

# RFI INQUIRY TO THE MARKET ABOUT THE BUSES TECHNOLOGICAL AND COMMERCIAL OFFER FOR THE PUBLIC TRANSPORTATION SYSTEM OF SANTIAGO

# CONTENTS

1	REC	CORDS	;Error! Marcador no definido.
2	OBJ	ECTIVES OF THE INQUIRY	4
3	CUF	RRENT SITUATION OF THE BUS FLEET	4
	3.1	Technical features of the Fleet	4
	3.2	Current contractual incentives and obligations of the tra	ansport operators6
	3.2.	1 About the definition of quantity and capacity of the ve	ehicles6
	3.2.2	2 About the ownership modality of the fleet	
	3.2.	3 About the assets related to the concession	
	3.2.4	4 About the Contract on Provision method	
	3.2.	5 About the renovation of the fleet	7
	3.2.	6 About the Incentives for the introduction of less conta	aminant technologies7
	3.2.	7 About the perception of confort of the users	7
4	SIT	JATION PROPOSED FOR THE FUTURE BUS FLEET.	
	4.1	Typology of the bus	
	4.1.	2 Low Floor	
	4.1.3	3 About the interior Passengers' Comfort	
	4.2	About the Average Age of the Fleet	9
	4.3	About Propeling Technologies	9
	4.4	About the Service Life of Vehicles	9
	4.5	About the Energy Performance of the fleet	
	4.6	About the Incentives for the introduction of low emissio	
	4.6.	logies	
	4.0. 4.6.	· · · · · · · · · · · · · · · · · · ·	
	4.0.	2 Higher Payment per Kilometer (PK) Contracts on Provision	
	4.7	About the renovation of the fleet:	
	4.0		
5		UIRIES TO THE MARKET	
5	5.1	About the technical aspects of the vehicles	
	5.2	About the capability of introducing new technologies in	
	5.2 5.3	About the capability of infooducing new technologies in About commercial aspects	
	5.3 5.4	About what is expected from the future Transportation	
	5.4 5.5	Deadlines and Terms of Delivery of proposals to the In	•
	0.0	Deadines and remis or Delivery of proposals to the In	yun y 10

#### 1. **RECORDS**

One of the most important objectives of the Ministry of Transportations and Communications (MTT) is to count with an efficient, safe and quality Public Transportation System. In this same direction and to comply with such objective, starting with a global operation revision and evaluation of the Paid Public Transportation System for Revenue Passengers of Santiago and the different Concession Contracts for the Use of Roads entered into in conformity with the disposition on article 3° of the Law N° 18.696.

To carry out this revision and improvement initiative for the Public Transportation System, the Technical Secretariat of Strategy and Planning of the DTPM was created, organism in charge of the studies and redefinition of relevant elements for the transportation of passengers, among these, those related to the future renovation of the bus fleet.

The opportunity to incorporate in this process all types of propelling technologies represents special interest, particularly those of better energy performance and reduction of contaminant emissions, for example, Diesel technologies, Diesel – Electrical and/or Gas. Their incorporation would contribute to improve fuel consumption and, consequently, to reduce greenhouse effect gases and local contaminants, mitigating the climate change phenomenon and improving the quality of the air in Santiago.

In the same manner, new vehicles should incorporate improvements inside the bus for passengers comfort to deliver a better commuting experience for users.

Considering the previous, this inquiry is released to the market, so the sector may contribute with relevant information about technical and commercial aspects of the future buses fleet that may become a part of the Public Transportation System of Santiago.

## 2 OBJECTIVES OF THE INQUIRY

To obtain information, from the manufacturers sector and/or bus body manufacturers in the Chilean and international, in order to:

- Improve technical requirements of vehicles currently operational in the System.
- Know the commercial offer present in the market.

# 3 CURRENT SITUATION OF THE BUS FLEET

#### 3.1 Technical Features of the Fleet

Currently<sup>1</sup> Transantiago owns a fleet of 6.559 buses that comply with the valid emissions regulation<sup>2</sup> and their functional and dimensional features<sup>3</sup>. These features are described next:

<sup>&</sup>lt;sup>1</sup> Information to June 30<sup>th</sup> of 2016.

<sup>&</sup>lt;sup>2</sup> Supreme Decree N°130/2201 which Establishes Regulations for the Emission of carbon monoxide (CO), total hydrocarbon (HCT), non methane hydrocarbon (HCNM), methane (CH4), nitrogen oxides (NOx) and particulate matter (MP) for Buses Engines of Collective Passenger Transportation in Santiago. https://www.leychile.cl/Navegar?idNorma=195386

<sup>&</sup>lt;sup>3</sup> Supreme Decree N°122/1991 which Establishes Dimensional and Functional Requirements for Vehicles used as Urban Collective Passenger Transportation Services. <u>https://www.leychile.cl/Navegar?idNorma=9612</u>

Total Transportation Capacity	675.842				
Number of buses		6.559			
Type of bus according to length <sup>4</sup>	Number	%	Capaci	Transportation Capacity in a bus <sup>5 6</sup>	
			Seated	Total	
A1 (Lower than 9meters)	826	13%	20	50	
A2 (Equal or higher than 9meters and lower than11meters)	205	3%	25	62	
B1 (Equal or Higher than 11meters and lower than12meters)	142	2%	26	93	
B2 (Equal or Higher than 12meters and lower than 14meters)	3.698	56%	25	95	
B2 (Equal or Higher than 12meters and lower than 14meters, with left side doors for operation in central platform corridors)	279	4%	29	102	
C1 (Equal o Higher than 14meters and lower than 16,5meters rigid)	-	-	-	-	
C2 (Higher than 16,5meters, articulated)	1.409	21%	36	160	
Propelling Technology	Number		%		
Diesel Euro III	2.588		39%		
Diesel Euro III with Particles Filter	2.673		41%		
Diesel Euro V	1.296		20%		
Diesel Euro V Hybrid -Electric	1		0%		
Diesel Euro VI	1		0%		
Electrical	0		0%		
Fleet Age/Average Age			ears		
2004	25		0%	-	
2005	56		9%		
2006	1251		19%		
2007	209		3%		
2008	868		13%		
2009	272		4%		
2010	1158		18%		
2011	202		3%		
2012	1107			17%	
2013	220			3%	
2014	52		8%		
2015	7		0%		
2016	15	3	2%	0	

#### **Table 1: CURRENT TRANSANTIAGO FLEET FEATURES**

 <sup>&</sup>lt;sup>4</sup> Vehicles with Low Entry Transantiago Standard , except for A1 type vehicles.
 <sup>5</sup> The capacity of vehicle is established in article 7 number 2 of DS122/1991. See note 3 for download.
 <sup>6</sup> Values correspond to the average of total operational buses. The detail of each certified vehicle and its features can be found at <u>https://mtt.gob.cl/wp-content/uploads/2014/01/Nomina\_Estandar\_Transantiago\_060616.xls</u>

Service Life required in Kilometers (Km) covered or years, whatever happens first.	Maximum <sup>7</sup> kilometers covered	Maximum age in years <sup>8</sup>
Diesel Engine	1.000.000	12
Compressed Natural Gas engine (GNC) – Hybrid Engine (Diesel-electrical)	1.400.000	15
Electrical system	1.800.000	20
Requirements for the Passengers Comfort		
Decree N°122/1991 of MTT, which Establishes Dimensional and Functional Requirements for Vehicles used in Urban Collective Passengers Transportation Services. <sup>3</sup>	Mandatory	Regulation
Good practices for the class B <sup>9</sup> bus specifications.		nts, except distance ents in doors.

# Table 1: CURRENT TRANSANTIAGO FLEET FEATURES

## 3.2 Current contractual incentives and obligations for transport operators.

Current concession contracts integrate incentives and obligations related to the acquisition of the new fleet, from technical and financial performance. A summarized description of the elements related to the fleet is listed below:

# 3.2.1 About the definition of quantity and capacity of vehicles.

Restrictions to the total quantity and capacity of the fleet are not established. The Concession holder must select the quantity and size of buses according to the Operation Program (PO) requirements.

# 3.2.2 About the modality of ownership of the fleet.

Nowadays roads concession contracts allow leasing and acquisition of buses, which are part of the fleet by a leasing or purchase contract; the concession holder must be in possession of a legitimate power to use buses, which are part of the fleet.

# 3.2.3 About assets subject to concession

Law 18.696 article 3° *nonies* define those movable and immovable assets considered necessary for the provision of transportation services in the context of a road use concession or other provided by such law. In this case, buses are considered as "subject asset".

# 3.2.4 About the modality of the Contract for Provision.

The Contract for Provision constitute a mechanism considered in the road use concession contract to allow the concession holder the ownership of the assets that are necessary (for example, buses) for the provision of services, which will be recognized by the MTT as an interest for the system through a posterior declaration, committing itself to create the conditions required to maintain such instrument in time, even if the operator changes. This enables the operator to sign a contract for provision with the vehicle manufacturer and thus have access to assets, even if the concession deadline is near, and at the same time, present safety for vehicle suppliers on the payment of associated credits.

<sup>&</sup>lt;sup>7</sup> Commercial KMs covered can be found at

http://www.dtpm.gob.cl/descargas/kilometros/2015 KM%20Comerciales%20programados 07\_09.xls

 <sup>&</sup>lt;sup>8</sup> Maximum age in years, applies to vehicles registered from 2012 only.
 <sup>9</sup> BP Manual BP available on the following link

http://www.dtpm.cl/descargas/manuales/BUENAS%20PRÁCTICAS%20ESPECIFICACIONES%20BUS%20PATRÓN %20CLASE%20B%20TRANSANTIAGO.pdf

#### 3.2.5 About the fleet renovation.

Valid contracts describe the following conditions for the renovation of the fleet.

#### 3.2.5.1 Replacements

This applies to those buses that have reached a maximum service life, have been involved in accidents or early renovations, as considered by the concession holder. The age of uch replacements must be less or equal, to the fleet's average at the moment of registration. In addition, buses must have a propelling technology according to the emissions regulations, equal or higher than the replaced vehicle.

## 3.2.6 About the Incentives for the inclusion of new less contaminant technologies

Current contracts offer some non-financial mechanisms that support bigger investments of less contaminant, cero or low emission technologies. However, their use has only allowed the incorporation of particle filters to vehicles Euro III (a 41% of the fleet total) and not the incorporation of gas, electrical or hybrid buses. A valid incentives summary is described below<sup>10</sup>.

#### 3.2.6.1 Service Life.

Higher service life is provided to Compressed Natural Gas (GNC), Hybrids (Diesel-Electric) and Electric vehicles (See Table 1).

## 3.2.6.2 Higher Payment per Kilometer<sup>7</sup> (PK)

An increase of up to 15% of the Price per Kilometer is considered in the concession holders' payment structure <sup>11</sup>, regarding a Diesel equivalent to the minimum valid regulation. The PK is adjusted to the technology and bus size costs.

## 3.2.6.3 Concession Deadline Extension for Emissions Reduction

The concession deadline could be extended for thirty six (36) months, when the concession holder incorporates new less contaminants technologies (MP and NOx), related to the operational fleet agreed at the beginning of the concession contract.

## 3.2.7 About the users comfort perception

Today the most common and recurrent complains and negative evaluation from the users of the System is the interior design of existent buses. Users consider buses do not respond to needs and ergonomic features of the average Chilean people, creating access and movement difficulties and less comfort aboard. The seats material is slippery, the number of seats do not cover demand, aisles are very narrow and break systems has a negative impact on users, who declare felling insecure inside the buses, which is increasing in relation to travels in articulated buses.

<sup>10</sup> Details about fleet renovation incentives in Annex , for download at

<sup>11</sup> Nowadays an estimated 70% of the average concession holder incomes correspond to a Price per passenger transported (PPT), while a 30% correspond to a Price per Kilometer (PK). Details about the payment structure on point 5.4 CONCESSION HOLDER INCOMES for download at

http://www.dtpm.gob.cl/descargas/contratos/cc/un5/RES.N%C2%B0%201\_3%C2%B0%20PARTE%20METROPOLITA NA.pdf <sup>11</sup> Noundays an actimated 70% of the sugrage concession holder incomes correspond to a Bride per passanger

http://www.dtpm.gob.cl/descargas/contratos/cc/un5/RES.N%C2%B0%201\_2%C2%B0%20PARTE%20METROPOLITA NA.pdf

## 4 SITUATION PROPOSED FOR THE FUTURE BUS FLEET

The valid regulation and current concession contracts establish incentives and obligations that determine the composition of the System bus fleet, in terms of size, typology (length and capacity), propelling technology, age, maintenance and passengers comfort inside the bus. The present situation has demonstrated there are some differences not only in the fleet's technical and maintenance aspects, but also in a financial dimension that affects their availability and renovation during the concession period of the transportation services.

In the same way, minimum requirements the bus fleet may have in the future, aim to the following effects: i) to improve and generate competitiveness to the bus offer, ii) to direct the purchase of more efficient vehicle for the System and iii) to tend to a better comfort standard for passengers. The detail of these requirements is described below.

#### 4.1 Bus typology

#### 4.1.1 Length

Supreme Decree N°122/1991<sup>3</sup> establishes the typology of buses according to their length. Only to facilitate their identification and registration, the following sub-typologies will be added to vehicles with left side doors. A letter P will also be added to this description.

Table 2: Buses Typology according to their length					
A1 (Lower than 9m)					
A2 (Equal or higher than 9m)					
B1 (Equal or higher than 11m and lower than 12m)					
B2 (Equal or higher than 12m and lower than 14m)					
B3 (Equal or higher than 11m and lower than 14m double deck bus)					
C1 (Equal or higher than 14m and lower than 16,5m rigid)					
C2 (Higher than 16,5m, articulated)					

#### 4.1.2 Low Floor

All typologies should have a minimum Low Entry to reach a 100% universal accessibility to the system.

#### 4.1.3 About the Passengers interior Comfort

In order to increase the standard of comfort inside the bus and to improve the commuting experience of users, "New Standards of Transantiago Buses" will be applied and considered in two instruments that would be incorporated in a future concession contract:

- a) DS 122/1991<sup>3</sup> will determine the minimum standard regarding the comfort conditions inside the bus, listing basic elements require for certification.
- b) The incorporation of a "Technical Specifications Manual for the Transportation System Buses of Santiago - Transantiago", which would define other technical specifications for interior design and comfort for the passenger, explaining in detail all requirements related to distribution, colors, drivers booth, among others, for all typologies detailed in Table 4.

Current requirements should be taken as reference for the interior design of buses for the comfort of the passengers, established in the present Good Practices Manual for the class B<sup>9</sup> bus and expand it to the rest of bus typologies. Without prejudice that, in the future, some

part of the fleet will be exempted of the obligation that requires doors in both sides of the bus and their distance measurements from the bumper.

The application of both instruments would be mandatory under the same standardization scheme created by the Vehicular Control and Certification Center (3CV)<sup>12</sup> to which all vehicles are submitted when entering the System.

Furthermore, and to avoid inconsistencies between the certificated vehicle and the large-scale entry to serial manufacture buses, a Conformity Verification Procedure will be applied through inspections available on MTT, emulating the procedure used today and performed on light vehicles<sup>13</sup> certified in Chile.

#### 4.2 About the Fleet Average Age

Offers should consider new and used vehicles, as long as the total do not exceed a 5 years average age at the beginning of the concessions.

#### 4.3 About Propelling Technologies

Valid regulation about contaminant emissions<sup>2</sup>, the relation weight-power and noise levels<sup>14</sup>, will impose the minimum compliance standard for buses entering the System.

On 2017, due to updates on the Prevention and Decontamination Plan of the Metropolitan Region<sup>15</sup>, the minimum standard for diesel engines should be Euro VI or EPA2010.

Propelling technologies exceeding the valid emissions regulation shall certify such condition before the 3CV. Among these technologies, there are vehicles with gas engine GNC Euro VI - EPA2010, Diesel Euro VI - EPA2010 with Hybrid-Electric engine and buses 100% Electric.

#### 4.4 **About Vehicles Service Life**

Service Life assigned to new vehicles will be measured in kilometers covered or in years, whatever happens first. On the other hand, used vehicles from the current valid concession will only be required for a maximum age in years that would be equivalent to the age required for new vehicles.

The estimation of maximum kilometers covered for new vehicles should consider commercial kilometers covered for PO and dead mileage for positioning; using this information obtained from technological tools controlled by the MTT, for example, from the positioning analysis GPS of the Fleet Operation Support System (SAEF) and/or telematic Solutions obtained from the vehicle.

Service life would distinguish cleaner and more efficient propelling technologies, considering all of them at the operation level<sup>16</sup> required on the System today and taking into account real deterioration in time.

<sup>&</sup>lt;sup>12</sup> 3CV Information at <u>http://www.mtt.gob.cl/3cv.html</u>

<sup>&</sup>lt;sup>13</sup> Reference regulation information at <u>http://www.mtt.gob.cl/archivos/5806</u>

<sup>&</sup>lt;sup>14</sup> Regulation at <u>https://www.leychile.cl/Navegar?idNorma=207430</u>

<sup>&</sup>lt;sup>15</sup> Regulation proposed information at

http://santiagorespira.gob.cl/pdf/Anteproyecto del Plan de Prevencion y Descontaminacion atmosferica para la Regi on Metropolitana de Santiago.pdf <sup>16</sup> 73 thousand Km/bus/average year

	Ne	<b>New</b> KM or years, whatever happens first				
	KM or years, what					
	Maximum Age (years since	Maximum kilometers	Maximum age (years since			
Propelling Technology	manufacture)	covered	manufacture)			
Diesel Engine	10	800.000	10			
Compressed natural gas engine (GNC)	12	1.000.000	12			
Hybrid engine (Diesel/electric; Plug-in)	12	1.000.000	12			
Electric system	14	1.200.000	14			

Table 3: Service Life differentiated by technology

#### 4.5 About the Fleet Energy Performance

MTT is developing an Energy Efficiency Measurement Methodology or MMEE (in Spanish Metodología de Medición de Eficiencia Energética) considering the local operation conditions of the Transportation System of Santiago, such as roads, speed and technology/configuration of the buses; in order to obtain energy efficiency and emissions information of new buses entering the System.

MMEE will determine the efficiency in Kilometers per liter (Km/lt or equivalent<sup>17</sup>) from engine configuration and bus size, using a measurement test that would be applied on a chassis dynamometer at 3CV.

This measurement test would be part of the Homologation and Certification process applied to a new bus, according to the valid regulation, and it should be required by the manufacturer upon the offeror operator's request, if they wish to participate on new tender processes. Thus, such document would be mandatory for each new vehicle pertaining to a tender.

The new-awarded fleet would establish the minimum *Base Line of Energy Performance* (LBRE) for the entire System, hence additional new buses or replacement buses during the validity of future concession contracts should comply with at least the same energy efficiency level than LBRE's engine configuration and bus size.

In case there are no reference values regarding the replaced or additional bus, used fleets will consider the minimum efficiency value reached by a similar engine configuration and size of the System's LBRE.

# 4.6 About incentives for the entry of new lower emissions/best energy performance technologies

The incorporation of non-financial incentives proposed for the tender process and future concession contracts, would allow the leverage of bigger investments in technologies aiming to obtain lower emissions and better energy performance for the System.

<sup>&</sup>lt;sup>17</sup> If technology is 100% electric or Compressed Natural Gas, for example.

## 4.6.1 Tender for Cero Emission Services Packages

Evaluation of bidding for at least one services package from which obtaining a good operation performance and return would be possible, to be operated with 100% electric buses. In case there were other bids with electric fleet, the priority would be set into awarding the tender; if there were no other bids, the second choice would be the one with higher energy performance.

## 4.6.2 Higher Payment per Kilometer (PK)

Evaluation of a higher payment per kilometer (PK) to those technologies exceeding the minimum valid regulation required for Diesel and Gas engines. Assuming that the same payment structure remains the same for valid concession holders<sup>11</sup>, increasing the Payment per Kilometer (PK) is on evaluation for up to 18%, regarding a Diesel equivalent to the minimum valid regulation at the moment of replacement or extension of the fleet for new buses. The PK will continue adjusting to the technology type and bus size cost.

## 4.7 Contracts of Provision

The acquisition of vehicles under a contract of provision will constitute an incentive to the fleet renovation, without the generation of additional costs to the system and additional charges to the operators. In the same manner this would grant better warranties to fleet suppliers, reducing the payment risk, in case of normal or early termination of the services. This enhancement should allow the optimization of rolling material market prices that would operate on the Public Transportation System of Santiago.

#### 4.8 About the fleet renovation:

The following conditions will be considered in case of replacement and extension of the fleet:

## 4.8.1 Replacements

Replacements would apply to those buses reaching their service life, damaged in accidents or for anticipated renovations, if the concession holder considers it necessary. Such replacements should be under the following conditions:

- a) The age must be lower or equal than the fleet average at the moment the bus enters the System.
- b) Buses should have a propelling technology that complies with an emissions regulation equal or higher than the replaced vehicle.
- c) Buses should maintain at least the same energy performance level than the engine configuration and size of the tendered bus. If there is no reference value regarding the replaced bus, the minimum efficiency value by a similar bus engine configuration and size over the total of buses tendered on the System (LBRE) will be considered.

#### 5 INQUIRIES TO THE MARKET

According to the technological offer and buses typology available, we invite you to answer the following inquiries:

#### 5.1 About the technical aspects of the vehicles

- 1. What is the performance in kilometers per liter or equivalent? Which is the international essay method used to indicate this value? Do values indicate they are full load?
- 2. Considering the operation condition of the Public System of Santiago, what is the estimated service life of your vehicle in kilometers, years and hours, for chassis and body? Which is the autonomy in Km, capacity of the tank and/or batteries recharge? Do you have an approximate or performance table for operation speeds?
- 3. In the case of electric vehicles, what is the capacity in kWh and autonomy in kilometers? In the case of battery usage, how many cycles estimate the service life?
- 4. Regarding recharge equipment, which features must slow and fast charge equipment have? What minimum conditions must be present in their facilities?
- 5. In the event of extreme energy failure cases, which is the backup capacity of the vehicle and recharge facilities? Is there a contingencies mechanism response to the operation programs required?
- 6. Do you have a treatment and final disposal protocol for batteries? If not, list usage alternatives and your experience with those alternatives.
- 7. What interior design features for passengers comfort would allow the improvement of the passengers' travel quality standard? Could you list the elements in your vehicle you think present a difference in comparison to the System's current fleet?
- 8. Does your vehicle have a closed booth for the driver? What features does it present? Which ergonomic elements in the driver's booth could you highlight?
- 9. What air conditioning and/or ventilation elements does it have? Which are its technical features? What is the fuel consumption level estimated in the case of Air Conditioning systems?
- 10. If the body of your vehicle has fixed glass, which is the maintenance standard required? What is the replacement time?
- 11. What amount of time (Km or years) do you consider necessary to perform an Overhaul to the vehicle (chassis and body)? Could you indicate some examples or clients who have carried out a successful overhaul?
- 12. Mention which devices or solutions you have to control evasion and to guarantee the driver's safety. Point out in which countries you have implemented them.
- 13. Could you tell us if the current System fleet demands, described in number 3, generate commercialization restrictions or impediments for your products? In your opinion, are any of the aspects of the "Transantiago Standard" atypical in the industry?
- 14. If an emissions regulation equivalent to the European Euro 6 standard is demanded, do you have A1 and A2 length vehicles, according to described in table 4?

#### 5.2 About the capacity to incorporate vehicles with on board technologies

15. Does your vehicle have LED type signs with information for the passengers (VMS) outside or inside the vehicle? Which are their technical features?

Features	Detail
Type of VMS technology	
N° of Lines	
Characters per line	
Communication standards	

- 16. In case the vehicle does not have LED type signs with information for the passenger (VMS) inside or outside the vehicle; does your vehicle have enough spaces to install those sign? Which are their technical features?
- 17. Does the vehicle have wiring ducts for devices on board? Give information about the distribution of ducts inside the vehicle and their technical features.
- 18. Mention possible restrictions on the electric consumption that on board technologies must have so it does not affect its performance.
- 19. Does the vehicle have a container or box to store technological integration equipment (Rack)? Describe technical features (for example, dimensions, safety and protection standard).
- 20. Do your vehicles have data telemetry? Which is the format used for data download? What information is available for download from the computer aboard the vehicle?
- 21. What components of the vehicle, from the point of view of safety, maintenance, driving quality and fleet management, can be measured using telemetry? Is the protocol to access information open or closed? Point out the standard for data download. What information is available in open mode?
- 22. Indicate information about capabilities/spaces for the installation of technologies inside the vehicle according to the following table:

N°	Technology	Is there physical space for installation? (Yes/No)	Amount of physical places/spaces (number)	Indicate place/places inside the vehicle (front, middle, back, all)	Indicate dimension and weight restrictions of the technical equipment (if the case applies)	Availability of the electrical and communications wiring (according to physical places/spaces)	Additional comments
1	Payment Validators						
2	Driver's Console						
3	Positioning Device (GPS)						
4	Camera with DVRs Speakers						
	Storage and communications						
5	Rack						
6	Passengers' Counter						
7	Panic Button						
8	Door Sensor						
9	Tourniquet						

#### 5.3 About commercial aspects

- 23. What is the list sale price for the public (set in Chile) for the purchase of one vehicle only? Is there a price difference in the case of buses with doors in both sides?
- 24. Which is the discount percentage regarding the public price mentioned in the last inquiry? if the vehicle purchase is made according to the following quantity ranges:

Amount of vehicles	Discount percentage
0 - 50	
51 - 100	
101 - 150	
151 - 200	
201 or more	

- 25. What is the cost of recharging equipments and their facilities? (answer according to  $\frac{4}{4}$ )
- 26. What is the estimated time from the Purchase Order until the arrival on Chile? Where would the physical delivery of vehicles occur?
- 27. What would the freight surcharge amount or percentage be? Could you offer any discounts to this amount considering the ranges described in <u>question 24</u>?
- 28. What other additional services could you offer free of cost? For example Painting or institutional logotypes, First preventive maintenances or others.
- 29. What are the Guarantee conditions for vehicles? Could it eventually change if considering the quantity ranges described on <u>question 24</u>? Please point, in general, some guarantee elements in the table shown below:

	Amount of vehicles					
Guarantee	0 - 50	51 - 100	101-150	151 - 200	200 more	or
Between 12 and 23 months or between 50 thousand to 99 thousand Kilometers						
Between 24 and 35 months or between 50 thousand to 99 thousand Kilometers						
Equal or higher than 24 months or without kilometers limit						

- 30. Does the manufacturer offer trainings on vehicles maintenance? What is the methodology? What is the cost? What is the collection method (HH, type of project, licenses, among others)?
- 31. Is the training personnel in Chile or abroad?
- 32. What is the estimated cost and time for replacing a fixed glass?
- 33. Could you indicate a reference value for the data telemetry service, for download and analysis of information?
- 34. What percentage of the bus value would correspond to the cost for including air conditioning to the vehicle?
- 35. Which are the delivery deadlines, considering the quantity ranges described on <u>question 24</u>?

- 36. Could you indicate a value per payment fee or range of values considering the quantity ranges described on <u>question 24</u>? In your opinion, which information is necessary to obtain a reference value?
- 37. Could you point out general funding conditions regarding the % for down payment, yearly interest rate and funding period? Do these conditions change the amount of vehicles purchased? How do they change?
- 38. Do you have your own funding line or are you participating with other financial entity (partner)? Which are the access requirements?
- 39. In the case of purchase for a new fleet through a Contract on Provision, how and at which extent could the conditions currently offered to concession holders of the Transportation System of Santiago change? In your opinion, which improvements would you propose in order to reduce transaction costs and risks, and to increase the amount of buses that can be obtained by this modality?
- 40. What is the vehicle Overhaul cost (chassis and body)? (answer according to guestion 11)
- 41. Regarding maintenance guidelines required by the brand, which business models have you implemented successfully? Indicate city or transportation System in which you have participated.
- 42. In which regulated transportation system are you participating? How many vehicles, what type and since which year are they in operation?
- 43. Does your company have or could possibly have representation in Chile for vehicles support and post sale service?
- 44. Are there any instruments for production and export promotion in your origin/manufacturing country that can be applicable in Chile? Could you indicate the existent regulations, laws, treaties or instruments? If there are not, could you propose an instrument or adjustment to Chilean laws that may allow the use of these benefits and thus translated into better commercial and/or support conditions?

## 5.4 About what is expected from the future Transportation System fleet

45. In your opinion, which improvements could be included to the situation proposed for the future bus fleet?

## 5.5 Deadlines and Terms of Delivery proposed to the Inquiry

National or foreign companies interested in answering the present Inquiry to the Market should submit their proposals in <u>Spanish</u> to the email <u>rediseno.contacto@dtpm.gob.cl</u>, through the correspondent digital document (preferable in Word format), <u>before 14 hrs on Thursday 3<sup>rd</sup> of November of 2016.</u>

Notwithstanding the foregoing, MTT could, through the same aforementioned email, interact with suppliers, proposing or answering inquiries in order to specify the information they need to obtain.

It is important to mention that answers delivered are a reference and do not establish any obligation between the company and the MTT. Furthermore, it is possible that all the formation hereby required may not be available, so leave blank spaces in those questions in which you do not have, or it is not possible to get, such information.

Likewise, all suppliers submitting their answers could be invited to a meeting to expose them, individually and jointly, by a presentation no longer than 30 minutes, at the MTT facilities or by videoconference **between November 7<sup>th</sup> and 18<sup>th</sup> of 2016**, both dates included, which must be coordinated through the designated contact.

Such meetings must respect the principle of transparency, disclosure and equality of the companies interested in answering the present Inquiry.

We request you adjust your answer to the format indicted in the following table.

	Technical information of the vehicle:
	- Cylinder Capacity
	- Power
	- Fuel Type
Vehicle image:	
Venicie inage.	- Tank Capacity
	- Transmission Type
	- N° of Speeds
	- Distance between axles/shafts
	- Service Brake
	- Tires
	<ul> <li>N° of passengers (seated / standing)</li> </ul>
	- Both Sides Doors: Si / No
	- Length
	- Height
	- Width
	- Vehicle Net Weight
	- Chassis Height (Low Entry/ Low Floor)
	- Performance
	<ul> <li>Mix Cycle CO2 Emission</li> </ul>
	- Emission Regulation
is information could be included in Englis	and/or images.
mmercial services like graphics, videos a nis information could be included in Englis nswers: 1.	
is information could be included in Englis iswers: 1. 2.	and/or images.
is information could be included in Englis iswers: 1. 2.	and/or images.
is information could be included in Englis iswers: 1. 2. 3.	and/or images.
is information could be included in Englis swers: 1. 2. 3. 4.	and/or images.
is information could be included in Englis swers: 1. 2. 3. 4. 5.	and/or images.
is information could be included in Englis swers: 1. 2. 3. 4. 5. 5.	and/or images.
is information could be included in Englis swers: 1. 2. 3. 4. 5. 5. 5. 7.	and/or images.
is information could be included in Englis swers: 1. 2. 3. 4. 5. 5. 5. 5. 7. 8.	and/or images.
is information could be included in Englis swers: 1. 2. 3. 4. 5. 5. 6. 7. 3. 9.	and/or images.
is information could be included in Englis swers: 1. 2. 3. 4. 5. 5. 5. 5. 5. 5. 7. 3. 9. 10.	and/or images.
<i>is information could be included in Englis</i> <b>swers:</b> 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	and/or images.
<i>is information could be included in Englis</i> <b>swers:</b> 1. 2. 3. 4. 5. 6. 7. 3. 9. 10. 11. 12.	and/or images.
<i>is information could be included in Englis</i> <b>iswers:</b> 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.	and/or images.
<i>is information could be included in Englis</i> <b>swers:</b> 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.	and/or images.
<i>is information could be included in Englis</i> <b>iswers:</b> 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.	and/or images.
<i>is information could be included in Englis</i> <b>swers:</b> 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.	and/or images.
<i>is information could be included in Englis</i> <b>iswers:</b> 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16.	and/or images.
<i>is information could be included in Englis</i> <b>iswers:</b> 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17.	and/or images.
<i>is information could be included in Englis</i> <b>iswers:</b> 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16.  17.  18.	and/or images.
<i>is information could be included in Englis</i> <b>iswers:</b> 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16.  17.  18.  19.	and/or images.
<i>is information could be included in Englis</i> <b>iswers:</b> 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16.  17.  18.  19.  20.	and/or images.
is information could be included in Englis	and/or images.

23.		
23.		
24.		
25.		
26.		
25. 26. 27.		
28.		
29.		
30.		
31.		
32.		
33.		
34.		
35.		
36.		
37.		
38.		
39.		
40.		
41.		
42.		
43.		
44.		
45		