Support measures for NGV market in Russian Federation

Natural Gas Vehicles Association of Russia

Vasiliy Zinin
Alternative Gas fuels: production chains

- CNG Station
- Mobile CNG Station
- LNG Processing Plant
- LNG Station
- Refining
- LPG Station

Customers
- Transportation
- Households

LNG
- Methane

CNG

LPG
- Propane-Butane

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Why is methane priority alternative fuel in Russia?

<table>
<thead>
<tr>
<th>International context</th>
<th>Economy</th>
<th>Ecology</th>
<th>Social policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia is a global leader for natural gas reserves</td>
<td>CNG is 3 times cheaper than gasoline and diesel fuel</td>
<td>Lower sulfur and nitrogen compounds emissions, and CO2 emissions as well</td>
<td>Option to hold tariffs for passenger transportation</td>
</tr>
<tr>
<td>Changing environment of global gas market</td>
<td>There are not any prerequisites for declining gasoline prices</td>
<td>Absence of PM emissions that absorbs harmful substances and causes diseases</td>
<td>Increasing competitiveness of Russian goods by reducing logistics costs</td>
</tr>
<tr>
<td>Pricing mechanism (local natural gas price is regulated and does not depend on foreign markets)</td>
<td>Methane cannot be stolen from the vehicle</td>
<td>No fuel spills during transportation and storage</td>
<td>Methane is attractive cheap alternative fuel for households</td>
</tr>
</tbody>
</table>
Structure of NGV market

Types of infrastructure development:

- **Network** – covers city area with limited logistics routes
- **Trunk** – covers main logistics routes between cities and regions
- **Point** – for local infrastructure with limited logistics (seaport, career or agricultural ground)

<table>
<thead>
<tr>
<th>Type of infrastructure</th>
<th>Market segment</th>
<th>Type of fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>River</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Railroad</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aircrafts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private cars</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main tractors</td>
<td>Agricultural machinery</td>
<td>CNG</td>
</tr>
<tr>
<td>Garbage trucks &amp; construction machinery</td>
<td>CNG</td>
<td></td>
</tr>
<tr>
<td>Quarry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural machinery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communal machinery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communal machinery</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Zone of subsidizing

Historically CNG infrastructure grows firstly, then it comes LNG-segment. In case of complex approach for regional development, multi-fuel approach should be used to get synergy and cover all segments.

Nowadays main governmental support measures relates to road transport.
NGV market volumes

There are 587 facilities of gas filling infrastructure in the Russian Federation today, while 364 of them belong to the Gazprom Group.

587
Total number of gas filling infrastructure facilities in the territory of the Russian Federation

364
Gas filling infrastructure facilities belong to Gazprom Group

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NGV market statistics

NGV Sales Volumes

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Gazprom</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>560</td>
<td>480</td>
<td>79</td>
</tr>
<tr>
<td>2017</td>
<td>610</td>
<td>528</td>
<td>82</td>
</tr>
<tr>
<td>2018</td>
<td>703</td>
<td>598</td>
<td>112</td>
</tr>
<tr>
<td>2019</td>
<td>972</td>
<td>779</td>
<td>204</td>
</tr>
<tr>
<td>2020</td>
<td>1,092</td>
<td>842</td>
<td>267</td>
</tr>
<tr>
<td>2021F</td>
<td>1,325</td>
<td>945</td>
<td>380</td>
</tr>
</tbody>
</table>

NGV fleet structure, thousands

- Individual cars: 137,3 (61%)
- LCV: 48,8 (21%)
- Buses: 27,7 (12%)
- Heavy trucks: 12,1 (5%)
- Communal machinery: 0,7 (1%)

Total: 226,6
NGV fleet dynamics

Sales of plant-manufactured natural gas vehicles on the market of the Russian Federation
Vehicle conversion within the framework of Gazprom PJSC marketing programs and State Program for Subsidizing Transport Conversion to Methane*

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales of plant-manufactured natural gas vehicles</th>
<th>Vehicle conversion within the framework of Gazprom PJSC marketing programs and State Program for Subsidizing Transport Conversion to Methane*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1,453 Pcs.</td>
<td>6 Pcs.</td>
</tr>
<tr>
<td>2016</td>
<td>4,077 Pcs.</td>
<td>1,613 Pcs.</td>
</tr>
<tr>
<td>2018</td>
<td>7,548 Pcs.</td>
<td>5,248 Pcs.</td>
</tr>
<tr>
<td>2019</td>
<td>9,500 Pcs.</td>
<td>10,195 Pcs.</td>
</tr>
<tr>
<td>2021</td>
<td>16,701 Pcs.</td>
<td>11,700 Pcs.</td>
</tr>
<tr>
<td>2021 (forecast)</td>
<td>17,676 Pcs.</td>
<td>17,676 Pcs.</td>
</tr>
</tbody>
</table>
Emerging market problem

27 «pilot» regions

Coordinating role of regional authorities
KEY ACTIVITIES FOR NGV MARKET DEVELOPMENT

**INFRASTRUCTURE**

EXPANDING GAS FILLING INFRASTRUCTURE
- Stationary infrastructure
- Mobile infrastructure
- Servicing terminals, bunkering

**VEHICLE FLEET**

EXPANDING NATURAL GAS VEHICLE FLEET
- Expanding production and range of plant-manufactured vehicles
- Vehicle conversion to natural gas

**CONSUMERS**

STIMULATING DEMAND FOR GAS ENGINE FUEL
- Demand promotion measures
- Marketing programs
- Promotions
- Subsidization

**LEGISLATION**

INTERACTING WITH GOVERNMENT AUTHORITIES
- Updating the industry regulatory environment
- Expansion of market state support measures
- Promotion of sectoral interests when interacting with federal and regional authorities

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Support of the Russian Government

**GAS ENGINE FUEL MARKET DEVELOPMENT SUBPROGRAM**

- **Subsidies for construction of CNG and LNG gas filling infrastructure facilities**
- **Subsidies for vehicle conversion**

<table>
<thead>
<tr>
<th>Year</th>
<th>CNG</th>
<th>LNG</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019–2020</td>
<td>5.6 b</td>
<td>1.273</td>
<td>14.3 b</td>
</tr>
</tbody>
</table>

**EXPECTED EFFECTS**

- **Consumption of natural gas as gas engine fuel in 2024**: 2.72 bcm
- **Number of GEF retail facilities in 2024**: 1,273

**TRANSPORT MACHINE PRODUCTION SUBPROGRAM**

- **Subsidies for vehicle manufacturers**

<table>
<thead>
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<th>Year</th>
<th>CNG</th>
<th>LNG</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019–2020</td>
<td>5.8 b</td>
<td></td>
<td>9.9 b</td>
</tr>
</tbody>
</table>

**EXPECTED EFFECT**

- **Number of natural gas vehicles manufactured from 2019 to 2024**: 40,010

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Financial Support for Market Players

Supply Side

30% refund for CNG station CapEx (for 27 regions)

0,6-0,8 mln USD for LNG station located on the main highways

Demand Side

60% refund for CNG retrofit cost

Subsidizing the price difference between gasoline and NGV models produced in Russia
Plans of infrastructure development

27 SUBSIDIZED REGIONS
1. Belgorod region
2. Vladimir region
3. Volgograd region
4. Voronezh region
5. Moscow
6. St. Petersburg
7. Krasnodar Territory
8. Kursk region
9. Leningrad region
10. Lipetsk region
11. Moscow Region
12. Nizhny Novgorod region
13. Novgorod region
14. Oryol Region
15. Perm Territory
16. Republic of Adygea
17. Republic of Bashkortostan
18. Republic of Tatarstan
19. Rostov region
20. Saratov region
21. Stavropol Territory
22. Tver region
23. Tula region
24. Udmtur Republic
25. Ulyanovsk Region
26. Chelyabinsk region
27. Republic of Chuvashia

5 REGIONS WITH ACCELERATED DEVELOPMENT OF GAS ENGINE FUEL MARKET
1. Rostov region
2. Belgorod region
3. St. Petersburg
4. Leningrad region
5. Kaliningrad region

10 KEY HIGHWAY PROJECTS
1. M-10 Russia
2. M-11 Neva
3. M-4 Don
4. M-1 Belarus
5. M-7 Volga
6. M-5 Ural
7. Central Circular Road
8. A-181 Scandinavia
9. A-180 Narva
10. Europe – Western China International Transport Highway

CNG Automobile CNG filling stations
250 km 250 km 250 km 250 km

Cryogenic gas filling stations
400 km 400 km 400 km 400 km

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Effect of NGV market development

**ECONOMY EFFECT**

*TRUCK TRACTOR CASE STUDY*

<table>
<thead>
<tr>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>-160.0</td>
<td>182.6</td>
<td>-216.7</td>
<td>-298.5</td>
<td>-436.2</td>
</tr>
</tbody>
</table>

**REDUCING FUEL COSTS**

-1,29 bln $

**Average fuel price in 2020.**

<table>
<thead>
<tr>
<th>NATURAL GAS</th>
<th>DIESEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.26 $/м³</td>
<td>0.65 $/л</td>
</tr>
</tbody>
</table>

**Fuel consumption per 100 km**

<table>
<thead>
<tr>
<th>NATURAL GAS</th>
<th>DIESEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>48.1 м³</td>
<td>37 л</td>
</tr>
</tbody>
</table>

**Fuel costs per 1 km**

<table>
<thead>
<tr>
<th>NATURAL GAS</th>
<th>DIESEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.12 $</td>
<td>0.24 руб.</td>
</tr>
</tbody>
</table>

**Fuel costs economy per 100 000 km**

-4,08 bln $

**2024 г.**

-13,53 bln $

**2030 г.**
Thank you for attention!

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