entire population. It is important to point out that this principle may conflict with others, such as the economic-financial sustainability of the service, to the extent that its unconditioned application would lead, for example, to the service not being billed. The lack of revenue would lead to

a reduction in investments or a worsening of the quality of services, so that universalization would not be effective. There is also conflict with the principle of cost responsibility in that compliance with the ability to pay by residential users, for example, could lead to an increase in tariffs for other user segments, affecting their competitiveness, generating user evasion and reduced total revenue with deleterious effects on sustainability as well. For this reason, the regulator pursues this principle in a rational manner and conditioned to a balance between all the other principles;

- Competitiveness Principle: it is necessary to assess the competitiveness of the services provided by the regulated company and competing services (water tank trucks and wells, for example). The flight of non-residential users to alternative services can impact required revenue, as indicated earlier.

Finally, we should also mention the need to warn of the scarcity of water through the tariff structure, avoiding its wasteful use. This is a concern, in particular, for the residential segments, since for the other segments it is possible to consider that water is a production input and included in the final costs of companies, so that its economy will be the rule, based on economic rationality.

Considering these aspects, summarized in this section, the regulator must establish the tariff structure, following the steps below:

- Assessment of the cost structure and the differences between segments, regions, and services. With this analysis, it is possible to establish an optimal tariff structure that reflects cost responsibility. The tariffs determined in this manner are also called economy tariffs.

It is important to point out that, in a generic manner, the economic tariffs do not necessarily ensure neutrality, since they can be established by cost studies with different methodologies, not necessarily the model that establishes the required revenue or the maximum tariff. The assessment method can, for example, consider marginal costs or average costs of expanding services, with various premises about future costs at different time horizons.

In the following sections we will present an analysis of the cost allocation among different regions and services based on a study using Sabesp´s historical data and applying the usual cash flow methodology adopted in the tariff review processes.

Arsesp has decided that there are no relevant technical aspects that would justify the difference in costs per user segments. A possible difference could occur due to the need for circulation of different volumes of water or sewage, which would be explained not by cost allocation, but with the proper volume measurement.

Some more specific aspects, which could also result in a difference in the service costs, such as the pollution load in the sewage of a certain segment or differences in the minimum structure to serve a certain volume, will be directly handled through a difference in user ranges or specific tariff components.

- **Determination of the tariff structure itself.** In this step, based on previous analyses, it must be established which segments are users, if there is a difference in tariffs between regions, services and users. This establishes which user segments may have different tariffs.

This step also defines the number of billing ranges for each tariff segment and their lower and upper limits.

Finally, the tariff format must also be defined: monomial (fixed or volumetric), binomial (fixed + volumetric), with or without minimum consumption, among other possibilities.

- **Calculation of the economic tariff structure.** Based on the previous structuring, the average tariff should be distributed in the tariff structure. This structure should not include explicit cross-subsidies.

It is also important to consider, when there are multiple billing ranges, whether there will be progressivity between ranges - in certain cases, progressivity is an important tool to address the scarcity warning or even competitiveness issues.

- **Calculation of the tariff application structure.** In this last step, the regulator determines cross-subsidies based on assessments of the ability to pay, competitiveness and ultimately the neutrality of the tariff structure. This is the structure that should apply to users and will be subject to annual adjustments.

The tariff structure design was defined by Arsesp based on the Regulatory Impact Analysis (AIR), which assessed the main advantages and disadvantages of the several possible alternatives, grouped into four groups: (i) Minimum consumption versus fixed tariff with a volumetric portion; (ii) Tariffs distinguished by type of service (water, sewage collection and sewage treatment); (iii) Social Tariff; (iv) Non-residential tariffs. AIR was based on the methodology of multiple criteria analysis and only took qualitative aspects into account without considering the economic and financial impacts, which were calculated *a posteriori*, thus defining the proposal that was submitted for Public Consultation. The full AIR report can be found in Annex II of Technical Note NT.F-0006-2021[6]. The design presented in the following stages already considers the contributions accepted in the public consultation process.

The next sections explore each of the stages in more detail.

3.1. Cost Assessments

The review process of Sabesp's tariff structure had its guidelines established through Arsesp Resolution no. 866, on May 03, 2019, considering the discussions and conclusions of the Symposium on Sabesp's Tariff Structure, held in 2018.

[6] Available on: <http://www.arsesp.sp.gov.br/ConsultasPublicasBiblioteca/NT_Estrutura_NT006_2021.pdf>.

In the aforementioned Resolution, Arsesp indicated that Sabesp should present cost studies considering its different business units, service steps (water collection, production and treatment; water distribution; sewage collection and removal; and sewage treatment) and user segments.

Based on the information and studies prepared by Sabesp, Arsesp opted to develop cash flows, with the same methodology already used in the maximum tariff calculations, considering the distinct business units and service stages. As mentioned before, studies considering specific cost allocation to user segments have not been developed.

Taking the technical aspects into consideration, the costs allocated to user segments could be different when considering: (a) the polluting load of the generated sewage, an element already treated by the K Factor, which is object of specific regulation; (b) differences in pipe capacity for water distribution or sewage collection, which is essentially captured using a volumetric tariff component. Regarding the last point, one must consider the particularities of users in which there is a connection with multiple served savings, such as condominiums. Although the total cost also establishes a relationship with the volume consumed, so that it would not be necessary to establish cost differences, the bill paid by each economy can be strongly affected, especially in a binomial tariff model with a fixed component. If there is no difference between individual and collective connections, the fixed cost per connection can impact the model, creating incentives for individualization or collectivization.

The cash flows developed considered information from the years 2017 and 2018, provided by Sabesp. The cost allocation criteria between regions and services were the ones used for accounting purposes by the company, since this study was developed before the conclusion of the review of the account plans and asset management (Regulatory Accounting) by Arsesp.

Considering the aggregate information for all of Sabesp's services and regions, the reference flow is presented in the table below.

Table 2 – Cash Flow and Maximum Tariff: SABESP General

Breakdown		Present Amount	Tariff Cycle - R$ (Dec/16)	
		2016	2017	2018
Billed Volume m³	FV	5,128,971,302	2,859,279,909	2,903,457,259
= Direct Cost - >	DC	24,166,439,168	13,472,216,925	13,680,369,629
(-) Indirect Revenue	IR	314,590,123	175,609,609	177,834,219
(-) Other Revenue	OR	168,367,646	90,251,536	99,213,332
(+) COFINS/PASEP	COP	1,617,678,142	901,595,632	915,990,308
(+) Operating Expenses -> OPEX	OPEX	9,459,309,338	5,200,826,811	5,433,211,312
(+) PPP and Asset Lease	PPP	426,075,127	192,767,492	289,585,963
(+) Municipal Funds	MFS	766,134,127	418,419,004	443,087,322
(+) Income tax/Social Contribution	IRCS	3,349,317,582	1,924,351,128	1,834,190,055
(+) Irrecoverable Revenues	RINC	211,683,722	82,191,851	158,553,500
(+) Investments	CAPEX	6,417,232,305	4,179,671,292	2,981,672,235
(+) Working Capital Variation	WkVar	6,331,000	-10,988,054	19,278,713
(+) Initial Capital Base	BRL0	38,109,286,118	-	-
(-) Final Capital Base	BRLT	35,713,650,525	-	41,741,300,820
= Free Cash Flow + Bdk		**-38,109,286,118**	**849,242,914**	**43,623,148,590**
= Free Cash Flow + Bdk (Discounts)		**-38,109,286,118**	**785,535,948**	**37,323,750,170**
Direct Cost	**DC**	**24,166,439,168**	**13,472,216,925**	**13,680,369,629**

Cost per m³ Billed **4.7118** **-**

Wacc **8.11%**

Source: SABESP´s information for the tariff structure study. Prepared by: ARSESP.

The methodology adopted to calculate the previous table is the same as the reference for the tariff review processes. Thus, the cost per m³ billed is equivalent to the P0 of the tariff models and represents the tariff that ensures the economic-financial balance of the flow. It is important to mention that the operating cost curve presented in the table already considers the disallowances applied by Arsesp in the 2nd OTR process.

The capital costs, represented by the compensation and amortization of the invested capital (BRL + Working Capital), can be considered the fixed costs in this model. The rest represent variable costs. This is merely a simplification, since there may also be fixed costs among the operating expenses that are not dependent on the volumes distributed, as is the case with central administration expenses, for example. The separation of fixed and variable costs is important when a binomial tariff structure is adopted, with a fixed and volumetric component.

The cash flows for the different services and regions are shown in Annex III of NT.F-0006-2021. Below are the results.

Table 3 –Maximum Tariffs: General SABESP, per stage and Business Unit (P0 in R$/m³)

Business Unit	Productive Stage	P0	CASH FLOW INFORMATION					
			Total cost (thousand R$ - Dec/2016)			Volume (thousand m³)		
			VPL	Year 1	Year 2	VPL	Year 1	Year 2
				2017	2018		2017	2018
	Water and Sewage	**4.7118**	**24,166,439**	**13,472,217**	**13,680,370**	**5,128,971**	**2,859,280**	**2,903,457**
	General Water	**4.9905**	**13,625,560**	**7,605,480**	**7,702,960**	**2,730,318**	**1,524,002**	**1,543,535**
	Water Production	2.2260	6,077,764	3,392,470	3,435,952	2,730,318	1,524,002	1,543,535
SABESP	Water Distribution	2.7644	7,547,796	4,213,010	4,267,008	2,730,318	1,524,002	1,543,535
	General Sewage	**4.3945**	**10,540,879**	**5,867,878**	**5,976,177**	**2,398,653**	**1,335,278**	**1,359,922**
	Sewage Collection	2.9659	7,114,150	3,960,292	4,033,384	2,398,653	1,335,278	1,359,922
	Sewage Treatment	1.4286	3,426,729	1,907,586	1,942,792	2,398,653	1,335,278	1,359,922
	Water and Sewage	**4.2016**	**13,825,527**	**7,700,622**	**7,833,818**	**3,290,531**	**1,832,779**	**1,864,480**
	General Water	**4.6592**	**8,149,243**	**4,542,056**	**4,614,232**	**1,749,076**	**974,864**	**990,355**
	Water Production	2.3933	4,186,042	2,333,130	2,370,204	1,749,076	974,864	990,355
	Water Distribution	2.2659	3,963,200	2,208,927	2,244,028	1,749,076	974,864	990,355
MsemBRAG	Water Permit Holders	1.8876	830,319	460,800	472,288	439,877	244,632	249,646
	General Sewage	**3.6824**	**5,676,284**	**3,159,204**	**3,218,896**	**1,541,455**	**857,915**	**874,125**
	Sewage Collection	2.4475	3,772,722	2,099,754	2,139,428	1,541,455	857,915	874,125
	Sewage Treatment	1.2349	1,903,562	1,059,450	1,079,468	1,541,455	857,915	874,125
	Sewage Permit Holders	1.0080	56,385	33,138	30,076	55,937	32,875	29,837
	Water and Sewage	**6.1533**	**259,686**	**144,366**	**147,441**	**42,203**	**23,462**	**23,961**
	General Water	**6.2169**	**143,415**	**79,852**	**81,293**	**23,069**	**12,844**	**13,076**
	Water Production	1.2699	29,296	16,311	16,606	23,069	12,844	13,076
BRAG	Water Distribution	4.9469	114,120	63,540	64,687	23,069	12,844	13,076
	General Sewage	**6.0766**	**116,270**	**64,517**	**66,145**	**19,134**	**10,617**	**10,885**
	Sewage Collection	4.8200	92,226	51,175	52,466	19,134	10,617	10,885
	Sewage Treatment	1.2566	24,045	13,342	13,679	19,134	10,617	10,885
	Water and Sewage	**5.7668**	**843,947**	**471,536**	**476,609**	**146,346**	**81,767**	**82,647**
	General Water	**6.1229**	**468,580**	**261,525**	**264,931**	**76,529**	**42,712**	**43,269**
	Water Production	1.7024	130,281	72,713	73,660	76,529	42,712	43,269
AR	Water Distribution	4.4205	338,299	188,812	191,271	76,529	42,712	43,269
	General Sewage	**5.3764**	**375,367**	**209,976**	**211,716**	**69,817**	**39,055**	**39,379**
	Sewage Collection	4.0026	279,454	156,323	157,618	69,817	39,055	39,379
	Sewage Treatment	1.3738	95,913	53,653	54,097	69,817	39,055	39,379
	Water and Sewage	**5.5148**	**1,088,272**	**605,949**	**616,856**	**197,336**	**109,877**	**111,854**
	General Water	**5.5333**	**545,954**	**304,402**	**309,009**	**98,666**	**55,013**	**55,845**
	Water Production	1.8851	185,997	103,704	105,274	98,666	55,013	55,845
RB	Water Distribution	3.6482	359,957	200,698	203,735	98,666	55,013	55,845
	General Sewage	**5.4963**	**542,318**	**301,549**	**307,844**	**98,670**	**54,864**	**56,009**
	Sewage Collection	4.2675	421,069	234,130	239,017	98,670	54,864	56,009
	Sewage Treatment	1.2288	121,249	67,419	68,827	98,670	54,864	56,009
	Water and Sewage	**5.4669**	**917,926**	**516,941**	**513,986**	**167,905**	**94,558**	**94,017**
	General Water	**5.8930**	**499,156**	**281,645**	**278,916**	**84,703**	**47,793**	**47,330**
	Water Production	1.8851	159,676	90,096	89,223	84,703	47,793	47,330
RG	Water Distribution	4.0079	339,480	191,549	189,693	84,703	47,793	47,330
	General Sewage	**5.0331**	**418,770**	**235,375**	**234,985**	**83,202**	**46,765**	**46,687**
	Sewage Collection	2.9127	242,340	136,210	135,985	83,202	46,765	46,687
	Sewage Treatment	2.1205	176,430	99,164	99,000	83,202	46,765	46,687
	Water and Sewage	**5.6706**	**878,582**	**488,975**	**498,237**	**154,937**	**86,230**	**87,863**
	General Water	**5.9754**	**488,685**	**273,303**	**275,697**	**81,783**	**45,738**	**46,139**
	Water Production	1.8191	148,772	83,203	83,931	81,783	45,738	46,139
RJ	Water Distribution	4.1563	339,913	190,100	191,765	81,783	45,738	46,139
	General Sewage	**5.3298**	**389,897**	**215,815**	**222,385**	**73,154**	**40,492**	**41,725**
	Sewage Collection	2.9467	215,564	119,319	122,951	73,154	40,492	41,725
	Sewage Treatment	2.3831	174,333	96,496	99,434	73,154	40,492	41,725

	Water and Sewage	**5.9292**	**932,290**	**516,007**	**531,784**	**157,236**	**87,028**	**89,689**
	General Water	**6.3047**	**552,696**	**306,074**	**315,082**	**87,664**	**48,547**	**49,976**
	Water Production	2.2704	199,033	110,221	113,465	87,664	48,547	49,976
RM	Water Distribution	4.0343	353,663	195,853	201,617	87,664	48,547	49,976
	General Sewage	**5.4561**	**379,594**	**209,955**	**216,678**	**69,572**	**38,481**	**39,713**
	Sewage Collection	3.8529	268,053	148,261	153,009	69,572	38,481	39,713
	Sewage Treatment	1.6032	111,541	61,694	63,669	69,572	38,481	39,713
	Water and Sewage	**7.3053**	**492,120**	**274,664**	**278,240**	**67,364**	**37,598**	**38,087**
	General Water	**5.6957**	**235,557**	**131,936**	**132,677**	**41,357**	**23,164**	**23,294**
	Water Production	1.7460	72,210	40,445	40,672	41,357	23,164	23,294
RN	Water Distribution	3.9497	163,347	91,491	92,005	41,357	23,164	23,294
	General Sewage	**9.8649**	**256,562**	**142,386**	**145,931**	**26,008**	**14,434**	**14,793**
	Sewage Collection	6.3842	166,038	92,147	94,441	26,008	14,434	14,793
	Sewage Treatment	3.4807	90,525	50,239	51,490	26,008	14,434	14,793
	Water and Sewage	**8.3367**	**397,154**	**221,979**	**224,203**	**47,639**	**26,627**	**26,893**
	General Water	**7.7564**	**214,882**	**120,298**	**121,095**	**27,704**	**15,510**	**15,612**
	Water Production	2.4121	66,825	37,411	37,659	27,704	15,510	15,612
RR	Water Distribution	5.3443	148,057	82,887	83,437	27,704	15,510	15,612
	General Sewage	**9.1433**	**182,272**	**101,646**	**103,145**	**19,935**	**11,117**	**11,281**
	Sewage Collection	6.4419	128,419	71,615	72,671	19,935	11,117	11,281
	Sewage Treatment	2.7014	53,853	30,032	30,474	19,935	11,117	11,281
	Water and Sewage	**5.6006**	**2,193,142**	**1,221,903**	**1,242,294**	**391,589**	**218,173**	**221,814**
	General Water	**5.1696**	**1,143,008**	**638,538**	**645,597**	**221,100**	**123,517**	**124,882**
	Water Production	2.2895	506,199	282,787	285,913	221,100	123,517	124,882
RS	Water Distribution	2.8802	636,809	355,752	359,684	221,100	123,517	124,882
	General Sewage	**6.1595**	**1,050,134**	**583,037**	**597,052**	**170,489**	**94,656**	**96,931**
	Sewage Collection	4.4514	758,922	421,355	431,484	170,489	94,656	96,931
	Sewage Treatment	1.7081	291,212	161,681	165,568	170,489	94,656	96,931
	Water and Sewage	**5.0828**	**775,233**	**434,208**	**436,652**	**152,521**	**85,427**	**85,908**
	General Water	**5.2721**	**401,339**	**224,991**	**225,838**	**76,124**	**42,675**	**42,836**
	Water Production	1.8283	139,180	78,024	78,318	76,124	42,675	42,836
RT	Water Distribution	3.4438	262,159	146,966	147,520	76,124	42,675	42,836
	General Sewage	**4.8941**	**373,894**	**209,232**	**210,798**	**76,397**	**42,752**	**43,072**
	Sewage Collection	3.3216	253,757	142,003	143,066	76,397	42,752	43,072
	Sewage Treatment	1.5725	120,137	67,229	67,732	76,397	42,752	43,072
	Water and Sewage	**4.9864**	**1,562,561**	**876,390**	**878,821**	**313,363**	**175,755**	**176,243**
	General Water	**4.8174**	**783,045**	**441,400**	**438,008**	**162,544**	**91,625**	**90,921**
	Water Production	1.5642	254,253	143,322	142,220	162,544	91,625	90,921
RV	Water Distribution	3.2532	528,793	298,079	295,788	162,544	91,625	90,921
	General Sewage	**5.1685**	**779,516**	**434,829**	**440,987**	**150,819**	**84,130**	**85,321**
	Sewage Collection	3.4186	515,585	287,603	291,676	150,819	84,130	85,321
	Sewage Treatment	1.7500	263,931	147,225	149,311	150,819	84,130	85,321

Source: SABESP information. Prepared by: ARSESP.

Arsesp also developed cash flows considering the costs for wholesale water supply and sewage collection.

Table 4 – Cost analysis for wholesale water sales and sewage collection and treatment service (P0 in R$/m³)

Breakdown	Rate / Unit Amount	Present Amount	Tariff Cycle - R$ (Dec/16)	
		2016	2017	2018
Volume Delivered - Production	86%	377,604,198	210,616,454	213,637,733
Volume Delivered - Production+Distribution	14%	62,272,480	34,015,353	36,008,657
Projected Volume	**100%**	**439,876,678**	**244,631,807**	**249,646,390**
Cost M (not including Bragança) - Production	1.9015	718,014,712	400,487,371	406,232,335
Cost M (not including Bragança) - Production	3.8473	239,579,120	130,866,288	138,535,071
Wholesale Water (M)	**2.18**	**957,593,832**	**531,353,659**	**544,767,406**

Breakdown	Rate / Unit Amount	Present Amount	Tariff Cycle - R$ (Dec/16)	
		2016	2017	2018
Volume collected and treated	100%	55,641,255	31,248,970	31,248,970
Cost M (not including Bragança) - Treatment	1.1452	63,722,503	35,787,520	35,787,520
Wholesale Sewage (M)	**1.15**			

Source: SABESP information. Prepared by: ARSESP.

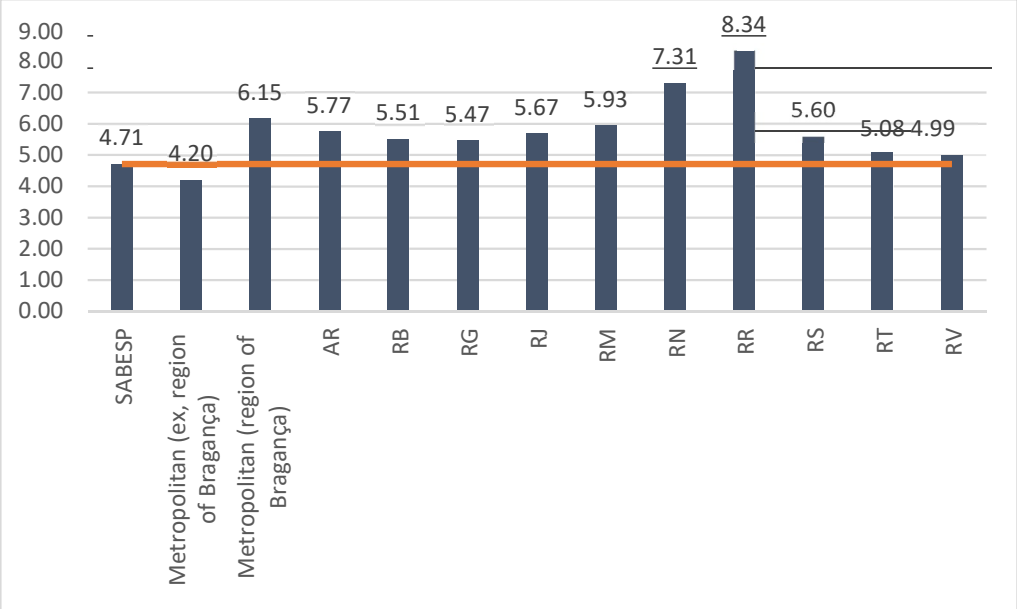
The amounts obtained represent 46% of Sabesp's maximum tariff (obtained in the cost study). For sewage, this is 24% of the maximum charge.

No cost studies were developed for the water tank truck and septic tank cleaning services (services provided with tank trucks) due to the unavailability of information.

3.1.1. Costs per region

The chart below shows the maximum tariffs obtained in the cash flows for each of Sabesp's Business Units, considering the sum of water and sewage costs.

Graph 6 – Maximum tariff per Business Unit (R$/m³)

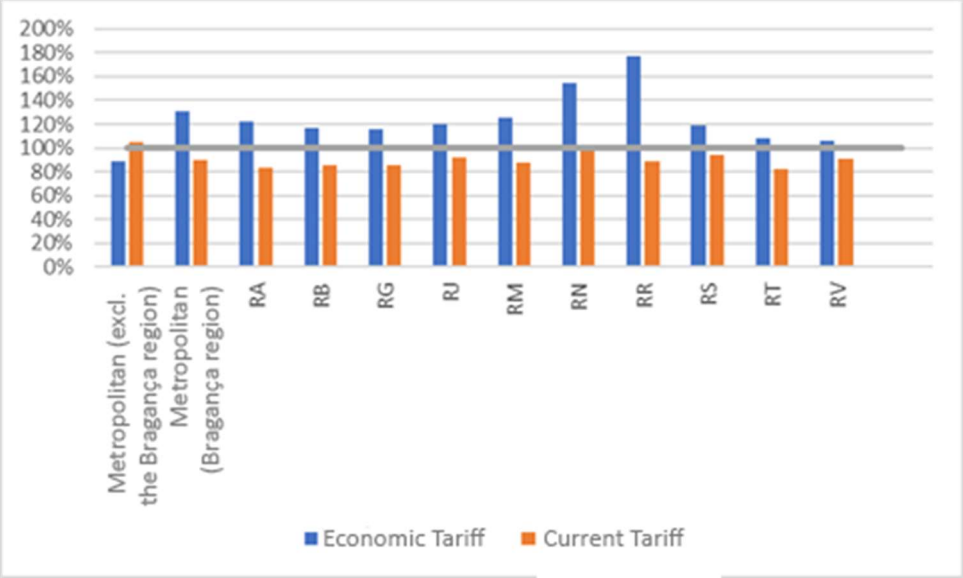


Source: SABESP. Prepared by: ARSESP.

It is important to note that the indicated differences in tariffs do not represent the concept of subsidies between regions. The differences in amounts exclusively represent the different cost allocations and market volumes between the regions. Thus, the chart shows that the Metropolitan Executive Board area, excluding the municipalities in the Bragança Paulista region, presented lower costs per cubic meter than the Business Units in the interior (89% of Sabesp's maximum tariff). Verification of the subsidies requires a comparison of the actual applied tariffs against the economic tariffs.

The graph below makes this comparison, considering the relationship between the average tariff for each region in relation to Sabesp's average tariff (which avoids including monetary differences in the comparison).

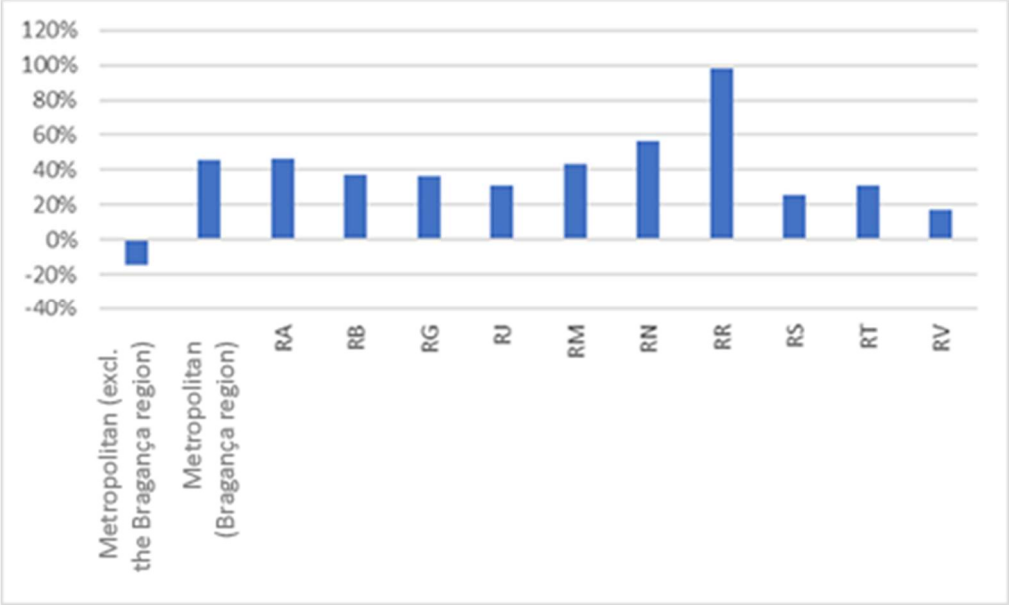
Graph 7 – Relationship between the Business Unit's tariffs and Sabesp's tariff (%)



Source: SABESP. Prepared by: ARSESP. The economic tariff represents the tariff for the cost allocation-based model discussed in this section. The current tariff is the average tariff for each BU in the 2019 histogram, presented in a previous section.

The graph shows that the economic tariffs of the business units in the interior and coast should be higher than Sabesp's average, considering their efficient costs and prudent investments. However, in the current tariff structure, the average tariffs are all lower than Sabesp's average tariff. Thus, the Metropolitan Executive Board is subsidizing the other regions. To equalize the current average tariffs in relation to the economic tariffs, a 15% tariff reduction in the metropolitan region and an average 43% increase in the other regions would be necessary (which is explained by the differences in volumes between the regions).

Graph 8 – Ratio between economic tariffs and current tariffs in effect, per Business Unit (%)



Source: SABESP. Prepared by: ARSESP. The economic tariff represents the tariff for the cost allocation-based model discussed in this section. The current tariff is the average tariff for each BU in the 2019 histogram, presented in a previous section.

Thus, what can be concluded is that the application of a general tariff for Sabesp, without distinction by BU, would lead to the existence of cross-subsidies - the Metropolitan Region would finance the costs of the interior. The immediate conclusion would be for the adoption of regional tariffs, however some observations are critical.

First, the model adopted reflects historical information (2017-2018). Thus, the distribution of tariffs fails to capture the resources required (expenses and investments) to expand water and sewage services in each region in the future. Furthermore, it must be considered that the allocation of resources between business units may contain flaws, since Arsesp has not yet standardized the rules.

Another important aspect to consider is the need for universal sanitation. Arsesp believes it is essential to explain the subsidies between regions, reinforcing transparency. However, it assesses that the immediate elimination of cross-subsidies between regions would lead to a need for a significant increase in local tariffs - with the previous data, the metropolitan region should have a 15% reduction in its tariffs, while Litoral Norte (RN) should have a 56% increase, and Vale do Ribeira (RR), a 99% increase.

Such movements could affect the universalization process by restricting access to sanitation services and/or requiring high subsidies among user segments in places with the greatest need for expansion investments, which would also restrict market expansion.

For these reasons and after having received contributions in the public consultation process, Arsesp decided to apply one tariff for all regions where Sabesp operates. This measure partially reduces subsidies between regions but does not eliminate them entirely, since there are cost differences, as indicated in this section.

Over time, it is expected that there will be a movement towards equalization between the levels of service and quality of services between regions - in line with the fulfillment of contracts between Sabesp and the municipalities. It is worth emphasizing the role of the regulator in overseeing the provision of services and ensuring movement in this direction.

Thus, there will be less difference in costs between regions over time and the only differences will be linked to the characteristics of the markets (greater or lesser population density and topology, for example), so that it is possible to re-discuss this premise and assess the adoption of local tariffs (at the business unit, drainage basins, or even municipal level).

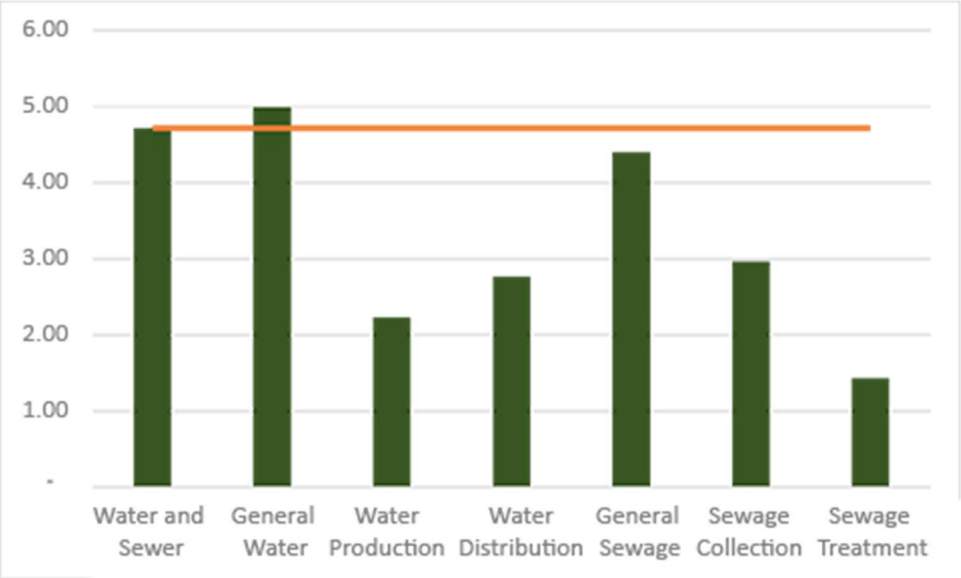
Moreover, adopting one tariff, at this time, favors the principle of simplicity and predictability - essential principles for a time in which important changes in the tariff structure are already anticipated, reducing the risks associated with this process.

3.1.2. Costs per service

The study developed considered four stages of services: water production; water distribution; sewage collection; and sewage treatment.

Note that the volume produced and the distributed volume of water are almost exclusively distinguished by losses. Thus, the calculated tariffs are comparable, since the respective costs are divided by similar volumes. When the tariff for the entire water service is constructed, the costs are added together and divided by the same volume as the separate steps - this results in a higher tariff in R$/m³ (sum of the steps). The same happens with sewage collection and treatment (in this case there is also a difference between the collection index and the treatment index).

Graph 9 – Maximum tariff per service step – SABESP (R$/m³)



Source: SABESP. Prepared by: ARSESP.

As indicated in the previous section, Sabesp's average effective tariffs for water and sewage are quite similar. However, for the interior, several tariff tables show a sewage tariff equivalent to 80% of the water tariff.

Using the previous graph, it would be possible to conclude that the water service is being subsidized by the sewage service, since the water tariff should be higher than Sabesp´s average tariff and the sewage tariff should be lower. For the interior, the subsidy movement is opposite, since the ratio between the economic tariffs, shown in the previous graph, is 88% (general sewage over general water) - thus, the prevailing sewage tariffs would be proportionally lower than the economic tariffs.

It is relevant to note, however, that the economic tariff model was developed using historical data. Thus, if Sabesp has allocated more resources to the water service, in terms of costs and investments, the result does not reflect the resources needed for service expansion, only this past behavior.

In any case, it is clear that there is a cost difference between the services provided. Contrary to what happens for regions, the increase or reduction of tariffs for different services does not affect most users - this is because the average tariff will continue to be respected (as the P0 in the tariff review processes is calculated considering the balance of the service as a whole, without a difference between services), only changing the proportion of the water and sewage tariffs, which today is 50% each in the metropolitan area and 56% water and 44% sewage in the interior (because of the 80% proportion indicated above).

It should be noted that this change would impact users in the interior, not directly because of the change in the proportion between water and sewage, but because of the tariff equalization between regions, eliminating the use of 80% of the water tariff as a reference for the sewage tariff. By adopting different tariffs for water and sewage, as a direct effect of this change, only users who contract just one of the services will be effectively affected, but they would start paying the actual cost of the service provided, without cross-subsidies.

For the above reasons and based on the contributions accepted in the public consultation process, **Arsesp determined that water and sewage tariffs be distinguished and calculated by the reference of their economic values, reflecting the costs of the provision.** For water services, the taxable event of the service is the water distributed, so there is no need for separate tariffs for water - production and water - distribution, just one tariff for the service is enough (note that water losses, at their regulatory levels with an efficiency curve, make up Arsep's tariff model). For sewage, it is possible to distinguish each user's billing by the sewage collected and the sewage treated. It is also possible to establish specific costs for each of these services, as previously shown. In this sense, **Arsesp adopted two tariffs for the sewage market: sewage – collection and sewage – treatment**.

At this point, it is important to note that several studies highlight the benefits of increased sewage treatment for society. In other words, this market has positive externalities that benefit all users, not only those who have their sewage treated. For this reason, Arsesp also defined that fixed costs, which reflect, in essence, the cost of treatment expansion, be distributed in the tariffs for water and sewage collection. Thus, the entire user base will subsidize the expansion of sewage treatment, while the variable cost of treatment will only be financed by users with treatment service.

3.2. Design of the Tariff Structure

The process of designing the tariff structure depends on defining which groups will be part of the provider's tariff structure. Thus, it is necessary to identify: (i) the tariff categories or consumer groups; (ii) the regions that have significant cost differences in the services provided; (iii) the cost differences by service provided; and (iv) the type of tariff to be applied.

In practice, there are two big user groups:

(i) **Residential:** referring to households, where the resource is mainly used for personal hygiene, cooking, and cleaning; and

(ii) **Non-Residential:** referring to the other consumer units, where the use of the resource is linked to the type of activity, service, or production process.

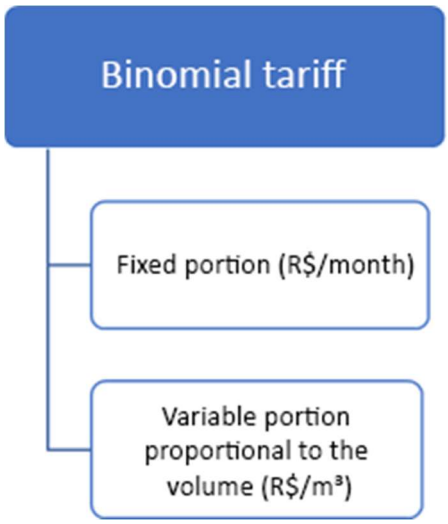
The most significant category, in terms of water/sewage volume and number of users, is residential. Considering that water supply and sewage are essential services, it is fundamental for the tariff structure to be designed in a way that allows low-income families to have the minimum conditions of access to the services.

In this sense, the existence of a social residential tariff is foreseen, considering aspects related to income ranges based on objective and transparent criteria, subject to inspection and control of the registry in an updated manner. In the social tariff group, there are also families in more vulnerable situations, which demand an even lower tariff, subsidized by the other categories.

In relation to non-residential users, the design adopted by Arsesp distinguishes the Commercial, Industrial and Public categories, which allows a more focused definition of tariff subsidies and the introduction of mechanisms to gain competitiveness. In the commercial category, as in the residential category, it is necessary to define a distinguished tariff considering the assistance activity.

- **Type of tariff:** One of the points that has always been questioned by users and other players in the sector is the minimum consumption charge (10 m³/month), which does not provide financial incentives to reduce the consumption of users in this range. In this sense, based on the conclusions of the AIR carried out in the revision process of the tariff structure, in line with the conclusions of the Tariff Structure Seminar and with the contributions received in the public hearing and consultation process, Arsesp determined the use of a binomial tariff, with a fixed portion, sufficient to cover part of the fixed costs related to the implementation and availability of the infrastructure, which do not vary with consumption, and a second variable portion, which is proportional to the effective consumption of the connection and should cover the variable efficient costs of providing the services. The figure below shows this composition:

Figure 1 - Type of tariff - Binomial



Unlike what happened with the minimum consumption, the fixed portion charge will be linked to the connection and not to the unit[7]. In this sense, the definition of the fixed portion should take the capacity of the water meters into account. It is known that connections that serve several economies have water meters with diameters and a measurement capacity proportional to the potential demand installed.

- Tariffs in blocks: Tariffs in blocks are those where the unit price, in R$/m³, varies according to a predefined consumption interval. Tariffs in blocks can be constant, increasing or decreasing. The number of blocks and the respective intervals must be defined, as well as the progressivity to be applied in the changes of the consumption ranges, as a tool for rational use.

This type of tariff usually does not adhere to the principle of allocative efficiency, which states that prices should be equal to marginal costs. In the case of natural monopolies, the provision of service has economies of scale, making marginal costs decreasing, while the price increases with each level of consumption in the increasing block tariff. However, increasing block tariffs have a strong incentive for rational water use.

- Tariffs by type of service: Sewage tariffs are usually distinguished by type of service: water supply and sewage, but they are not always related to the costs of each of these services. There is also the possibility of distinguishing tariffs according to the production process steps.

As with regional tariffs, defining tariffs by type of service (or production step) requires knowledge of the disaggregated cost and investment information, as presented in the previous section. The change determined by Arsesp, to split the tariff into water, sewage collection and sewage treatment, does not affect Sabesp's required revenue since the current tariff already considers the collection and treatment tariffs, but the costs are shared among all users, regardless of service level. This change seeks to meet a demand from users and other players in the sector for more transparency about what is being paid by the users.

The premise adopted by Arsesp is to allocate the fixed costs of sewage treatment in the collection of the fixed tariff for water and sewage collection services, since investments in sewage treatment provide collective benefits. The sewage treatment tariff on the other hand will only have a variable portion, proportional to the volume of sewage, defined by Arsesp so as to cover the variable costs related to the sewage treatment step.

3.2.1. Residential segments

The residential segments can be classified into more specific user groups:

Residential:

[7] Connection is the interconnection of the water delivery or sewage collection point to the user unit's facilities. Unit is the property or subdivision of the property, with its own numbering, characterized as an autonomous consumption unit, of any category, served by its own branch or shared with other units (cf. Arsesp Resolution no. 106, of November 13, 2009).

a. Single-family: one household;

b. Collective use: consumer unit made up of two or more families;

c. Social: users who have subsidized tariffs given their low incomes.

As already mentioned throughout the technical note, the definition of the tariff structure must ensure that low-income families have the minimum conditions to stay connected to the public service. To this end, the design of a social tariff goes through the definition of the eligibility criteria of this public, allowing an estimate of users in this condition so that it is possible to define the level of subsidy needed.

After initial analyses and public consultation, Arsesp decided to create two levels of social (residential) tariffs:

- **Social Residential**: At the end of the implementation, it will contemplate families registered in the Single Registry (CadÚnico) - a set of information about Brazilian families in situations of poverty and extreme poverty, provided by the Federal Government. In this case, the families registered in the third extract of CadÚnico, with monthly per capita income between R$178.01 and ½ the minimum wage will be entitled to this tariff. This category will also benefit social collective residential units (shantytown tenements or units resulting from the urbanization of informal communities, for example) and unemployed users, provided they meet the criteria already applied in the moment.
- **Vulnerable Residential:** Among the families classified as poor, there is an even more vulnerable group, which in Arsesp's understanding, should have an even greater subsidy so that they have minimum conditions of access to water supply and sewage services. This category will include the first two extracts of CadÚnico.
    - First extract: Families registered with a per capita monthly income of R$0.00 and R$89.00;
    - Second extract: Families registered with a per capita monthly income of R$89.01 and R$178.00;

It is worth noting that change in the eligibility criteria for the social tariff requires adjustments in Sabesp's registry and will be implemented gradually, as will be presented in the Implementation Plan of Sabesp's new tariff structure.

In the **Individual Residential** category, Arsesp opted to define four consumption ranges, based on the analysis of the histogram of this category, in order to group the various consumption profiles. The adoption of consumption blocks with progressive tariffs is a strategy to encourage the rational use of water in the residential category, prioritizing standard use.

A significant change refers to the definition of the **Collective Residential** category. The definition of the fixed portion of this category will be based on the type of water meter, whose measurement capacity is proportional to the volume required by the property. The consumption ranges for the Collective Residential category were also

defined, using the consumption ranges for the individual residential category as reference, proportionally to the expected consumption of that collective property.

It is worth pointing out that for residential condominiums where Sabesp or companies approved by Sabesp have individualized meters and billing,and Sabesp issues individual invoices, they will be classified under the Individual Residential category. On the other hand, for residential condominiums that do not have individual metering, or have internal individualization, carried out by non-approved third-parties and where Sabesp's invoice is issued collectively, they will be classified under the Collective Residential category.

Social residential condominiums, including shantytown tenements or those resulting from the urbanization of informal communities, will continue to benefit from billing through the Social Residential tariff.

3.2.2. Non-residential segments

The non-residential segments can be classified into more specific user groups:

a. Commercial: consumer unit whose main activity is the sale of products and/or services.

b. Industrial: establishments that carry out transformation/industrialization activities;

c. Public: buildings intended for government activities or government offices.

Commonly, what is observed in Brazil is the application of higher tariffs to non-residential users in relation to those paid by residential users. However, the distinction is not due to the costs of providing the services, but to public subsidy policies.

In this group of users, assessment of the competitiveness of the services offered by Sabesp, in relation to the alternatives (water tank trucks and wells, for example) is fundamental. In the analyses that have been developed by ARSESP, it has been verified that part of the potential users of these categories state that they no longer use SABESP's services (in particular, water distribution) due to several factors, with emphasis on the availability of full-time service, with a constant pressure level. This subject is the object of a study developed by Arsesp and is not part of the discussion about the tariff structure.

Regarding the price, Sabesp currently uses firm demand contracts with large users, pursuant to Resolution no. 818/18, so that there is a tariff reduction - which is considered a liberality of the company by Arsesp at the moment of definition of the required revenue, i.e., not recognizing such discounts in the tariff calculation.

However, the non-residential segment is broad and quite diverse. Within this group are users that use Sabesp services in a very similar way to residential users, but also users that consume large volumes of water and generate large volumes of sewage; users that consume large volumes of water, but do not generate significant volumes of sewage (when water is

a production input, for example, in the case of the food and beverage industry, bakeries, among others); users that do not consume a significant volume of water from Sabesp, but generate a significant volume of sewage (when the user uses alternative water sources); and users that generate sewage with a high pollutant load.

Given this evidence, Arsesp understands, first and foremost, that it is convenient to separate the non-residential category into the three groups indicated above: Commercial, Industrial and Public. This separation allows the specifics of each category to be addressed in a more focused manner.

Even so, the segments themselves are extremely diverse. Applying linear tariff movements in these categories, in order to gain competitiveness through price, can generate a reduction in revenue for the provider (with a consequent need to increase tariffs for residential users, for example).

As a result, and after evaluating the contributions received in the public consultation process, Arsesp defined that these segments be the object of Commercial Programs. This mechanism is usual in the piped gas sector, also regulated by Arsesp. The objective is that Sabesp, on its own initiative, at the request of user groups or at the request of the public policy maker or Arsesp itself, develop proposals for focused action, in specific segments, in which the application of tariff movements results in a gain in competitiveness of the services provided by the company. In other words, Arsesp recognizes discounts or similar movements as part of the regulatory revenue, provided that such movement results in a potential market gain - the burden of demonstration of which will be on Sabesp itself.

These Programs can be focused on types of users or activity segments, and should preserve the concept of isonomy - similar users should always be entitled to the same tariffs. It is worth noting that users may be divided by region, size and other characteristics, to be evaluated on a case-by-case basis. The inclusion of revenue to comply with Commercial Programs will be subject to discussion at each tariff review process and may also be done throughout the cycle, but with compensatory adjustments in the review processes.

Another fundamental issue concerns the users that carry out assistance activities. Currently these have subsidies, which, in Arsesp's understanding, should be maintained. In this sense, the tariff structure will maintain the existence of the Commercial Assistance category, whose inclusion criteria will be defined by Arsesp. Tariffs will not be distinguished for users from the Public category and Sabesp may also chose to present specific Commercial Programs for this segment.

It is worth noting that the Commercial Programs may also be adopted for residential users. However, these resources are expected to be focused on non-residential users in the fourth tariff cycle.

Different from what occurs in Sabesp's current tariff structure, users in the non-residential category do not have billing by unit, where the total volume measured by the units (individual or collective) is directly distributed in consumption ranges.

Seeking to standardize the billing criteria between residential and non-residential units for collective use, Arsesp will create the Collective Commercial category, with the same criteria for defining the fixed

portion (type of water meter) and the same consumption ranges defined for the Collective Residential category. Considering the nonexistence or imprecision of information about the quantity of economies in non-residential collective connections, Sabesp must prepare a field survey or another way of consolidating this information so that Arsesp can calibrate the ranges and define the amounts of the fixed portion, using the type of water meter and the historical consumption of these units as a reference. The breakdown of this step will be presented in the Implementation Plan for Sabesp's new tariff structure.

Additionally, the tariff structure will include the permission holders segments, such as wholesale, water trucks and sewer trucks. Other categories may be created through Arsesp's normative based on the Agency's assessments and studies or proposals from the provider.

3.3. Economic Tariff Structure

The previous sections presented the basic characteristics of Sabesp's tariff design, namely:

a. One tariff for Sabesp, without any differences between regions.

b. Distinct tariffs for the services: water, sewage collection and sewage treatment.

c. A binomial tariff, with a fixed component that should reflect partially, or fully, the fixed costs of providing the service, as well as a volumetric component that should reflect the variable costs.

d. Specifically for the sewage treatment service tariff, there will be no fixed component and the fixed costs of the service will be distributed in the fixed component of the other services (water and sewage collection).

e. Tariff in blocks, including a premise on inter-block tariff progressivity.

f. The fixed component should be billed per connection (R$/month), while the variable component will be billed, in cascade, per volume (R$/m³).

g. The volume of collected sewage to be billed will be equal to the measured volume of water, if the connection has sewage collection service.

h. The volume of treated sewage to be billed will be equal to the volume of sewage collected, if the connection has sewage treatment.

i. User categories: Individual Residential; Collective Residential; Social Residential; Vulnerable Residential; Individual Commercial; Collective Commercial; Commercial Assistance; Industrial; Public; Permit holders; Tank Trucks.

    1. Individual Residential: connection used exclusively in a house, serving only one unit[8];

[8] The property or subdivision of the property, with its own numbering, characterized as an autonomous consumption unit, of any category, served by its own branch or shared with other economies (cf. ARSESP Resolution no. 106, of November 13, 2009).

2. Collective Residential: connection used exclusively in a house, serving more than one economy;

3. Social Residential: connection used exclusively for housing and the user is registered in the Single Registry (CadÚnico) with a family income per capita of up to half the minimum wage. Users will be registered by Sabesp based on the their CPF. Exceptionally, when it is not possible for Sabesp to automatically register users, they can request registration in the category by presenting supporting documentation of their registration with CadÚnico;

   Unemployed users who have been discharged without cause and do not have debts with Sabesp, whose last wage was a maximum of three minimum wages and have maximum consumption of 15 m³ will also benefit from the social tariff. The social tariff can be granted to this user for a maximum of 12 months;

   Users who live in social collective housing, including shantytown tenements and units resulting from the urbanization of informal communities, will also benefit from this tariff;

4. Vulnerable Residential: connection used exclusively for housing, whose user is registered in the Single Registry (CadÚnico) in the first two ranges (currently up to R$ 178 per capita). Users will be registered by Sabesp based on the their CPF. Exceptionally, when it is not possible for Sabesp to automatically register users, they can request registration in the category by presenting supporting documentation of their registration with CadÚnico;

5. Individual Commercial: connection in which the activity exercised is included in the classification of commerce and services established by IBGE, serving only one economy;

6. Collective Commercial: connection in which the activity exercised is included in the classification of commerce and services established by IBGE, serving more than one economy;

7. Commercial Assistance: connection in which the activity performed is (i) assistance to children and adolescents, or; (ii) shelter for children and adolescents, or; (iii) assistance for people with disabilities, or; (iv) assistance to the elderly, or; (v) assistance to people with diseases in general, including *Santas Casas de Misericórdia*, nursing homes, outpatient clinics and assistance hospitals, or; (vi) shelters, or; (vii) therapeutic communities
   - assistance for substance abusers, or; (viii) a support clinic and/or shelter that offers patients with general illnesses continuity of treatment, or (ix) food programs registered with the federal, state, or municipal government;

8. Industrial: connection in which the activity exercised is included in the classification of industries established by IBGE;

9. Public: connection used by agencies of the Executive, Legislative and Judiciary Branches and Autonomous Entities and Foundations associated with the Government;

10. Permit Holders: municipality to which Sabesp supplies treated water and/or from which it receives sewage for treatment, with no sanitation service being provided by Sabesp;
11. Water tank trucks: water supplied to users through tank trucks It may occur sporadically or constantly;
12. Septic tank cleaner: service provided to clean septic tanks (remove sewage stored in septic tanks), through vacuum suction, by means of hoses connected to the tank of a truck.

Based on these characteristics, the next step in the tariff structure development process is to allocate costs into the structure. To do so, the revenue requirement to be distributed must be determined (based on a maximum reference tariff and market estimates for all segments of the structure).

The tariff structure presented in this Techinical Note uses as reference the P0 approved in Sabesp's 3rd Tariff Revision process, adjusted for inflation until February 2021 and for the effects of the General Quality Index (GQI), also approved to be applied as of May 2021.

To determine the specific tariffs for water, sewage collection and sewage treatment services, the tariffs estimated in the cash flows for the cost study will be used, respectively: R$4.9905/m³; R$2.9659/m³; R$1.4286/m³. It is worth noting that amounts are used as reference for the cost distribution and should be adjusted for the general P0 used as reference.

As time goes by, it will be necessary to update the cost studies that generate these amounts to ensure tariffs continue to cover the specific costs for each service. As of this Ordinary Tariff Revision, Arsesp will revisit the reference amounts for the service costs in every ordinary revision process (i.e., every four years), and may request that Sabesp present more detailed cost studies within the scope of these processes.

In order to adjust the reference amounts used in the current cost study to the general P0, the following stages were adopted:

1) Market volumes were obtained from Arsesp's consumption histograms for water and sewage collection in 2019. We did not use the 2020 amounts, given that the effects of the COVID-19 pandemic, including the increased share of residential users in total volume, may be transitory.

   The volume of treated sewage was obtained on the premise that 78% of the collected sewage is treated. The numbers of connections in the histogram were also obtained (using the same premise for estimating connections with treated sewage);

2) The revenue equivalent to the volumes obtained in (1) multiplied by the reference tariffs was calculated;

Table 5 – Premises for the economic tariff structure

	Tariff (R$/m³, Feb/21)	Volume (MM m³)	Connections (thousand units)	Revenue (R$ million)	Redistributed Revenue (R$ million)	Equivalent Tariffs (R$/m³)
SABESP General	5.1251	3,154		16,166	16,166	5.1251
Water	4.9905	1,671	8,578	8,338	9,366	5.6060
Sewage Collection	2.9659	1,484	7,269	4,400	4,943	3.3317
Sewage Treatment	1.4286	1,157	5,670	1,653	1,857	1.6048

Source: SABESP´s information for the tariff structure study. Prepared by: ARSESP.

3) Revenues from water, sewage collection and sewage treatment are redistributed linearly in order to ensure the required revenue.

It is important to note that the cost study tariffs were associated with a P0 of R$4.7118/m³ (cost study, considering the years 2017 and 2018). For this reason, when redistributing revenues by considering a higher P0 (3rd RTO), the fees for the services are increased proportionally.

The premise behind this treatment is that the distribution of costs among the services remains the reference for the tariff structure in the next cycle.

As already mentioned, Arsesp should periodically review the cost study, including an in-depth analysis in order to review this distribution throughout time. With publication of Arses's Chart of Accounts, it will eventually be possible to determine specific maximum tariffs for each of the services.

It is also worth noting that the volumes and number of connections used do not reflect the projections of the 3rd OTR's economic-financial model. As a result, revenues presented in the previous table are not equivalent to the required revenue for any year of the tariff cycle.

The purpose of the following analysis is to establish a tariff structure capable of ensuring neutrality of the calculated P0. P0 is a weighted average of the tariffs applied in each segment and consumption range. P0 neutrality does not depend on market level, but on its composition, i.e. mix. Changes in mix may lead to effective average tariffs that differ from the authorized P0. Changes in volume, but which do not alter mix, maintain the effective average tariff equal to the authorized P0.

As already indicated, Sabesp's most recent consumption histogram, for 2020, was affected by the effects of the COVID-19 pandemic. In general, consumption in the residential segment was high and consumption in non-residential segments declined. The market mix used to evaluate neutrality should be as close as possible to the mix expected during the tariff cycle, ensuring the effective average rate is always similar to the P0. As a result, Arsesp saw fit to use 2019 as

reference. It is worth noting that this treatment was necessary because the OTR process does not include projections for volumes and connections in the same level of breakdown as the tariff structure.

As a result, neutrality is not evaluated by comparing revenue required in the tariff model with revenue obtained by applying the tariff table, but by comparing revenue calculated as the product of a certain reference market by the P0 with the revenue obtained by applying the tariff structure. When these figures are the same, the tariff structure is capable of generating an average tariff equal to the P0 for any level of consumption and number of connections, provided that the reference mix is maintained.

4) The next step is to determine the distribution of fixed and variable costs. The percentages were also obtained in the cost study, considering the capital costs (compensation and amortization of investments) as a reference for the fixed costs.

Table 6 – Premises for the economic tariff structure - cost distribution

	Fixed Cost	Variable Cost
SABESP General	41%	59%
Water	36%	64%
Sewage Collection	42%	58%
Sewage Treatment	26%	74%

Source: SABESP´s information for the tariff structure study. Prepared by: ARSESP.

5) The monthly fixed cost per connection is calculated, to be used as a reference for the fixed component in the economic tariff structure.

Distributing the entire fixed costs in the fixed component of the tariff can significantly burden users. For this, the model must adopt a premise about what percentage of the fixed costs will be used in the fixed component. Arsesp chose to use 80% of the fixed costs.

The reference fixed component is obtained by dividing 80% of the fixed costs by the number of connections obtained in the histogram. The amount is a monthly fee.

The variable component is obtained by dividing the variable costs and 20% of the fixed costs by the volume of each service.

Table 7 – Premises for the economic tariff structure - fixed and variable reference components

	Fixed Cost (R$/month)	Variable Cost (R$/m³)
Water	26.46	3.98
Sewage Collection	19.04	2.21
Sewage Treatment	5.60	1.28

Source: SABESP´s information for the tariff structure study. Prepared by: ARSESP.

The fixed and variable components must be distributed in the tariff structure, considering the different categories and consumption ranges. After the public consultation process, Arsesp determined the use of the following premises:

a) Individual Residential:

04 consumption ranges: 0 – 5 m³; 5 – 15 m³; 15 – 30 m³; Over 30 m³;

Allocation of 50% of the fixed costs for sewage treatment in the fixed water component and 50% in the fixed sewage collection component;

First range: fixed and variable economic components (resulting from the previous calculations, without subsidies);

Progressivity: 30% increase in each range, introducing a scarcity warning.

b) Social Residential:

04 consumption ranges: 0 – 10 m³; 10 – 20 m³; 20 – 30 m³; Over 30 m³;

First range: fixed and variable economic components equal to 50% of the economic tariffs of the Individual Residential category;

Progressivity: 50% increase in each range, introducing a scarcity warning.

c) Vulnerable Residential:

04 consumption ranges: 0 – 10 m³; 10 – 20 m³; 20 – 30 m³; Over 30 m³;

First range: fixed and variable economic components equal to 10% of the economic tariffs of the Individual Residential category;

Progressivity: 60% increase in each range, introducing a scarcity warning.

d) Collective Residential:

04 categories based on the characteristics of the water meters (CPH).

The categories are shown in the table below. Arsesp defined the structure below seeking to minimize the variability of economies per connection in each category. In this way, the impact of the change from economy billing to connection in the new structure, considering the individual cases, will be as small as possible. Sabesp must register each collective residential connection in its respective category, based on the service infrastructure.

Table 8 – Premises for the economic tariff structure – collective residential categories

Criteria	Maximum Flow	Diameter of the Water Meter (mm)	Economies / Connection	Volume / Economy (m³)	Volume / Connection (m³)
1 (CPH 0-1)	3 m³/h	20	3	9.7	32.7
2 (CPH 2-4)	10 m³/h	20 - 25	45	11.8	532.1
3 (CPH 5-7)	300 m³/day	40 - 50	128	12.1	1,546.3
4 (CPH 8-11)	6,500 m³/day	80 - 200	394	13.5	5,327.2

Source: Sabesp Technical Standard NTS 181 - Dimensions of the building water connection, water meter support and water meter - First connection and Sabesp´s 2019 Histogram. Prepared by: ARSESP.

For each category, 03 consumer ranges will be adopted:

Criteria 01: 0 – 15 m³; 15 – 50 m³; Over 50 m³

Criteria 02: 0 – 200 m³; 200 – 600 m³; Over 600 m³

Criteria 03: 0 – 600 m³; 600 – 2,000 m³; Over 2,000 m³

Criteria 04: 0 – 2,000 m³; 2,000 – 6,000 m³; Over 6,000 m³

First range: fixed and variable economic component adjusted to be equivalent to the first individual residential range, considering the average number of economies per connection from the previous table;

Progressivity: 30% increase in each range, introducing a scarcity warning.

e) Individual Commercial:

05 consumption ranges: 0 – 5 m³; 5 – 15 m³; 15 – 30 m³; 30 – 100 m³; Over 100 m³;

Allocation of 50% of the fixed costs for sewage treatment in the fixed water component and 50% in the fixed sewage collection component;

First range: fixed and variable economic components

Progressivity: 0% increase in each range.

f) Collective Commercial:

Sabesp does not currently have a database of economies per connection in the case of non-residential users. During the first year of application of the new tariff structure, the company must prepare this database, in a similar format to that made available for the residential case, so that Arsesp can propose a tariff table for this case, to be applied as of May 2022.

g) Commercial Assistance:

Tariffs equivalent to 50% of the Individual Commercial tariffs.

h) Industrial:

05 consumption ranges: 0 – 10 m³; 10 – 50 m³; 50 – 100 m³; 100 – 500 m³; Over 500 m³;

Allocation of 50% of the fixed costs for sewage treatment in the fixed water component and 50% in the fixed sewage collection component;

First range: fixed and variable economic components

Progressivity: 5% of the reduction of each range, introducing a scarcity warning. Arsesp understands that in industrial use, the logic of economic rationality is used. For this reason, it proposes decreasing tariffs.

i) Public:

05 consumption ranges: 0 – 10 m³; 10 – 50 m³; 50 – 100 m³; 100 – 500 m³; Over 500 m³;

Allocation of 50% of the fixed costs for sewage treatment in the fixed water component and 50% in the fixed sewage collection component;

First range: fixed and variable economic components

Progressivity: 0% increase in each range.

j) Permit holders, Water Trucks, Sewer trucks, and temporary connections:

For permit holders (wholesale) monotonic volumetric tariffs will be adopted equal to 50% of the maximum tariff calculated in the last tariff review process (adjusted annually for inflation, deducted from the productivity factor and adjusted by the quality factor) for water and 25% of the maximum tariff for sewage, in line with the cost studies. These percentages may be reviewed in subsequent cost studies.

For water truck and sewer truck services, the current monotonic volumetric tariffs will be maintained. These amounts may be reviewed in subsequent cost studies.

Temporary connections will be billed as commercial or industrial users, according to the provisions of Arsesp Deliberation no. 106/2019 (art. 4º, §§ 1º - 3º).

Because of their specificities, these user segments are not assessed in the neutrality study. The tariffs for permit holders, water trucks and sewer trucks, however, will be published in the Resolution that will present the application tariff table, following the premises presented.

It is worth noting that the model's basic premises are used as reference, but there is a following stage to ensure neutrality, as it will be possible to see. In this stage, tariff mix is adjusted, particularly progressivity percentages, to achieve general balance.

With the application of these premises, an economic reference tariff structure is established. However, its application over the estimated volumes and connections in each consumer segment and consumption range will not make it necessary to obtain the calculated required revenue.

3.4. Tariff Application Structure

The last stage consists of assessing the tariff structure and defining any subsidies. There are several reasons as to why the subsidies should be maintained in a tariff structure.

The first issue is to assess the residential users' ability to pay, based on a level of standard water consumption and a maximum level of commitment of monthly income.

It may also be necessary to introduce discounts or increments in the different segments and even in ranges in order to minimize impacts on users, meet public policy guidelines, introduce incentive flags, or favor competitiveness gains.

For this review of the structure, Arsesp proposes the following adjustments:

a) Limiting the income commitment of Individual Residential, Social Residential and Vulnerable Residential users to 3.0%, based on the following premises:

   Individual Residential: average income *per capita* of R$2,924.25[9], 3.27 persons per household[10], consumption of 3.3 m³/month *per capita*[11]. For standard consumption, the maximum bill per connection should be R$286.87.

[9] According to PNAD-IBGE, for the state of São Paulo.
[10] According to IBGE.
[11] This refers to the minimum standard intake, according to the WHO.

Social Residential: average household income of R$499[12], 3.27 persons per household, consumption of 3.3 m³/month *per capita*. For standard consumption, the maximum bill per connection should be R$14.97.

Vulnerable Residential: average household income of R$178, 3.27 people per household, consumption of 3.3 m³/month per capita. For standard consumption, the maximum bill per connection should be R$5.34.

b) Maintaining the current average tariff for non-residential users in order to reduce the subsidies financed by these segments. Additionally, resources equivalent to R$420 million are reserved for the application of focused commercial programs throughout the cycle. This amount is equivalent to a reduction of approximately 10% in the current tariffs for industrial and commercial users.

   The resources allocated to commercial programs are separate from adjustments to subsidies. The segment continues to be responsible for subsidies to the residential segment.

c) Specific adjustments to ensure reduction of the impacts observed on users.

Once these adjustments have been made, it is necessary to ensure neutrality of the tariff table. The fixed tariffs for individual residential and collective residential users are adjusted linearly, by the same factor, to ensure neutrality. The resulting tariff tables are shown below.

Table 9 – Tariff Application Structure (R$ in Feb/21, excluding taxes)

Individual Residential	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 5	8.34	2.91	6.22	1.62	-	1.46
5 to 15	8.34	1.13	6.22	0.63	-	0.57
15 to 30	36.13	7.86	26.97	4.37	-	3.93
Higher than 30	75.16	16.60	56.10	9.24	-	8.31

[12] Equivalent to half the minimum wage.

Collective Residential - CPH 0-1	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 15	8.34	2.91	6.22	1.62	-	1.46
15 to 50	9.17	16.22	6.84	9.06	-	5.18
Higher than 50	13.76	32.99	10.26	18.42	-	10.53

Collective Residential - CPH 2-4	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 200	124.53	43.45	92.87	24.19	-	21.80
200 to 600	111.92	197.91	83.47	110.49	-	63.14
Higher than 600	167.88	402.50	125.21	224.71	-	128.41

Collective Residential - CPH 5-7	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 600	261.51	91.24	195.03	50.80	-	45.78
600 to 2.000	358.15	633.31	267.11	353.57	-	202.04
Higher than 2,000	483.51	1,159.21	360.60	647.17	-	369.81

Collective Residential - CPH 8-11	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 2.000	836.82	291.98	624.10	162.55	-	146.49
2.000 to 6.000	1,164.00	2,058.27	868.11	1,149.09	-	656.63
Higher than 6,000	1,450.52	3,477.63	1,081.80	1,941.50	-	1,109.43

Social Residential	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 10	2.60	0.71	1.94	0.39	-	0.23
10 to 20	4.17	1.13	3.11	0.63	-	0.36
20 to 30	16.66	2.94	12.44	1.64	-	0.94
Higher than 30	45.09	9.96	33.66	5.54	-	4.99

Vulnerable Residential	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 10	0.30	0.08	0.23	0.05	-	0.03
10 to 20	0.48	0.13	0.36	0.07	-	0.04

20 to 30	1.94	0.34	1.45	0.19	-	0.11
Higher than 30	37.58	8.30	28.05	4.62	-	4.16

Commercial	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 5	16.27	4.42	12.14	2.46	-	2.13
5 to 15	16.27	2.21	12.14	1.23	-	1.06
15 to 30	40.67	11.05	30.36	6.15	-	5.67
30 to 100	97.61	15.47	72.86	8.61	-	10.64
Higher than 100	162.68	22.11	121.43	12.30	-	10.64

Commercial Assistance	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 5	8.13	2.21	6.07	1.23	-	1.06
5 to 15	8.13	1.11	6.07	0.62	-	0.53
15 to 30	20.34	5.53	15.18	3.08	-	2.84
30 to 100	48.81	7.74	36.43	4.31	-	5.32
Higher than 100	81.34	11.05	60.71	6.15	-	5.32

Industrial	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 10	13.56	1.84	10.12	1.03	-	0.59
10 to 50	51.53	12.25	38.46	6.82	-	3.93
50 to 100	97.90	16.63	73.07	9.25	-	5.33
100 to 500	116.26	15.80	86.77	8.79	-	5.07
Higher than 500	121.49	16.51	90.68	9.19	-	5.30

Public	Water	Water	Sewage Collection	Sewage Collection	Sewage Treatment	Sewage Treatment
Ranges (m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)	Fixed Tariff (R$/month)	Variable Tariff (R$/m³)
0 to 10	23.05	2.35	17.20	1.31	-	1.00
10 to 50	28.81	12.53	21.51	6.97	-	5.02
50 to 100	115.25	12.53	86.02	6.97	-	5.02
100 to 500	132.54	18.01	98.92	10.02	-	5.78
Higher than 500	138.30	18.79	103.22	10.46	-	6.03

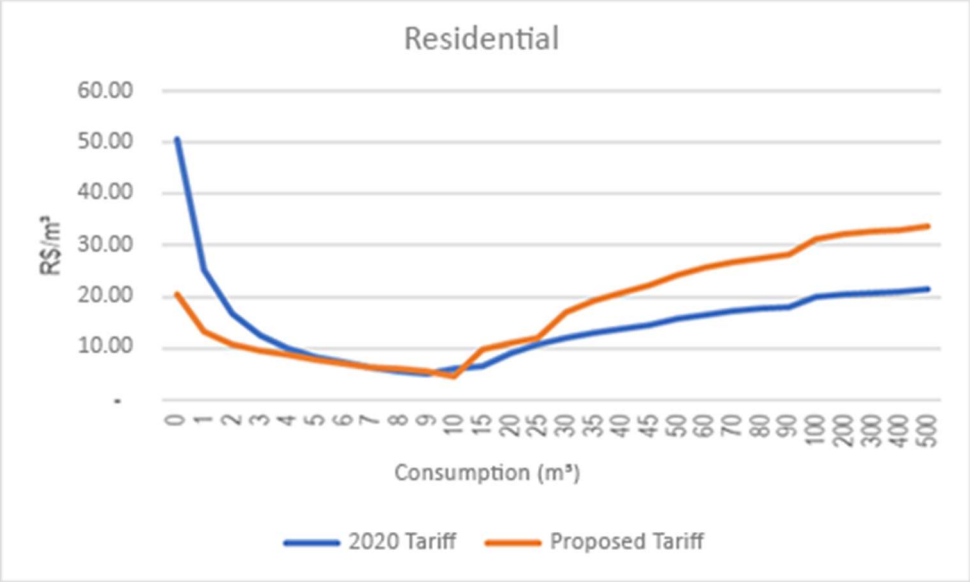
Source and Prepared by: ARSESP.

The tariffs shown above for non-residential users do not include discounts for commercial programs. However, residential tariffs already contemplate the compensation of these amounts. Tariffs also exclude taxes.

As mentioned, specific adjustments were made to the application tariff structure to reduce the impacts of the reviewed tariff structure. The effects expected from the application of this new table differ based on segment, level of consumption and region.

The graphs below show the comparison between the average tariff (R$/m³) applied to each level of consumption using the tariff structure for metropolitan regions, excluding taxes (discounting 6.6% equivalent to PASEP/Cofins), and the average tariff resulting from the application of previous tables.

Graph 10 – Residential Tariffs (R$/m³)



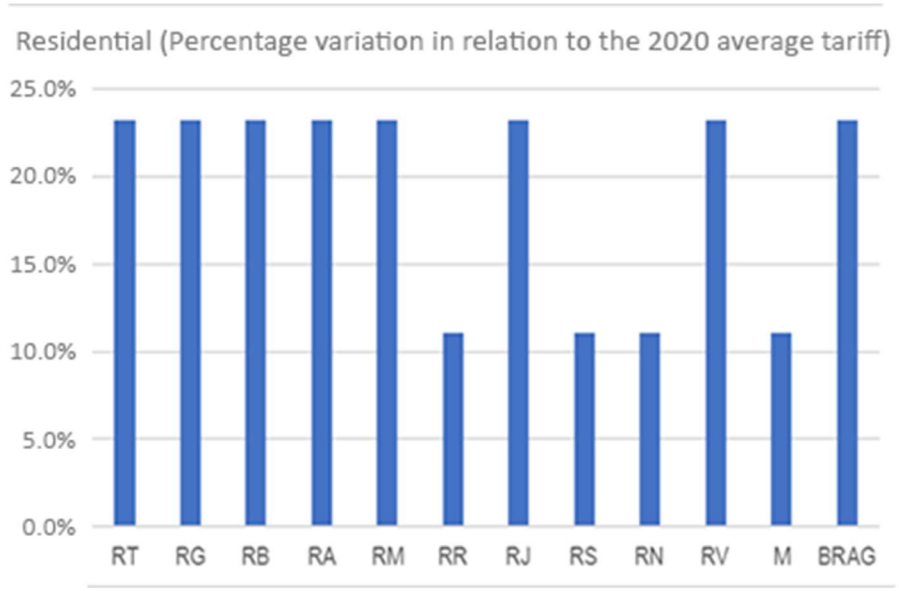
Source and Prepared by: ARSESP. The tariffs in force consider the tariff table of the Metropolitan Executive Board and the billing of water and sewage services with equal volumes, discounting 6.6% related to PASEP/Cofins, which is no longer included in the P0 calculation. The tariffs proposed consider equal billed volumes for water, sewage collection and sewage treatment services.

It is worth noting that there is a reduction in the average tariff for the first levels of consumption in the residential segment, with a slight increase in the most common level of consumption for this category, 10 m³, and an increase in progressivity, strengthening the scarcity warning.

As a result, for 10 m³ users, billing excluding taxes would total R$56.16, an 11% increase over billing as per the table in force.

As indicated, tariff tables will be unified. Thus, tariff increases change for each area of provision. The change indicated above occurs in the metropolitan region of São Paulo. As per the table in force, the highest increase for a 10 m³ consumption, to be recorded among the different regions where Sabesp operates, will be 23.3%, as shown in the graph below.

Graph 11 – Expected change in individual residential tariff per business unit for a consumption of 10 m³/month (%)

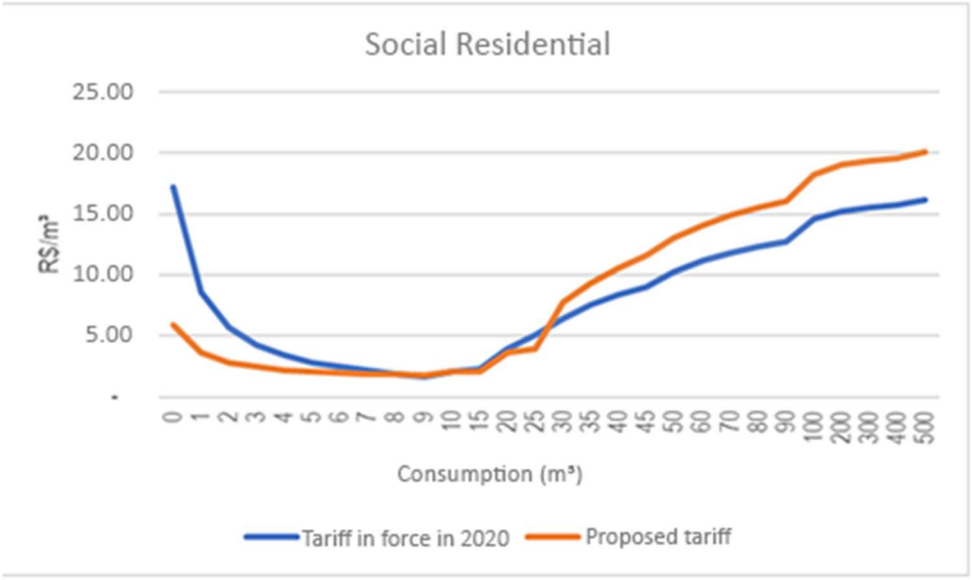


Source and Prepared by: ARSESP.

This is the user segment most affected by the new structure, due to the premise of reducing subsidies allocated to these users.

The graphs below show the same information for Social Residential users. There is no tariff effectively comparable for Vulnerable Residential users.

Graph 12 – Social Residential Tariffs (R$/m³)



Source and Prepared by: ARSESP. The tariffs in force consider the tariff table of the Metropolitan Executive Board and the billing of water and sewage services with equal volumes, discounting 6.6% related to PASEP/Cofins, which is no longer included in the P0 calculation. The tariffs proposed consider equal billed volumes for water, sewage collection and sewage treatment services.

Considering the consumption pattern in the whole area where Sabesp operates, the average tariff reduction for this segment will be around 40% until 10 m³, with increase in the ranges higher than 30 m³. It is worth noting that the tariffs for high consumption are close to the average tariff for Individual Residential users. It is worth highlighting that a 30 m³ consumption would serve a household of 9 people with standard consumption level *per capita* (3.3 m³).

For users of the Collective Residential categories, as indicated, average tariff is close to the average tariff of Individual Residential users, considering the average number of units per connection in each category. It is worth highlighting that users subject to the Collective Residential tariff will begin to be billed per connection and not per unit. The table below shows an estimate of average tariff per unit. It is also worth noting that residential users in condominiums where Sabesp or companies approved by Sabesp have individualized meters and billing will be billed as Individual Residential.

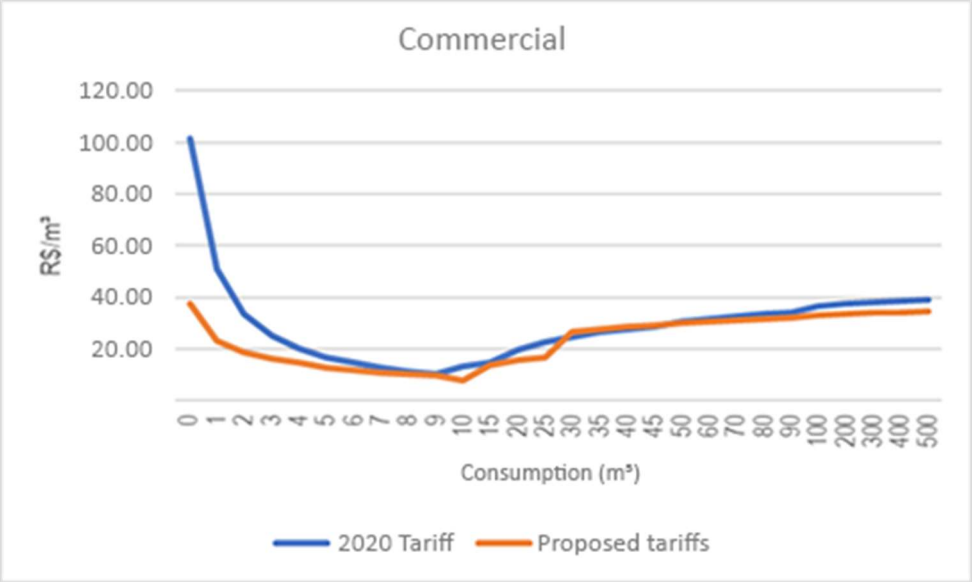
Table 10 – Average tariff for Collective and Individual Residential users (R$/m³ in Feb/21, excluding taxes)

	Units / connection	Average tariff 10 m³/unit
Individual Residential	1	5.62
Collective Residential - CPH 0-1	3	5.94
Collective Residential - CPH 2-4	45	5.69
Collective Residential - CPH 5-7	128	5.62
Collective Residential - CPH 8-11	394	5.61

Source and Prepared by: ARSESP.

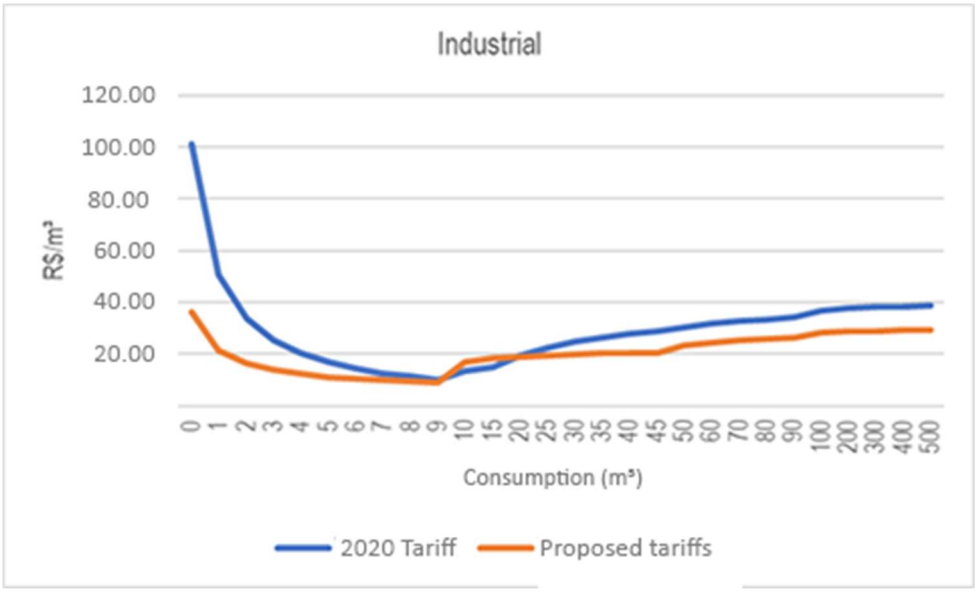
For non-residential users, average tariffs are as follows: It is worth noting there will be a reduction in average tariffs for users with low consumption, in addition to a reduction in progressivity levels.

Graph 13 – Commercial Tariffs (R$/m³)



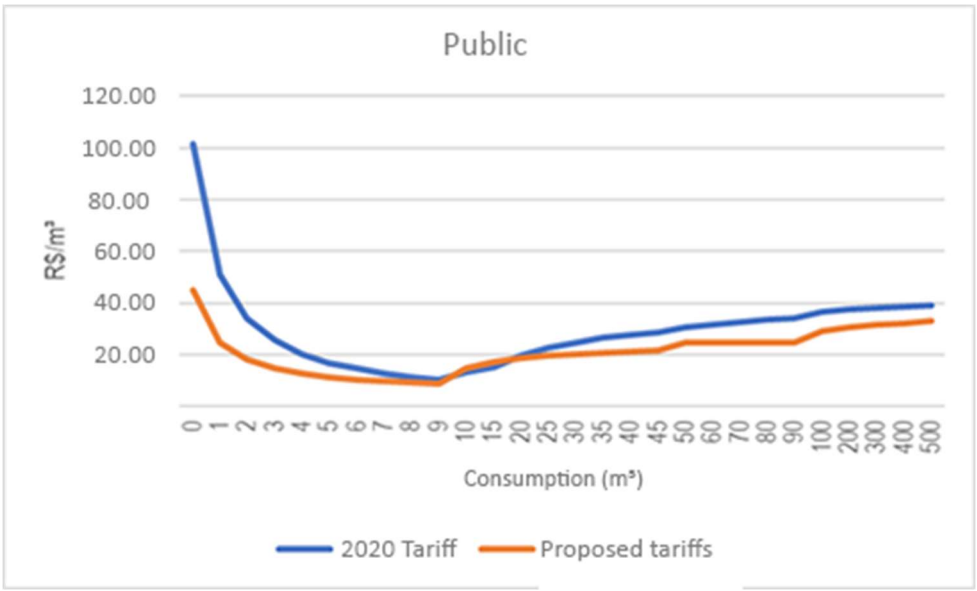
Source and Prepared by: ARSESP. The tariffs in force consider the tariff schedule of the Metropolitan Executive Board and the billing of water and sewage services with equal volumes, discounting 6.6% related to PASEP/Cofins, which is no longer included in the P0 calculation. The tariffs proposed consider equal billed volumes for water, sewage collection and sewage treatment services.

Graph 14 – Industrial Tariffs (R$/m³)



Source and Prepared by: ARSESP. The tariffs in force consider the tariff table of the Metropolitan Executive Board and the billing of water and sewage services with equal volumes, discounting 6.6% related to PASEP/Cofins, which is no longer included in the P0 calculation. The tariffs proposed consider equal billed volumes for water, sewage collection and sewage treatment services.

Graph 15 – Public Tariffs (R$/m³)



Source and Prepared by: ARSESP. The tariffs in force consider the tariff schedule of the Metropolitan Executive Board and the billing of water and sewage services with equal volumes, discounting 6.6% related to PASEP/Cofins, which

is no longer included in the P0 calculation. The tariffs proposed consider equal billed volumes for water, sewage collection and sewage treatment services.

Between regions, for the commercial segment, considering average consumption of 15 m³, there will be a decline ranging from 40.9% (metropolitan region) to 18.5% in the interior. In the industrial segment, the consumption pattern is significantly different between regions. Comparing the histogram's average tariff for each business unit with the average tariff obtained by applying the above tariffs, it is possible to see reductions ranging from 30% in the interior to 60% in the metropolitan region. In the public segment, where high consumption is more common, around 100 m³, the decline ranges from 10% in the interior to 50% in the metropolitan region.

It is worth noting that the analysis above evaluates changes for significant consumption levels. As it is possible to see in the graphs, the change can be bigger or smaller depending on the levels of consumption. In general, municipalities in the interior have recorded less significant decline or even increases in their bills due to the reduction in cross-subsidies between regions. The metropolitan region of São Paulo should record more significant negative changes.

3.5. Transition stages

As indicated in the previous section, immediate application of the revised tariff structure would lead to relevant tariff impacts, in particular for residential users, but also for some levels of consumption and regions in the interior. Moreover, it should be considered that in light of such significant changes, Sabesp should have enough time for implementation in terms of systems and user registration.

Furthermore, the process introduces a high level of uncertainty about the market and the revenues that will be obtained during the tariff cycle that begins, due to the difficulty of determining possible movements of users because of price changes - it should be noted that the uncertainty refers to the possibility of obtaining much higher or much lower revenues than projected for the cycle.

Table 11 – SABESP's estimated market in the 3rd OTR

	Market (A + E, MM m³)	P0*	Required Revenue (R$ million, Feb/21)
2021	3,423	5.1251	17,541
2022	3,500	5.1289	17,950
2023	3,578	5.1289	18,350
2024	3,654	5.1289	18,742

Source and Prepared by: ARSESP. Note: The P0 for 2021, in currency from February 2021, includes the effects of the General Quality Index (GQI) for 2020 and a compensatory adjustment from the 2019 GQI. This compensatory adjustment has no effect for the following years. The P0 amounts between 2022 and 2024 will be the object of the compensatory adjustments indicated in the Technical Note that presents the results for the 3rd OTR, in addition to adjustment for inflation by IPCA, less X Factor and adjusted by the GQI of each year.

The previous table shows the expected revenue and market for each year of the tariff cycle, considering the P0 to by applied in May 2021 and the P0 without adjustment for inflation and other adjustments expected for subsequent years. In view of the uncertainties mentioned above, exceptionally for this cycle, Arsesp will set a variation limit for the annual revenue so that if Sabesp obtains revenue above the limit indicated below, the additional amount will be reverted for the purpose of moderating the tariffs the following year, in the annual readjustment process. If Sabesp has revenue below the limit, the difference will be added to its required revenue for the following year.

The analyses, as in the tariff review process, will be done based on calendar year performance as follows:

- 2021: the effective revenue for the calendar year (January - December) will be calculated considering the tariff table to be published and effective as of May 10, 2021 and the market effectively billed[13] in the year, by segment and consumption range (based on the histogram). The total discounts effectively allocated to the commercial programs authorized for this year will be added to this revenue. On the other hand, the required revenue defined for the first year of the cash flow of the 3rd OTR will be recalculated considering:
(a) adjustments due to inspection of the regulatory remuneration base; (b) revision of the compensatory adjustment amounts referring to the 2nd OTR and of the postponements of the Tariff Adequacy Plans due to incorporation of the effective 2020 amounts not considered in the P0 calculation in the 3rd OTR; (c) possible incorporation of amounts related to protecting water sources, resulting from a specific study by Arsesp.

If the effective revenue is higher than 102.5% of the recalculated required revenue, the entire additional amount (Effective Revenue - 102.5%*Required Revenue) will be reverted to tariff affordability in the annual tariff readjustment process to be published on 04/10/2022.

If the effective revenue is lower than 97.5% of the recalculated required revenue, the entire underpayment (97.5%*Required Revenue - Effective Revenue) will be compensated to Sabesp in the annual tariff readjustment process to be published on 04/10/2022.

The amount to be compensated will be added to or subtracted from the required revenue (already including the P0 corrections previously indicated, in addition to adjustment for inflation, X Factor and GQI) for the following year, with due capitalization. This new required revenue will be used as reference to calculate the table of tariffs to be applied as of 05/10/2022, already considering the other adjustments to meet this transition plan.

[13] As it will be possible to see later on, for this first year, Sabesp will continue to apply billing for the 10 m³ minimum consumption, so that revenue calculation should take into consideration billed volume and not measured volume.

If there is evidence of a significant change (higher than 15% or lower than -15%) in the aggregate operational costs, in the fixed investments or in the aggregate measured market (water + sewage), Arsesp will assess the possibility and suitability of holding a public consultation to review these components in the cash flow, taking into account the time required for its realization and the expected impacts on the rest of the cycle.

- 2022: the effective revenue for the calendar year (January - December) will be calculated considering the tariff table to be published in the tariff readjustment process (April/2022) and the measured market in the year. The amounts effectively allocated to commercial programs will be added to this revenue.

If the effective revenue is higher than 102.5% of the required revenue, the entire additional amount (Effective Revenue - 102.5%*Required Revenue) will be reverted to tariff affordability in the annual tariff readjustment process to be published on 04/10/2023.

If the effective revenue is lower than 97.5% of the recalculated required revenue, the entire underpayment (97.5%*Required Revenue - Effective Revenue) will be compensated to Sabesp in the annual tariff readjustment process to be published on 04/10/2023.

The reversal process will be similar to the one indicated for the previous year, i.e., the adjustment amount will be added to or subtracted from the required revenue for 2023. This restated revenue will be the reference for the tariff table to be applied as of 05/10/2023. Similarly, if there is evidence of a significant change (higher than 15% or lower than -15%) in the aggregate operational costs, in the fixed investments or in the aggregate measured market (water + sewage), Arsesp will assess the possibility of holding a public consultation to review these components in the cash flow, taking the time required for its realization and the expected impacts on the rest of the cycle into account.

- 2023: the effective revenue for the calendar year (January - December) will be calculated considering the tariff table to be published in the tariff readjustment process (April/2023) and the measured market in the year. The amounts effectively allocated to commercial programs will be added to this revenue.

If the effective revenue is higher than 102.5% of the required revenue, the entire additional amount (Effective Revenue - 102.5%*Required Revenue) will be reverted to the tariff modicity in the annual tariff readjustment process to be published on 04/10/2024.

If the effective revenue is lower than 97.5% of the recalculated required revenue, the entire underpayment (97.5%*Required Revenue - Effective Revenue) will be compensated to Sabesp in the annual tariff readjustment process to be published on 04/10/2024.

The reversal process will be similar to the one indicated for the previous year, i.e., the adjustment amount will be added to or subtracted from the required revenue for 2024. This restated revenue will be the reference for the tariff table to be applied as of 05/10/2024. Similarly, if there is evidence of a significant change (higher than 15% or lower than -15%) in the aggregate operational costs, in the fixed investments or in the aggregate measured market (water + sewage), Arsesp will assess the possibility of holding a public consultation to review these components in the cash flow, taking into account the time required for its realization and the expected impacts on the rest of the cycle.

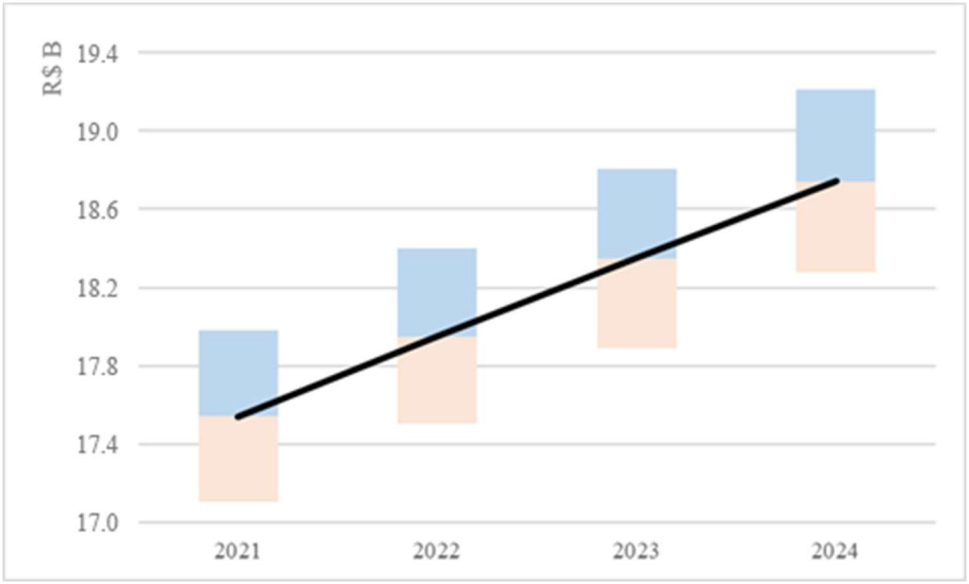
- 2024: the effective revenue for the calendar year (January - December) will be calculated considering the tariff table to be published in the tariff readjustment process (April/2024) and the measured market in the year. The amounts effectively allocated to commercial programs will be added to this revenue.

If the effective revenue is higher than 102.5% of the required revenue, the entire additional amount (Effective Revenue - 102.5%*Required Revenue) will be reverted to tariff affordability in the process of the 4th Ordinary Tariff Revision to be published on 04/10/2025.

If the effective revenue is lower than 97.5% of the recalculated required revenue, the entire underpayment (97.5%*Required Revenue - Effective Revenue) will be compensated to Sabesp in the process of the 4th Ordinary Tariff Revision to be published on 04/10/2025.

In that year, revenue to be reverted (added to or subtracted from) will be addressed in the 4th OTR process.

Graph 16 – Required Revenue for each year of the tariff cycle (R$ in Feb/21)



Source and Prepared by: ARSESP. It is worth noting that the required revenue indicated in this graph does not include expected future adjustments to the P0 and to the reversal amounts each year due to the application of the ranges indicated in the text.

The previous graph shows the required revenue (black line) presented in Table 11. The bars show the interval within which it is possible to have changes in required revenue in the year (considering the application of tariff ceiling tables and the volumes effectively measured). From the amounts of the bars, the additional or lacking revenue will be subtracted or added to the required revenue for the following year and used

as reference for the calculation of the tariff table. It is worth noting that the revenue should be compensated only in one year, unless there are significant changes that require a recalculation of P0 itself, by means of an Extraordinary Revision.

Lastly, it is worth highlighting that required revenue for each year after 2022 is subject to adjustments for inflation and other compensations identified in the period.

Additionally, it is important to consider the need for time for Sabesp to be able to prepare its systems for billing based on the new structure, in addition to possible re-registration of users (collective residential and social residential) and to prepare information so that Arsesp can prepare the structure for collective commercial users.

Thus, the transition from the current tariff structure to the reviewed tariff structure, presented in Table 9, is proposed to occur as follows:

- 2021: In the first year, Sabesp will maintain the current tariff design, with occasional changes, namely:

  - The tariff table in effect, to be published in a Resolution by Arsesp, will only include the application of the GQI effect calculated for the period;
  - The Normal Residential category, which will be renamed Residential, will receive a linear adjustment of 7.6%, in order to ensure Sabesp's economic-financial balance;
  - Sabesp must inform the users that will be registered in the Collective Residential category as of the following year, about their classification and new reference tariff table, allowing for all decisions to be made regarding individualization or remaining in the collective category;
  - The Social Residential category will be adjusted linearly by -1.0%. Users with the characteristics currently published in the Resolution by Arsesp will be maintained;
  - The Residential Favela category, which will be renamed Vulnerable Residential, will be adjusted linearly by -1.0%. Users with the characteristics currently published in the Resolution by Arsesp will be maintained.

    The households whose owner is registered in the first range of CadÚnico (up to R$ 89/month/inhabitant) will be re-registered in this category by Sabesp. This re-registration must take place by September 2021, for all users who have a match between Sabesp's and CadÚnico's databases, which should be obtained by Sabesp with the competent authorities. If it is not possible for Sabesp to re-register automatically, users can request registration, provided that they present supporting documentation of registration with CadÚnico (it will not be possible to register in the category just with proof of income).

    The Residential Favela tariff table, currently applied only to the metropolitan region, will be applied to all regions where Sabesp operates;

- The non-residential categories (commercial, industrial and public) will be readjusted, linearly, at 7.6%, contributing to Sabesp´s economic-financial balance.

  Sabesp must present proposals for Commercial Programs throughout 2021 for Arsesp's approval, focused on specific segments with demonstration of the benefits generated in terms of gain in competitiveness and market expansion in the short, medium and long term for the segment. For the purpose of evaluating tariff affordability, Sabesp should present a total estimated amount for discounts and the additional revenue to be earned from the new market. Exceptionally, Arsesp may approve commercial programs that do not show tariff affordability for the public segment, if public interest for such approval is identified. The maximum amount to be allocated for Commercial Programs this year will be R$90 million.

  Sabesp must prepare a database with information regarding the number of economies per commercial connection, considering the CPH classification used as reference to prepare the collective residential tariff structure. This information must be delivered to Arsesp by September 2021 so that there is enough time to prepare and propose the tariff structure for the collective commercial segment;

- The other segments (permit holders and tank trucks) will have their current tariffs adjusted according to the inflation accumulated in the period;

- At the end of the regulatory year (by April 2022), as indicated above, the compensatory adjustment amount, recalculation of the P0 and required revenue to be obtained in the following calendar year will be established.

- 2022: Sabesp will implement the tariff design approved in this Public Consultation, with the following details:

- The P0 used as reference to establish the tariff structure (already including the additional or lacking revenue from the previous year) will be adjusted for inflation accumulated in the period (IPCA), discounted by the X Factor and adjusted by the GQI;

- The Individual Residential category will be estimated to ensure the average tariff of the previous year, plus a real adjustment of 1.5%, in order to ensure Sabesp’s economic-financial balance. It is important to consider that this amount may be reviewed, based on the compensatory adjustment calculated in the previous year;

- The Residential Collective category is implemented;

- Extinction of the current Social Residential and Shantytown Residential categories;

- The Vulnerable Residential category is implemented, in the approved format (all users in the CadÚnico base, in its first two ranges);

- The Social Residential category is implemented; In this category all users currently benefited by the Social Residential and Shantytown Residential tariffs will be allocated, those who are not allocated in the Vulnerable Residential category;
- The non-residential categories (commercial, industrial, and public) will have applied the approved tariff design, but maintaining the average tariffs in effect in the previous year. Allocation of an additional R$90 million for Commercial Programs (as a result, total discounts may reach R$180 million this year);
- Implementation of the Collective Commercial category;
- The other segments (permit holders and tank trucks) will have their current tariffs in the previous year adjusted according to the inflation accumulated in the period;
- At the end of the regulatory year (by April 2023), as indicated above, the compensatory adjustment amount and recalculation of the P0 and required revenue to be obtained in the following calendar year will be established.

- 2023: Sabesp will implement the new tariff design, with the following details:

- The P0 used as reference to establish the tariff structure (including revenue adjusted from the previous year) will be adjusted for inflation accumulated in the period (IPCA), discounted by the X Factor and adjusted by the GQI;
- The Individual Residential category will be estimated to ensure the average tariff of the previous year, plus a real adjustment of 3.0%, in order to ensure Sabesp´s economic-financial balance. It is important to consider that this amount may be reviewed, based on the compensatory adjustment calculated in the previous year;
- The Social Residential category is fully implemented, including users registered with CadÚnico, up to half the monthly minimum wage *per capita,* in addition to unemployed users, for a maximum of 12 months, and users who live in social collective housing. Users who do not meet the requirements will be reclassified into the Individual Residential category;
- The non-residential categories (commercial, industrial, and public) will have applied the approved tariff design, but maintaining the average tariffs in effect in the previous year. Allocation of an additional R$120 million for Commercial Programs; giving total discounts in the year of R$300 million;
- The other segments (permit holders and tank trucks) will have their current tariffs adjusted according to the inflation accumulated in the period;
- At the end of the regulatory year (by April 2024), as indicated above, the compensatory adjustment amount and recalculation of the P0 and required revenue to be obtained in the following calendar year will be established.

- 2024: Sabesp will fully implement the new tariff design, considering that the P0 used as reference to establish the tariff structure will be adjusted by inflation accumulated in the period (IPCA), discounted by the X Factor and adjusted by the GQI and additional or lacking revenue from the previous year. Non-residential categories will receive allocation of an additional R$120 million for Commercial Programs, totaling R$420 million. At the end of the regulatory cycle (by April 2025), as indicated above, the compensatory adjustment amount to be used in the 4th OTR will be established.

The transition plan indicated above can be summarized in the following picture.

Picture 2 – Transition Plan for the implementation of Sabesp's new tariff structure

	Residential Tariff	Design (by degrees due to the prospect of reduction in inflation)	Residential Social	Non Residential	Risk of Revenue
2021 (Q)	In force	+7.6% (IPCA estimated for May 2021)	-1.0% + addition of CadUNICO households with up to R$89 in the Favela Residential category until September	+7.6% R$90 million for commercial programs	2.5%
2022 (IPCA – X +- Q)	Binomial Tariff / Water, Sewage collection and Sewage treatment	+1.5%	Vulnerable Residential: households of up to R$178 Social Residential: other current social users	R$180 million for commercial programs - Creation of the Collective Commercial category	2.5%
2023 (IPCA – X +- Q)	Binomial Tariff / Water, Sewage collection and Sewage treatment	+3.0%	Vulnerable Residential: households of up to R$178 Social Residential: households of up to	R$300 million for commercial programs	2.5%
2024 (IPCA – X +- Q)	Binomial Tariff / Water, Sewage collection and Sewage treatment	+4.6%	Vulnerable Residential: households of up to R$178 Social Residential: households of up to	R$420 million for commercial programs	2.5%

Source and Prepared by: ARSESP.

A significant concern with the transition proposal is related to the capacity to obtain the required revenue for each year of the process. The application of the inflation estimate (IPCA accumulated in the 12 months through May 2021, as per Focus Survey by the Central Bank of Brazil) to adjust the tariffs in force aims to generate the required revenue in the first year (R$17.5 billion, excluding taxes).

In addition to the inflationary effect, Arsesp believes that the minimum consumption charge in this first year (generating billed market around 20% higher than measured market), the additional growth potential of non-residential markets due to the commercial programs and the partial migration of users who benefit from Vulnerable and Social Residential tariffs should contribute to achieving the required revenue.

As of 2022, with the application of the new structure, Arsesp will have additional revenue from billing of treated sewage, which is not included in the OTR's base market. In addition, the migration of users who benefit from Vulnerable and Social Residential tariffs will be in stages and may generate additional revenue.

As a result, the transition plan seeks to minimize the impacts of the tariff structure change on the different user segments and regions. In view of the high uncertainties, Arsesp will monitor implementation of the structure by means of technical inspection and economic-financial inspection, assessing the revenue obtained by Sabesp and the impacts on each user segment, maintaining the prerogative of reassessing the balance conditions throughout the cycle and making adjustments, if necessary.

The tariff table to be applied as of May 10, 2021 will be published on a specific Resolution, accompanied by a Technical Note. The tariff tables for the following years will be recalculated and published by April 10 each year. Should there be the need to rediscuss the assumptions and characteristics of the approved model, Arsesp may carry out a specific Public Consultation process.

Andre Luis Pinto Da Silva
Tariff Analysis Manager

Henrique Soares Pereira
Expert in Regulation and Supervision of Utility Services

Luiz Antonio de Oliveira Junior
Economic-Financial and Accounting Inspection Superintendent

Edgar Antonio Perlotti
Superintendent of Economic-Financial and Market Analysis