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PVN Reg. No. LV40103620636
Legal address: Talsu road 31 k-17 -34, Jurmala, LV-2016, Latvia
Office address: Matisa street 69-22, Riga, LV -1009, Latvia

Riga, December 4, 2020 No. SME/LNG/3

Market study

Manufacturing and supply of Liquefied natural gas (LNG) storage and supply systems for railway (diesel locomotive) application

1. Justification of the market study

Market study is carried out in accordance with the **Grant Agreement** signed between the **Executive Agency for Small and Medium-sized Enterprises** and **SIA "DiGas"** for implementing the project No. 784620 „Novel dual-fuel system for modernisation of air polluting diesel locomotives to clean and efficient gas operation — NYSMART".

2. Purpose of the market study

To determine the most economically advantageous tender offer for the manufacturing of 4 (four) Liquefied natural gas (LNG) tanks and supply systems with approximate volume 1000l each for railway application for mainline diesel locomotive dual fuel conversion within project No. 784620 – NYSMART.

3. The essential conditions for the service providers (Applicants)

3.1. Applicant is not declared as insolvent, is not suspended or Applicant's economic activity is not terminated, there are no proceedings for the Applicant's bankruptcy and to contract performance expected expiry date of the Applicant will not be eliminated, the Applicant has no tax debt;
3.3. The place of the services: not specified;
3.5. The place of delivery: Riga, Latvia.
3.4. The service is provided through the Applicant's resources;
3.5. Payment details: Pre-payment available;
3.6. The applicant's offer must be valid for not less than 90 days from the time of submission.
3.7. The service the Applicant undertakes: Manufacturing and supply of 4 (four) Liquefied natural gas (LNG) storage and supply systems for railway application that meets requirements of the Technical specification as laid out below.

4. **Technical specification requirements for Applicants: Annex 1.** Requirements for 1 (one) Liquefied natural gas (LNG) storage and supply system for railway application is presented in Annex 1. Price offer has to presented for 4 (four) Liquefied natural gas (LNG) storage and supply systems for railway application.

5. Procedure for submission of applications:

5.1. An applicant shall submit an offer in the English language in a free form until **December 21, 2020, at 17:00**

5.2. Submission form: paper-based in the company's registered office (69-22 Matisa street, Riga, LV-1009, Latvia) or by e-mail: info@digasgroup.com

5.3. Applicant in the tender must include the following information:

- Applicant's details and contact information (name, phone, address, e-mail);
- Price offer for 4 (four) Liquefied natural gas (LNG) storage and supply system for railway application
- Price offer shall be expressed in euros, showing the bid price separately excluding VAT and the total amount of the offer with VAT;
- The price offer should include all costs that may occur during the manufacturing and delivery of the LNG storage and supply systems (administrative, transport, materials, etc.). Additional costs will not be made.
- Time for manufacturing of the goods, including the delivery time.

5.4 Evaluation criteria for offers: the best value for money principle will be applied where only the offers that fully correspond to the technical specification will be considered.

5.5 The contract will be awarded to the Applicant that fully satisfies the requirements of the technical specification and the offer of which has been recognized as providing the best value for money.

6. Selection criteria for the best value for money principle:

Nr.	Offer evaluation criteria	Explanation of the offer evaluation criteria	A maximum obtainable score under the criteria
1	Financial offer (w/o VAT)	To successfully implement the project activities within the planned time and budget, DiGas will consider price as the most important criteria. The lowest price offered will receive the highest score. The financial offer score of a Participant will be calculated in the following way: Financial offer points = the lowest offered price / Participant's offered price * 60	60
2	Manufacturing time of the goods	To successfully implement the project activities within the planned time and budget, DiGas will consider manufacturing time as the second most important criteria. The shortest manufacturing time will receive the highest score. If the manufacturing time is presented in form X to Y weeks, then for	40

		evaluation purposes the lowest number of weeks (x) will be used. The manufacturing time score of a Participant will be calculated in the following way: Manufacturing time points = the shortest manufacturing time (weeks) / Participant's offered manufacturing time (weeks) * 40	

"DiGas" Ltd.
Chairman of the board, Petro Dumenko

Design for a 1 (one) LNG tank system	
Tank system type	Horizontal mounted LNG Storage tank(s) system. 1000 liter vessels are preferred. In case a single 1000 liter vessel is not available, it can be substituted by 2 (two) vessels of around 500 liters each if the two fulfill the requirements of volume and installation space restrictions.
Installation space – restrictions: height	900 mm ±7%
Installation space – restrictions: width	900 mm ± 7%
Length	Length with plumbing– 2500 mm, Length without plumbing – 2300mm (±5%)
Gross Volume	1000l ±10%
Usable Volume	900l ±10%

Operation Specififcation	
Nominal pressure	12 Bar or more
Max. gas mass flow to engine	250 kg/h or more
Max. pressure loss to engine	0,5 Bar
Min. supply pressure at engine	9 Bar
min. Hold Time	5 days
Nominal coolant temperature	80C
Max. Gas temperature	80C

Plumbing	
Pressure Build Up system	To be included
Aux Drain Manual valve	To be included
Final pressure regulator	To be included
Filter	To be included
Fill / Vent receptacle cover	To be included
Required components	
Economizer	To be included
Primary Pressure Relief Valve	To be included
Secondary Relief Valve	To be included
Automatic Shutoff Valve	To be included

Fill recceptacle	To be included
Vent Recceptacle	To be included
Pressure Gauge	To be included
Manual Vent Valve	To be included
Manual Shutoff Valve	To be included
Double Check valve	To be included
Fill Check valve	To be included
Excess flow valve	To be included
Heat exchanger	To be included

Connections	
Connection gas to truck	To be included
Connection boil off truck	To be included
Connection Coolant IN/OUT	To be included
Electrical connector	To be included

Electrical parts	
Pressure sensor	To be included
Temperature sensor	To be included
Fill / Vent receptacle cover sensor	To be included
Shutoff valve control	To be included
IP rating	IP67
Operational temperature min	-40
Operational temperature max	+80
Supply volteage	24VDC

Additional information

ECE R110 compliance of the LNG vessel, manual valves, check valves, pressure relief valves, excess flow valves, fill receptacle, automatic shut off valves is required.

ANNEX 2
Design examples and installation considerations

Figure 1, Figure 2, and Figure 3. LNG storage and supply system installation example on a mainline locomotive (4 x 1000l LNG tanks)

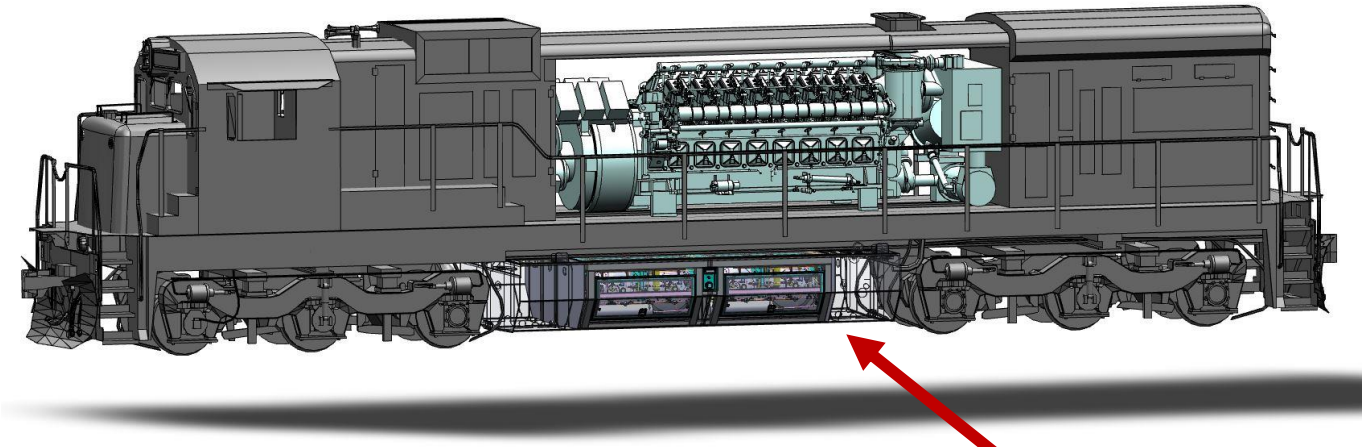

Figure 2. LNG storage and supply system installation example (4 x 1000l LNG tanks), outer view

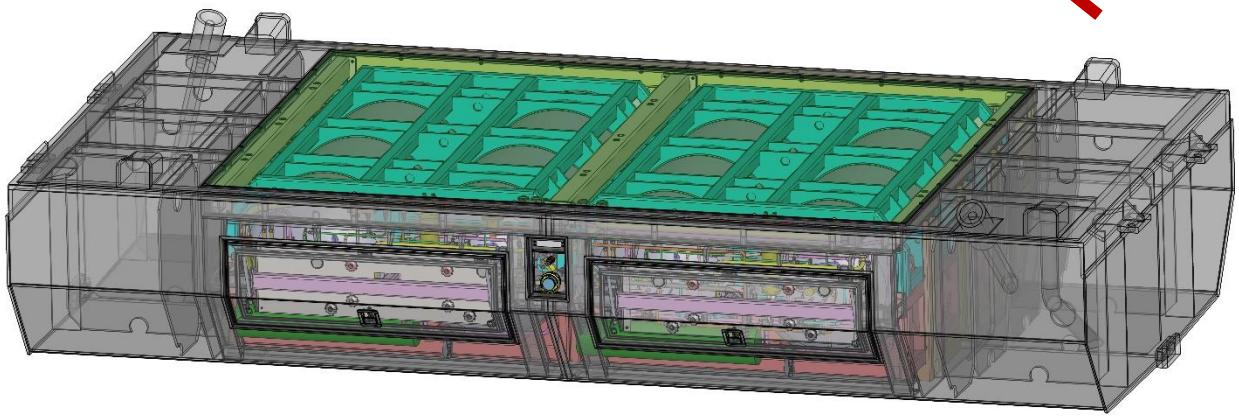

Figure 3. LNG storage and supply system installation example (4 x 1000l LNG tanks), inner view