

Significant Increase in the Number of Double-decker Electric buses on Metropolitan Bus Routes

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*Selected 22 congested metropolitan bus routes where to be added with
40 extra buses by year-end*

The Metropolitan Transport Commission (Chairman LEE Seong-hae, hereinafter referred to as MTC) of the Ministry of Land, Infrastructure and Transport (MOLIT, Minister WON Hee-ryong) announced that by the end of this year, additional 40 double-decker electric buses would be added to 22 metropolitan bus routes to significantly improve the convenience of metro transportation in the metropolitan area including new towns, etc.

[Exterior feature of double-decker electric bus by operation type]



M Bus (Metropolitan rapid bus)



Metropolitan bus (Express bus)



BRT (Bus Rapid Transit)

The double-decker electric bus has a large-capacity means of transportation that can fundamentally resolve congestion during rush hours by increasing passenger traffic per unit by more than 60%* compared to existing vehicles.

* Number of passenger seats per unit: (metropolitan bus) 40-45 seats, (double-decker electric bus) 70 seats

MTC has introduced and operated 60 vehicles from 2020 to 2022 through the ‘Double-decker Electric Bus Supply Project’ and will introduce 40 additional buses this year to expand up to 100 units.

* A total of 60 vehicles in operation in South Korea, including 56 units in Gyeonggi-do, two in Incheon, and two in Daejeon

[Interior of double-decker electric bus]



First floor (11 seats)

Front and rear stairs

Second floor (59 seats)

The 2023 project (22 routes with 40 vehicles) targeted the routes with a high risk of safety accidents due to a large number of standing passengers or inconvenient routes to commute as buses pass through the stations without stopping due to the prohibition of standing.

In particular, as five vehicles will be put into line 1000 (Daehwa - Sungnyemun) in Goyang City with many standing passengers, and four respective units will be added into line 7800 (Homaesil - Sadang) and 7780 (Suwon Women’s University - Sadang) in Suwon City, which frequently pass through without stopping due to the prohibition of standing, the number of seats is expected to increase significantly.

Also, two each will be added on major congested routes such as M4403 (Dongtan 1 - Gangnam Station) and M4108 (Dongtan 1 - Seoul Station) in Hwaseong, 5500-2 (Gwanggyo - Seoul Station) in Yongin City, 5300 (Galgot - Gangnam), and 1311 (Segyo - Gangnam) in Osan City, and 3102 (Sangnok-gu – Gangnam) in Ansan City.

※ See [Reference] for more details such as the number and timing of addition by route

The double-decker electric bus is a vehicle developed by the MOLIT and Hyundai Motor Company through national R&D* to expand the transportation capacity of metropolitan buses and reduce greenhouse gas emissions.

* (Participation) Hyundai Motor Company, TS / (Duration) Dec. 2017 – Jun. 2019 / (Research fund) KRW 3 billion from the government, KRW 3 billion from the private sector

It is getting attention as a next-generation metropolitan transportation that can respond to megatrends such as ‘hyper-metropolitanization’ and ‘carbon neutrality’ in the national sphere of life.

The increase in passenger transport capacity per unit (40 → 70 passengers) is expected to improve metropolitan transportation services and minimize road congestion, such as bus-only lanes in the city center.

It was developed as a low-floor bus that can board wheelchairs for challenged people and other vulnerable transportation users who previously had difficulties of boarding to use the metropolitan bus more conveniently.

Moreover, there is little noise or vibration by driving with an electric motor, and it provides passengers with pleasant and safe metropolitan transportation services based on several safety devices installed, such as Forward Collision Avoid Assist (FCA) and Lane Departure Warning (LDW).

In the case of converting one metropolitan bus into a double-decker electric bus, the social benefits are to reach KRW 4 billion a year as there is no emission of harmful substances at all, such as nitrogen oxides, etc.

Given the effect of these double-decker electric buses, the government has doubled the annual budget for supplying double-decker electric buses from KRW 12 billion (20 units) to KRW 24 billion* (40 units) this year and plans to expand a lot more next year to substantially increase the annual number of vehicle additions.

* KRW 16.2 billion of National budget subsidies (KRW 9.6 billion for double-decker bus, KRW 4.8 billion for electric bus, KRW 1.8 billion for low-floor bus), KRW 7.8 billion of Local governments' budget

[Convenience facilities and safety devices for the transportation vulnerable using double-decker electric bus]



Sliding ramp for wheelchair

Wheelchair boarding (up to two units)

Forward Collision Avoid Assist (FCA)

Minister Won of the MOLIT said, “To enhance the safety of metropolitan buses that run at high speed on motorways, we will significantly increase the number of double-decker electric buses with various advanced safety equipment installed, such as collision avoidance and will continue to expand metropolitan buses.”

Especially, Minister Won also mentioned, "Since June last year, we have expanded commuting operations by more than 400 times to supply additional 20, 000 seats and plan to supply additional 6,000 seats by March on routes that are still inconvenient due to non-stop passages."

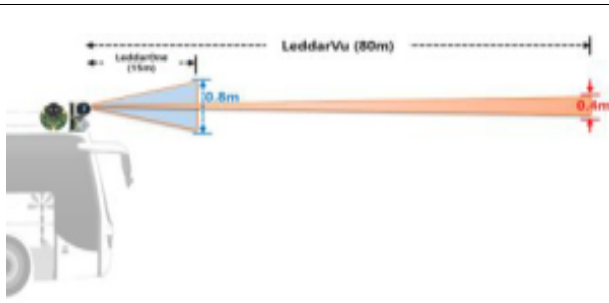
Lastly, “We will continue to actively improve the metropolitan bus service by supplying double-decker electric buses gradually, etc., to minimize the risk of accidents and anxiety caused by standees while striving for convenience for those who commute long distances daily,” he added.

Reference	Primary Safety Devices for Double-Decker Electric Buses
	<p>▶ FCA: Forward Collision Avoid Assist Collision avoidance and damage reduction through automatic braking in the event of a risk of forward collision</p>
	<p>▶ LDW: Lane Departure Warning Alerting the driver when the vehicle leaves its lane (Activated at speeds above 60 km/h)</p>
	<p>▶ EBS-VDC: Electronic Brake System-Vehicle Dynamic Control Securing driving stability by controlling motor output and brakes through vehicle posture detection while driving</p>



► **AVM: Around View Monitoring**

Preventing collisions with close-by pedestrians and vehicles through 360° around view using front, rear and side sensors and ultra-wide-angle cameras



► **Front Overheight Obstacle Warning System**

Pre-warning of upper side collision of vehicle by applying front sensor (Lidar sensor 3EA)