LIETUVOS GELEŽINKELIAI

UAB
VILNIAUS LOKOMOTYVŲ REMONTO
depas

DESIGN OF INNOVATIVE LOCOMOTIVE POWERED BY LNG

LNG FOR RAIL

Klaipeda, 2017 m.


LITHUANIA
CAN BE No.1 IN EUROPE

PROBLEM:

Nowadays all Lithuanian locomotives are diesel powered, Lithuanian business cannot propose alternative solutions to fulfill high requirement for exhaust emission, we need to create modern solution and solve issue

OUR TASK:

To 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**
4. **REDUCE AIR POLLUTION**
   Locomotives in services in city areas (Sea ports, terminals and etc.)

PROJECT RELEVANCE

EU requirements to reduce air pollution

Gothenburg protocol obligate EU members till 2020 reduce:

Nox – 42 %, SO_2 – 42%, solid particles– 22%

Innovation design in Lithuania 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 companies

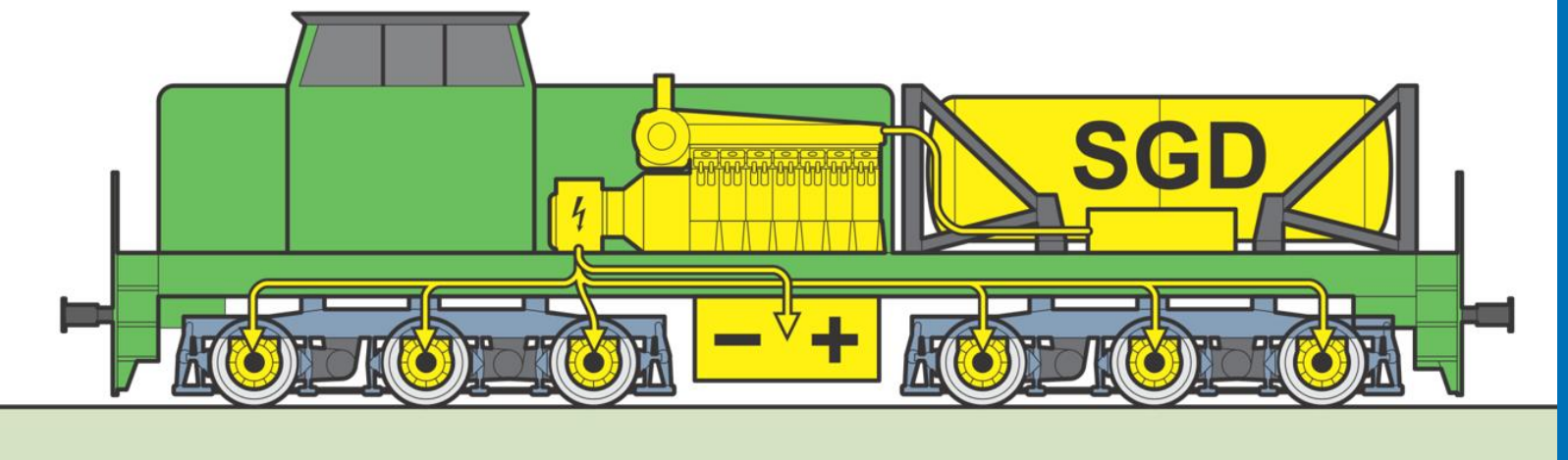
PROJECT DURATION–

27
months

SHUNTING LOCO OF FUTURE

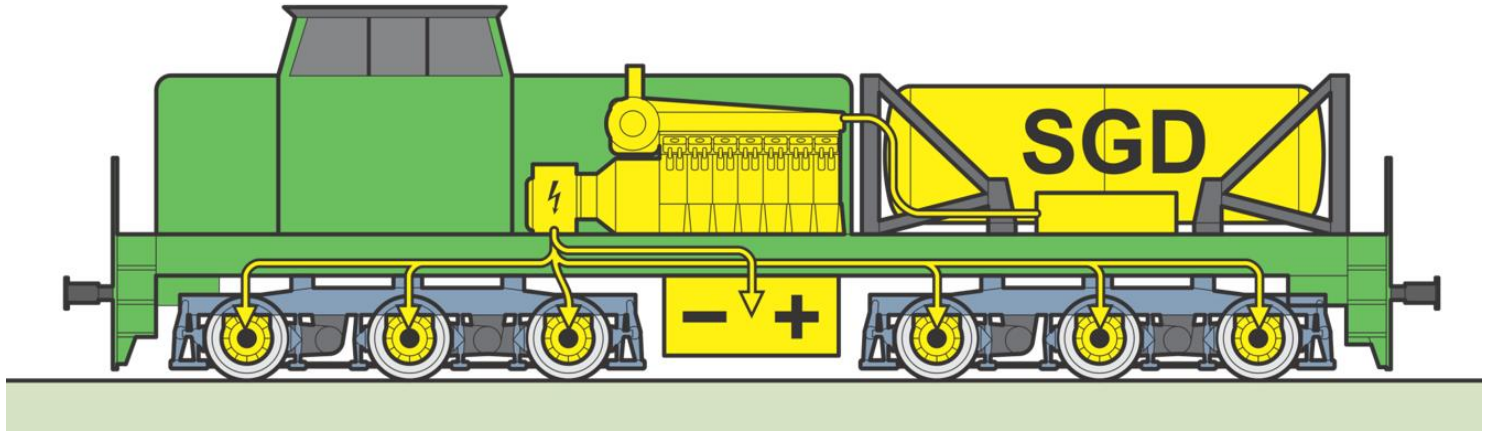
LOCOMOTIVE WITH HYBRID TRACTION SYSTEM, THAT CONSIST OF LNG ENGNE AND ENERGY STORAGE SYSTEM

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

PROJECT GAIN FOR LITHUANIA



Enforcing the EU's commitment to an alternative fuel and pollutant emissions strategy

Lithuanian scientists participation in project

Promotion of LNG terminal services

Improvement of the ecological status of Klaipeda Seaport

First locomotive designed in Lithuania

Export possibilities in future

WORLD TRENDS IN TRANSPORT SYSTEM

LNG powered vessels number going up:

- 2013 – 50 units,
- 2017 – 90 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

TODAY:

We make new steps every day

1. TECHNICAL DESCRIPTION
2. BASE DRAWINGS
3. DESIGNING OF TRACTION CONTROL SYSTEM
4. STILL LOOKING FOR PROJECT PARTNERS