

OICA Round Table  
“The World Auto Industry: Situation and Trends”

**Green car market situation and  
policies in Russia**

Igor Korovkin  
Yuri Kravtsov

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## MOTOR VEHICLES ON ALTERNATIVE FUELS

The current parc of CNG-fueled commercial vehicles in Russia is about 86,000 units, or 1.5% of the total CV fleet. Until recently, no one OEM produced gas-fueled vehicles, all of them being retrofitted by a few small businesses. At present, CNG-fueled CVs are manufactured by 7 Russian OEMs belonging to either GAZ Group (GAZelle vans, Ural trucks, PAZ, LiAZ and KAVZ buses) or KAMAZ Group (KAMAZ trucks and NEFAZ buses). However, the total annual output of CNG-fueled vehicles still does not exceed 5000 units.

## HYBRID ELECTRIC VEHICLES (HEV)

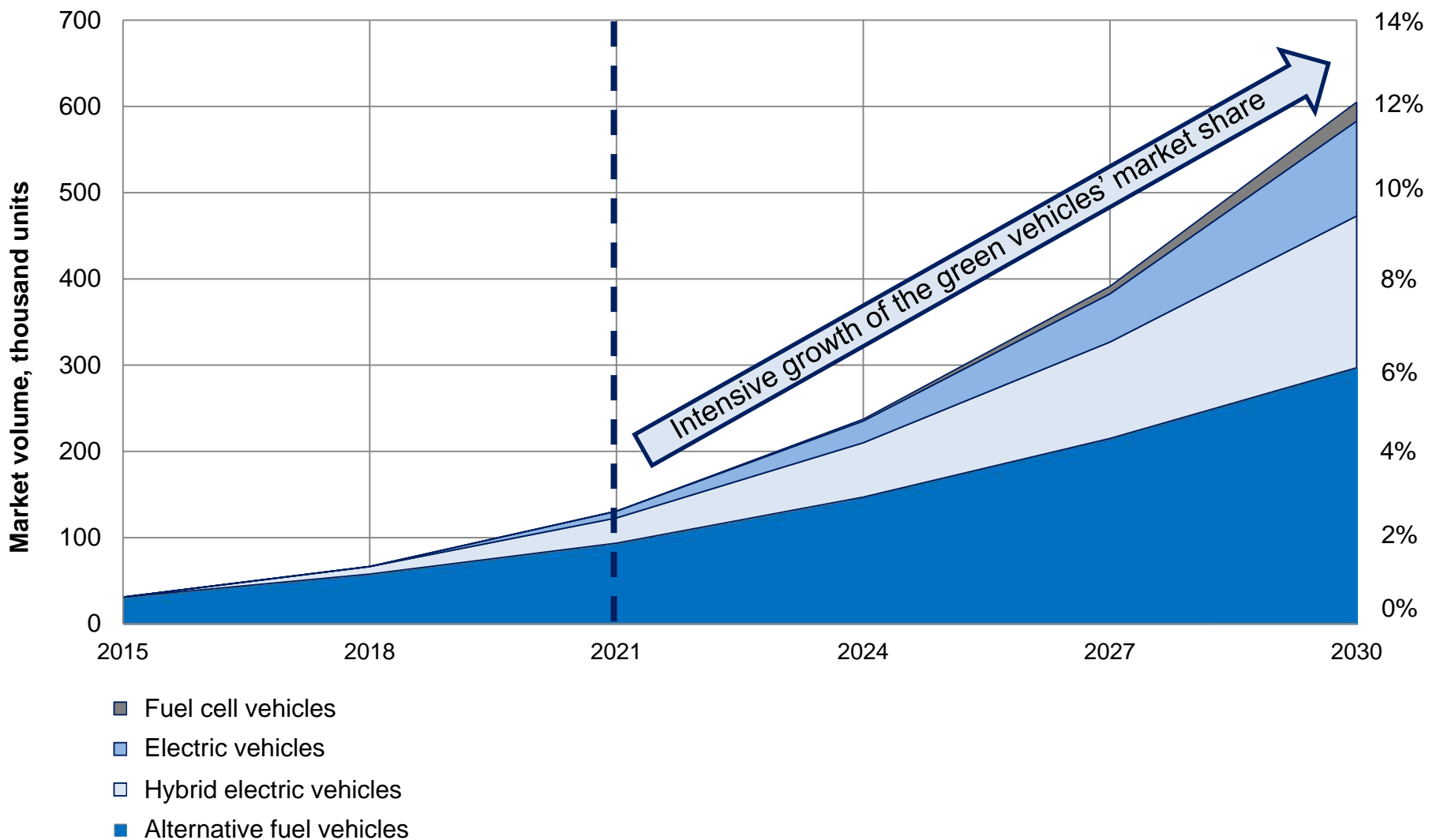
Conventional hybrids are mainly passenger cars. Their sales were 1307 units in 2013 and 631 units in January-August 2014. Eight brands are selling in this segment, the biggest share (over 80%) being captured by Lexus. All hybrids are imported ones.

*Source: AEB*

## PLUG-IN HYBRID ELECTRIC VEHICLES (PHEV) AND FULL BATTERY-ELECTRIC VEHICLES (BEV)

The Russian market of EVs charged from the electrical grid is in its first stages. The number of plug-in hybrids sold in Russia was only 6 units in 2013 and 193 units in January-August 2014, while the sales of all-electric cars were 118 units in 2013 and 72 units in 2014. The plug-in hybrids sold were mostly Infiniti-branded, and the sales of all-electric cars were divided between the i-MiEV model from Mitsubishi and the EL LADA from AVTOVAZ.

*Source: AEB*





Under a state order, R&D works are executed in 2014 – 2015 on the subject “Creation of over 6t GVW trucks and medium/large buses with gas engines of a new generation in perspective ecological classes”.

### Expected outcome

Prototype models of motor vehicles and gas engines providing compliance with at least Euro5 standards

The R&D job executors are OAR member companies: **NAMI Research Centre, GAZ Group, and KAMAZ.**



On the basis of YaMZ-530 diesel engine line, a new generation of gas engines with improved environmental and energy performances has been developed. Power output of the gas engine is kept on the level of the basic diesel engine, while fuel efficiency is 30% higher as compared to traditional gas engines.



**NAMI Research Centre and KAMAZ are carrying R&D works on the subject “Creation of an AWD (6x6) hybrid electric truck to comply with perspective international requirements for ecology, safety, energy saving and scrappage”.**

## Basic technical specification



**Front axle electric motor YASA-400**



**ZF Traxon Hybrid robotized transmission with 120 kW electric motor**

**The vehicles being developed will ensure no less than 15% fuel saving in unfavourable climatic and road conditions, as well as improved stability and flotation ability on slippery roads.**

Type	All-wheel drive vehicle 6x6
Ecological class	Euro5
Maximum speed, km per hour	110
Powertrain type	<ul style="list-style-type: none"> <li>- Front plug-in hybrid drive</li> <li>- Rear drive with ZF Traxon Hybrid transmission equipped with 120kW electric motor and double clutch</li> </ul>
Fuel	Diesel/ alternative
Fuel saving, no less than	15%
Main functions of the hybrid powertrain	<ul style="list-style-type: none"> <li>- Energy recuperation at braking and running ICE</li> <li>- Driving in the “electric” mode</li> <li>- Short-time power boost in heavy-duty conditions</li> <li>- “start-stop” function</li> </ul>
Vehicle curb weight	8 850
Load on the fifth wheel (saddle), kg	17 000
Gross vehicle weight (GVW), kg	26 000
Gross combination weight (GCW), kg	46 000

Type of base model	 EL LADA cars	 M2 bus	 BRONTO cargo platform	 PAZ-3237 bus	 LiAZ-5292 bus	 Motive unit for artic	 TROLZA-5265 trolley buses
Wheel drive type	Front			Rear			
GVW, kg	1750	3300	1750	10250	1800	3500	16000
Payload, kg/passengers	4+1	13+1	400	55/17+1	106/24+1	1500	100/18
Overall dimensions, mm:							
-length	4040	5540	4400	7885	11990	1200	11700
-width	1700	1760	1677	2505	2500	1700	2500
-height	1500	1885	1800	2815	2880	1700	3410
Wheel base, mm	2460	3300	2424	3650	2100	2700-3000	3200
Wheel track, front/rear, mm	1400	1700/1560	1365	1940/1690	2100/1826	1400	2050/1840
Max. speed, km/h	140	70	60	95	75	75	60 – 70
Cruising range per cycle, km	150	80 – 100	150 – 200	Up to 220	Up to 250	Up to 250	Maneuver without trolley line 800 m
Time of acceleration to 30 km/h. seconds	6.0	10.0	12.0 – 15.0	13.0	15.0	15.0	7.5
Storage battery:	Li-Ion type						
- nominal voltage, V	240 (480)	480	480	480	480	480	560
- capacity, kW-h	60	40	50	270	510	110	5
- mass, kg	120	200	240	1340	2540	550	25
Electric drive:	contactless, alternating current						
- Rotation frequency (max), min <sup>-1</sup>	3000						
- nominal power, kW	11	22	15	30×2	55×2	22	37×2
- mass, kg	35	65	45	100×2	165×2	65	120×2
Type of voltage power converter	3-phase voltage inverter (VI)						
- mass, kg	10	10	10	20	35	10	25

## MEASURES IMPLEMENTED

- In 2011, a plant for production of Li-ion batteries of 400m A-h capacity was put into operation in the city of Novosibirsk.
- As from 1 February 2014, import tariffs for electric vehicles are cut down from 19% to zero.
- By the year-end 2014, the number of charging stations for electric vehicles in Moscow is to be increased to 150 units from 28 units in the beginning of the year.
- New generation EV charging stations, for both slow and express charge, complying with IEC 61851 standard and EN 60439 norm, have been developed and put to test work in Moscow and Stavropol (South European Russia).

## MEASURES PLANNED

In August 2014, Government of the Russian Federation adopted an integrated plan of actions to support production and use of green vehicles. The plan provides for the following measures:

- Abatement of import duties on components of electric vehicles to zero level as from 2015 for the period of 2 or 3 years.\*
- Tax breaks, preferential bank loans, and infrastructural privileges for green vehicle manufacturers.\*
- Exemption of green vehicle owners from transport tax.
- Allowed driving of electric vehicles in traffic lanes dedicated to public transport and reduced fares on toll roads.
- Free parking, etc.

\* a measure supposed to be introduced in countries of the Eurasian Economic Community



- Extension of works on standardisation of requirements for green cars and their components in the frames of international standardising organisations ISO and IEC; harmonisation of existing national and regional standards and norms.
- Accelerated development and adoption of UN rules and global regulations in the frames of WP29.



**THANK YOU FOR YOUR ATTENTION**