

PROJECT

## FlexiHyLift

### **A flexible hybrid forklift that utilises advanced power technology and electronics to offer high performance and efficiency in both indoor and outdoor applications for the logistics industry**

**Funding:** European (Horizon 2020)

**Duration:** Mar 2015 - Aug 2015

**Status:** Complete

**Total project cost:** €71,429

**EU contribution:** €50,000



**Call for proposal:** H2020-SMEINST-1-2014

[CORDIS RCN : 196242](#)

#### **Objectives:**

Forklifts are crucial to running efficient and effective manufacturing and warehousing plants. Initially, counterbalance forklifts were fitted with internal combustion (IC) engines using diesel or LPG. However these emit polluting and hazardous gases and are unsuitable for indoor use. Electric forklifts produce zero emissions during use and are noiseless, permitting indoor application but also have shortcomings as they are not ideal for outside use and so operators require different forklifts for indoor and outdoor use, with forklifts costing from €25,000 to €90,000.

Nexen Transport have developed a novel hybrid counterbalance forklift truck using both an IC engine and electric power to deliver excellent performance in both indoor and outdoor use for large logistic entities with both indoor and outdoor operations such as freight, logistics, retail and wholesale companies. FlexiHyLift will deliver a new range of intelligent, environmentally friendly, highly efficient, versatile and cost effective counterbalance forklift trucks with benefits including:

- Light, modular power pack with a lithium ion battery with super capacitor capability and is rechargeable through the hydraulic system of the forklift.
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- Can be switched from IC power to battery power during indoor and outdoor use respectively.
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- High-energy efficiency and cost effectiveness owing to the novel modular, hybrid power pack. The power pack recovers energy during the IC engine operation through a small, highly efficient IC range extender engine.

During Phase 1 the team will conduct a market usage analysis with companies that have both indoor and outdoor operations to determine the specific industry requirements so as to produce an optimal solution.

In Phase 2 it is intend to fully integrate the IC engine and electric power system together resulting in a fully operational hybrid forklift.

#### **Parent Programmes:**

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

**Institute type:** Public institution

**Institute name:** European Commission

**Funding type:** Public (EU)

#### **Lead Organisation:**

**Nexen Lift Trucks Limited****Address:**

18 GORDON ROAD  
Lowestoft  
NR32 1NL  
United Kingdom

**EU Contribution:** €50,000

**Technologies:**

Electric road vehicles  
Novel hybrid counterbalance forklift truck

**Development phase:** Demonstration/prototyping/Pilot Production

Transport

**STRIA Roadmaps:** electrification

**Transport mode:** Road transport

**Transport sectors:** Freight transport

**Transport policies:** Other specified

**Geo-spatial type:** Infrastructure Node