

**NEW IVECO STRALIS NP 460  
PURE POWER**



### Japan's Isuzu testing LNG-powered truck



Japan's Isuzu Motors has started a full-fledged public road demonstration of its first large-scale liquefied natural gas (LNG)-powered truck in Japan.

As part of the demonstration, the vehicle manufacturer said in a recent statement it held an opening ceremony for the LNG fueling station and the departure ceremony of the LNG truck in Osaka.

Image courtesy of Isuzu.

City on Friday, June 1.



**Scania introduces a 410 hp ethanol engine for long-distance applications**



Scania is launching an alternative fuel initiative for the new generation of trucks, with the world premiere of a new 13-litre gas engine at the Ecomondo trade fair in Rimini, Italy.

# IEA AMF Annex: HDV Performance Evaluation – Project Overview

**VTT**

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10/10/2019 VTT – beyond the obvious

# HDV Performance Evaluation – A project within IEA Advanced Motor Fuels TCP<sup>\*)</sup>

- Combines experimental work, modelling and forecasting
- Partners within AMF are:
  - Canada
  - Finland (VTT as coordinator for the project)
  - Chile
  - Japan
  - Korea
  - Sweden
- Each participating country performs research independently within commonly agreed research plan
  - Outcome: consolidated research report and summary with key messages
- Duration 10/2018-10/2020
- Estimated overall budget for the six partners is app. 610,000 €

<sup>\*)</sup> Technology Collaboration Programme

# Motivation

- On an average, trucks account for some 25 % of energy use and CO<sub>2</sub> emissions in road transport.
- Heavy-duty trucks is one of the most challenging segment to electrify due to the high range demand and high gross vehicle weight.
- CO<sub>2</sub> emissions from HDVs have to be brought down by improvements in energy efficiency and the use of low-carbon fuels.
- E.g., the European Union has set an indicative target of 30 % reduction of tailpipe CO<sub>2</sub> emissions of HD vehicles by 2030 compared to level of 2019.
- Many other regions in the world have similar CO<sub>2</sub> or fuel efficiency targets for HD vehicles.

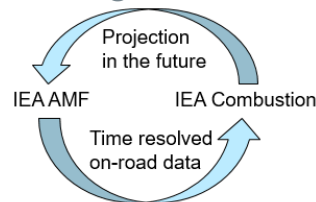
# HDV Performance Evaluation – Annex

## Purpose and Objectives

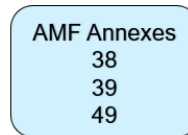
- The purpose and objective of this project is to demonstrate and predict the progress in energy efficiency of heavy-duty vehicles, thus generating information to be used by transport companies, those procuring transport services and those forming transport policy.
- The project will encompass newest diesel technologies representative of different markets, but also alternative fuelled vehicles and advanced powertrain options. In addition, alternative vehicle configurations such as High Capacity Transport (HCT) vehicles will be evaluated.
- This project forms a basis for the understanding the performance of best available diesel and alternative fuelled vehicles of today, while also making projections towards 2030.
- The project is a continuation of the series of activities comparing various powertrain and fuel options for heavy-duty vehicles, i.e., AMF Annexes 37, 38, 39, 46 and 49

# HDV Performance Evaluation – Annex Outcome

- The project is carried out in cooperation with IEA Combustion TCP
  - Combustion is focused on engine combustion research
  - AMF will provide measured data to Combustion
  - Combustion will help to make projections into the future



Legacy Vehicle Performance



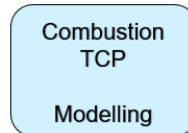
Emissions performance and energy consumption in past

New Annex



State-of-the-art emissions performance and energy consumption

Future Projection



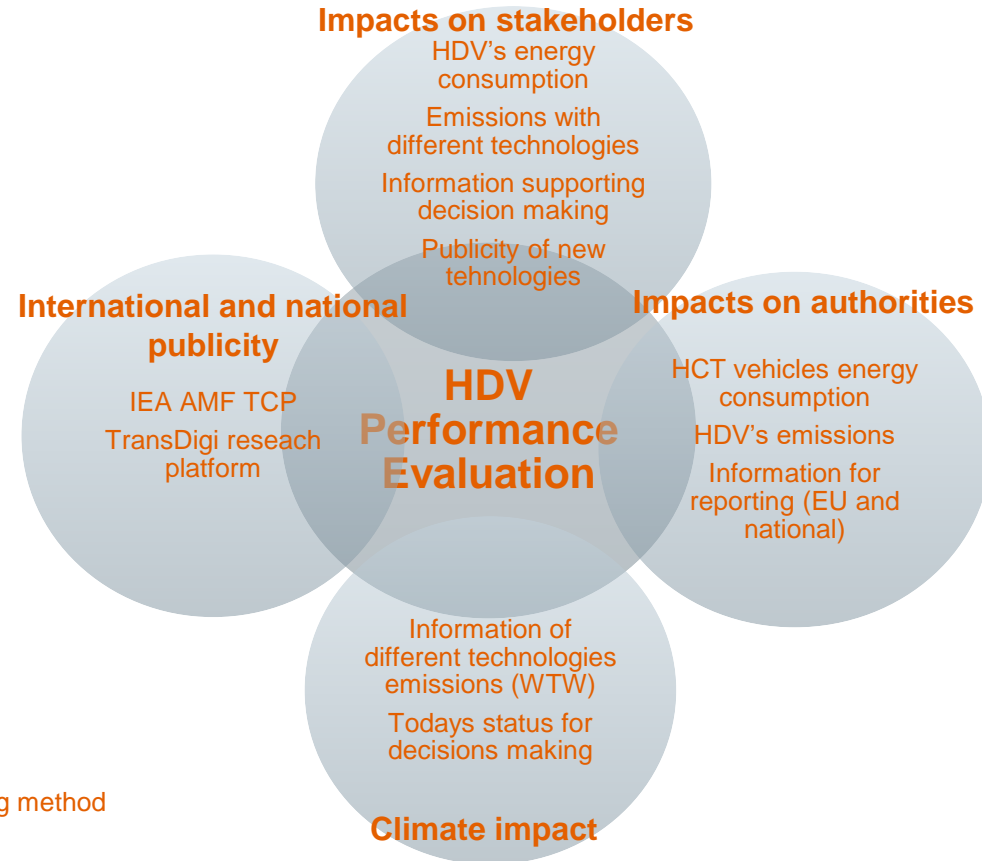
Emissions performance and energy consumption with future fuels, ICE concepts and technologies



Future potential of ICE powered HD Vehicles

# HDV Performance Evaluation – Finnish subproject

- The duration of the Finnish subproject is 01/2019-10/2020
- Project partners within Finland are
  - Gasum (energy company)
  - Neste (energy company)
  - Posti (Finnish Post)
  - Proventia (supplier of HDV EAT systems)
  - St1 (energy company)
  - Traficom (Transport authority)
  - VTT (coordinator)



\*Portable Emission Measurement System

\*\* ISC = In-service conformity, Euro VI legislative in-service testing method

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# HDV Performance Evaluation – Finnish subproject

## Five work packages

1. Chassis dynamometer measurements
  - Diesel trucks, spark-ignited LNG trucks, dual-fuel LNG truck, ethanol truck
2. Field monitoring of NO<sub>x</sub> concentrations and fuel consumption
  - Continuous monitoring of NO<sub>x</sub> concentrations and evaluation of HCT fuel consumption as a function of payload with different vehicle-trailer configurations
3. Emissions and fuel consumption measurements on-road with PEMS\* equipment
  - Euro VI ISC\*\*-testing and special route
4. Development of a simulation tool for HCT-vehicle energy consumption evaluation
  - Modelling of energy consumption of different HCT vehicle configurations
5. Project coordination
  - Overall project coordination
  - Overall consolidation of the results

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## the obvious

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