



LIETUVOS GELEŽINKELIAI

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depas

LNG FOR RAIL- LNG HYBRID SHUNTING LOCO

Bergen, 2018

COMPANY PROFILE:

- MAINLINES LOCOS
- SHUNTING LOCOS
- RAILCARS FOR MAINTENANCE
- FREIGHT AND PASSENGER WAGONS
- COMPONENTS FOR ROLLING STOCK

1.

PRODUCTION

2.

OVERHAUL

3.

MODERNIZATION



MAIN FIGURES

EMPLOYERS
1050

ANNUAL
TURNOVER
~50M EUR

SHAREHOLDER –
LITHUANIAN
RAILWAYS 100%

EXPERIENCE

IMPLEMENTED
15 DIFFERENT
PROJECT

PRODUCED
75

MODERNIZED
100



PROJECT ACTUALITY:

Nowadays most part of industrial locomotives are diesel powered, business still cannot propose alternative solutions to fulfill high requirement for exhaust emission, we need to create modern solution and solve issue now and for future

WORLD TRENDS IN TRANSPORT SYSTEM



LNG powered vessels number going up:

- 2013 – 50 units,
- 2017 – 110 units.



- VW group By 2025, plans to produce 1 million electric cars, TESLA the same by 2020.
- Norway plans to ban diesel and petrol engines in light transport by 2025

OUR TASK:

VLRD as leading project partner should create and integrate in locomotive high-efficient and ecological hybrid power traction system

1.

WITH LNG ENGINE

2.

WITH ENERGY
STORAGE SYSTEM

3.

SYSTEM CONTROL
& MONITORING

PROJECT DURATION—

27

months

PROJECT RELEVANCE



EU requirements to reduce air pollution



Gothenburg protocol obligate EU members till 2020 reduce:
Nox – 42 %, SO₂ – 42%, solid particles– 22%



Innovation design in Railways using „green“ technology



EU harbors, terminals
Operates about 9.000 shunting locos

Most part of them is diesel powered
Most of harbors located in city areas



Performance enhancement for Lithuanian and other EU companies

PROJECT SUPPORT:

**Government
recognizes
Project as
strategical**

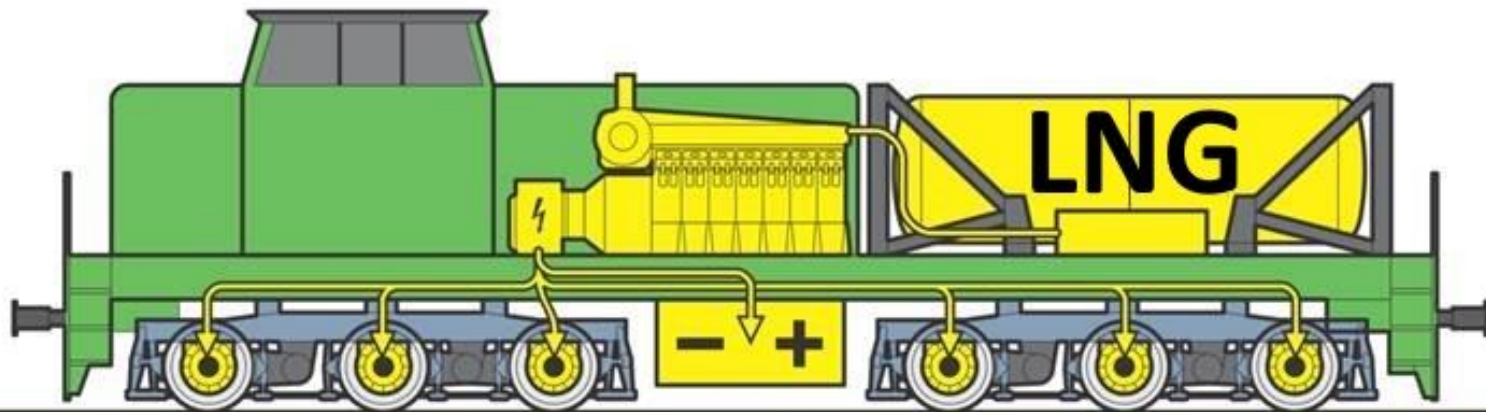
**Finance
confirmed by
end-
Customer**

**First Customer
– state owned
company
Lithuanian
Railways**

SHUNTING LOCO OF THE FUTURE

LOCOMOTIVE WITH HYBRID TRACTION SYSTEM, THAT CONSIST OF LNG ENGINE AND ENERGY STORAGE SYSTEM

WHY LNG?



1. Not possible to construct catenary in harbors and cargo terminals
2. Expenses for fuel less **20 %**
3. Emission of solid particles– **0**
4. NOx reduction– **85 %**
5. CO2 reduction– **25 %**
6. LNG engine – less noise

TODAY:

We make new steps every day

1.

TECHNICAL DESCRIPTION

2.

**PREPARATION OF LOCO FOR
MODERNIZATION IN PROCESS**

3.

BASE DRAWINGS

4.

**DESIGNING OF TRACTION
CONTROL SYSTEM**

OPEN POINTS:

To establish relationship with LNG system producers and together find solutions

1.

**SUITABLE LNG ENGINE
WITH ALTERNATOR (700kW)**

2.

**TRACTION AND AUXILIARY SYSTEMS
INVERTERS**

3.

**LNG ONBOARD STORAGE AND
SUPPLY SYSTEM**

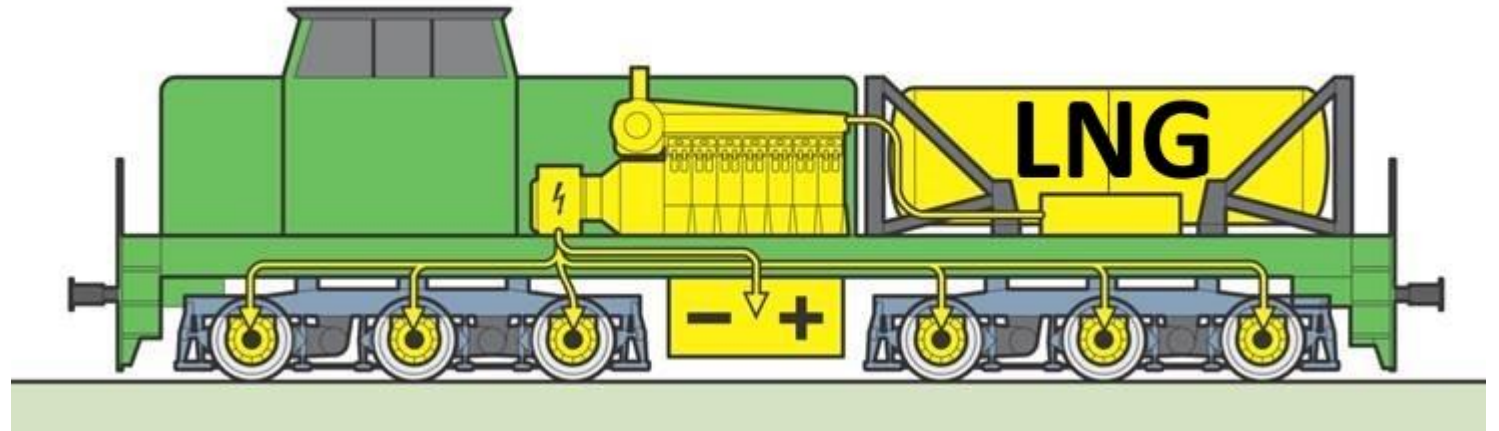
4.

**PROJECT AUDIT FOR SAFTY
ASPECTS**

5.

**COMMON ENGINEERING JOB,
SHARING INFO AND TRUST**

PROJECT GAIN FOR PARTNERS



**POSSIBILITY TO TEST
PRODUCT IN RAILWAY
APPLICATION**

**VLRD GIVES THE TEST
PLATFORM ON
LOCOMOTIVE BASE**

**UNIQUE OPPORTUNITY
TO ENTER “1520”
MARKET**

**IMPROVING ENGINEERING
EXPERIENCE IN NEW FIELD**

**PROJECT IMPLEMENTATION
WITH WELL-KNOWN IN
BALTICS RAILWAY
COMPANY**

**EXPORT POSSIBILITIES
IN FUTURE**

