

ADGEX
Advanced Green Expertise



UPRAIL

**ADVANCED ELEVATED
RAIL SYSTEM**



UPRAIL — NEW ERA OF RAIL TRANSPORTATION

UPRAIL is a highly efficient advanced elevated rail system, capable of turning the page of old-fashioned & complex rail construction technologies to embrace the era of light, green and reliable rail transportation.

UPRAIL provides weather proof non-stop haulage and passenger transportation over any terrain and distance. The elevated track structure goes above landscape making minimum interference into local structure like roads, people, animals, or any other obstacles.

UPRAIL is a progressive urban solution for improved passenger flow in highly populated cities without traffic jam and delays, providing comfort, convenience and accessibility.

UPRAIL IS A FUNDAMENTALLY NEW TYPE OF ELEVATED TRANSPORT!

UPRAIL is a new benchmark of transport system combining the best features of aircraft and railway, providing comfort of airplane and reliability and safety of traditional train.

Contrary to traditional locomotives, payload of entire UPRAIL system is characterized by the load, applied on a point of track structure against the max capacity of a wagon or locomotive. Hence, we can distribute weight of a wagon or entire train over the wheels proportionally and increase wagon and coach payload by as much as we need without risk to overload the track structure and the entire system.

UPRAIL features an altogether new modular approach in design of both railway and rolling stock, resulting in increased effectiveness of transportation and tailored customization of the system for all customer needs and requirements.

UPRAIL EXCLUSIVE HIGHLIGHTS



LIGHT & DURABLE DESIGN

Track structure is light but incredibly durable, capable of withstanding significant overloads and securing safe and reliable transportation.



ALL-TERRAIN CAPACITY

Thanks to the elevated structure, UPRAIL can travel over various types of landscape such as mountains, forests, rivers and canyons.



PRE-MANUFACTURED UNITS

Track structure and rolling stock represent a set of pre-manufactured modules and parts. The structure is assembled directly on site using standard lightweight equipment.



LOW FOOTPRINT CONSTRUCTION

Construction of UPRAIL structure keeps the ecosystem unharmed as it does not require embankments, culverts, massive deforestation or any other disruptive works.



EFFECTIVE COMBINED OPERATION

Combined rolling stock allows UPRAIL to operate 24/7, conveniently carrying passengers and transporting any type of goods & cargoes.



WIDE TEMPERATURE RANGE

UPRAIL operates in any climatic conditions in a temperature range from -50° C to +80° C.



WEATHER PROOF EXPLOITATION

UPRAIL withstands all unpredictable and extreme weather conditions such as flooding, snowfall, blizzard, strong wind, black ice, zero visibility, resulting in minimization of transport downtime.



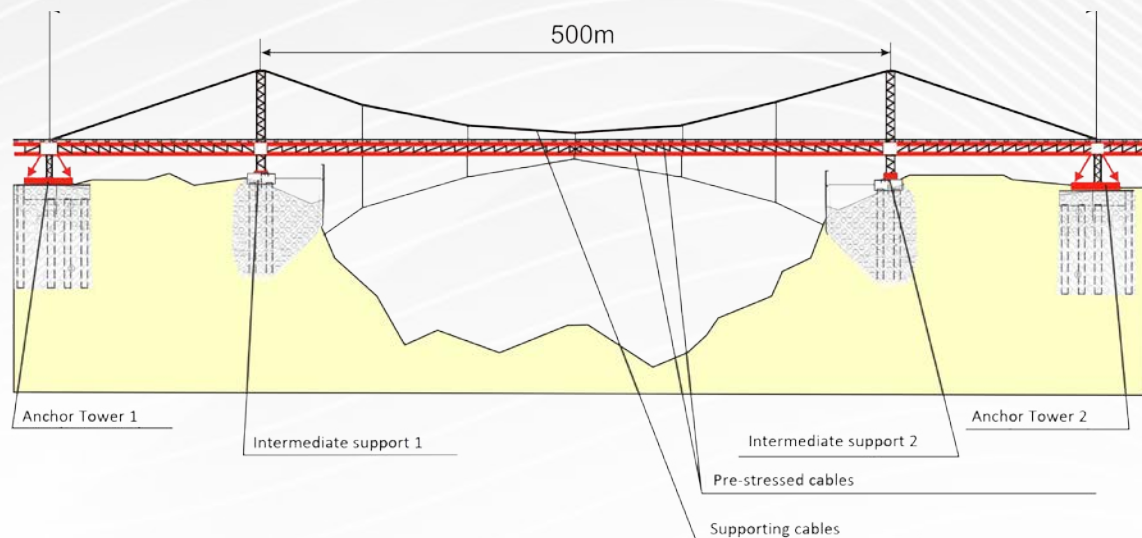
FULLY-CUSTOMIZABLE DESIGN

The UPRAIL system can be easily extended at any time without any labor-intensive preparational work, making UPRAIL route fully-customizable solution for any needs.

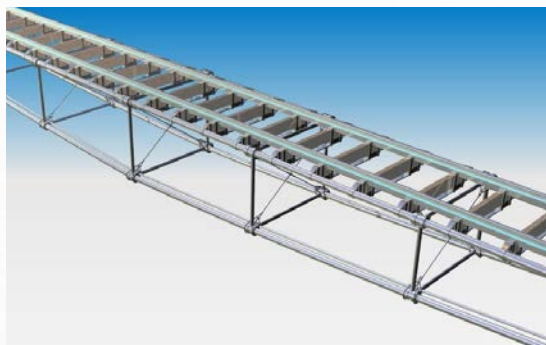


TECHNICAL FEATURES

TRACK STRUCTURE



Signature UPRAIL track structure represents cable-stayed system, consisting of anchor supports of pre-stressed structure. Anchor towers can be mounted at a distance of up to 10 km between each other.



Stability of longitudinal and transverse cables are secured by a **high pretension level**, making UPRAIL structure stable and **geometrically invariable** even during extreme static and aerodynamic loads.

Rail track of UPRAIL system is ideally straight and able to withstand mass loads of **up to 120 tons** over as short as 50 meters' distance.

UNPRECEDENTED GRADIENT ANGLE

Unique technology allows UPRAIL to accept track inclines of up to 15% that makes it possible to create a direct-direction transport corridor over any type of terrain, easily negotiating all topographic inequalities.

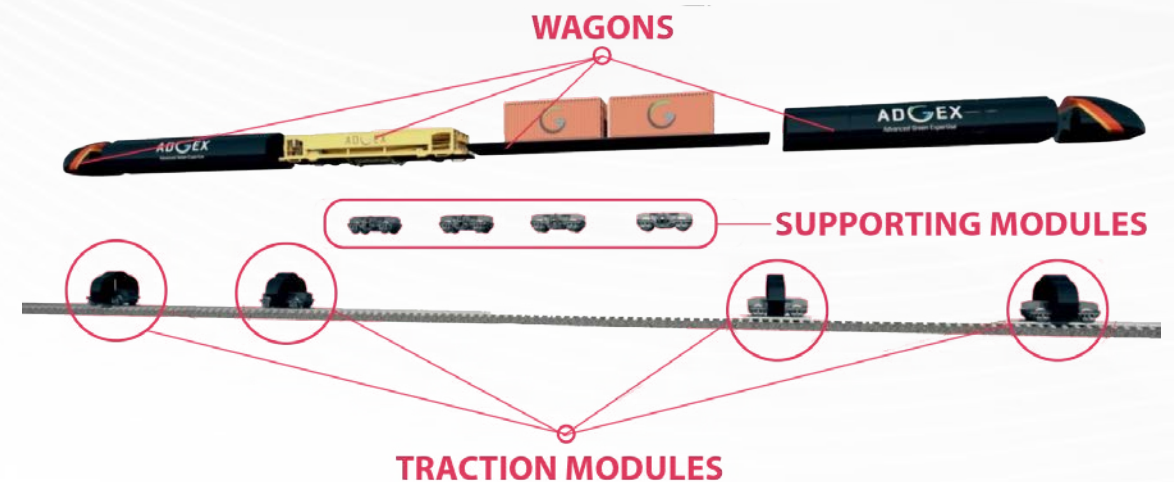
Such an unparalleled advantage enables to reduce total track length, providing greater operating speed due to the lack of frequent turning points.



ROLLING STOCK

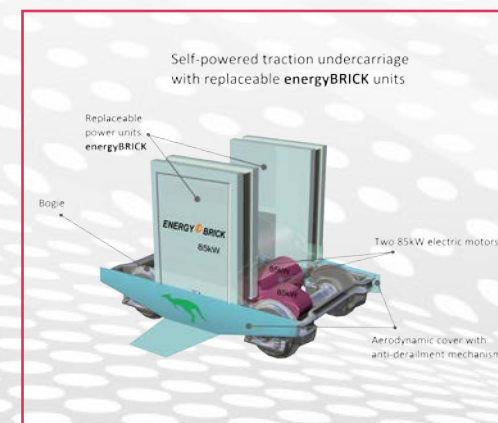
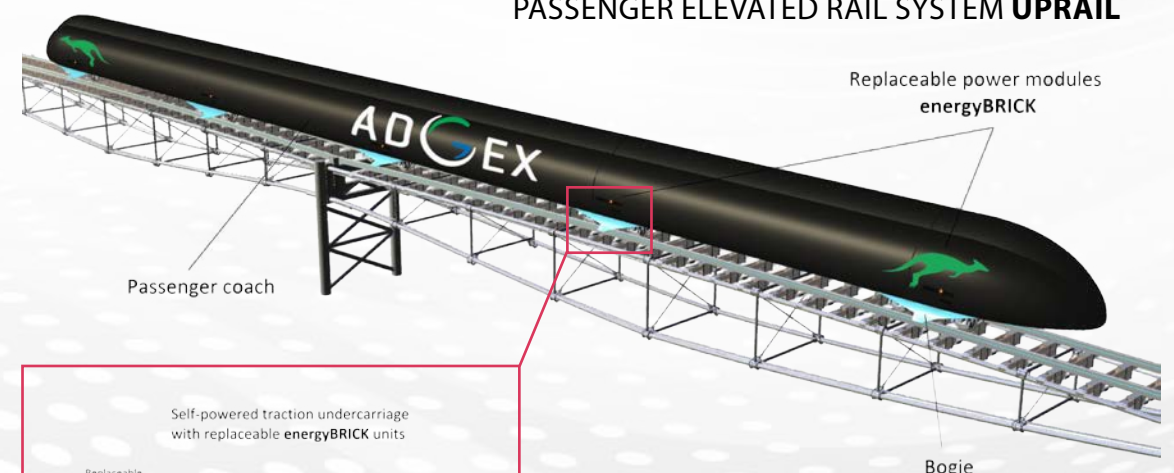
Rolling stock of UPRAIL represents unmanned modules, operating with low noise, vibration and providing high rate of traffic flow.

Each module has mounting socket to attach any platform such as passenger coach, freight wagon or any other type required by customer, making it feasible to combine different modules into a multi-function train.



The modules as well as entire UPRAIL system require no any external power supply as each module is equipped with the energyBRICK units — replaceable mobile power battery of ADGEX Company. Such batteries are charged remotely using any traditional or alternative power sources and installed in undercarriage at a dispatcher point.

PASSENGER ELEVATED RAIL SYSTEM UPRAIL



Each traction unit is equipped with a unique anti-derailment mechanism that imparts the highest level of safety and reliability to UPRAIL rolling stock.

APPLICABILITY

AIRPORT AND METRO SYSTEM

UPRAIL system operates fully automatically so now we can forget about time-schedule, missing trains and overcrowded coaches.

Automatics takes into account number of people on a platform and provides as much transport modules as required at the moment.



TOURISM SOLUTION

UPRAIL is a solution made to meet the most fastidious people's needs. There is no more need to pay extra money for beachfront hotels. Live in the city centre with busy nightlife or spend your leisure in a quiet family hotel, in any case you will get access to beauty lagoons with the best beaches any time you want getting there directly from your hotel via UPRAIL.

You will travel in comfort with no jams above the ground as a bird, observing gorgeous scenic views at any time of day and night, since the time is the most valuable factor!



BULK COMMODITIES AND CARGO TRANSPORTATION

UPRAIL CARGO is a perfect solution for transportation of bulk commodities. Elevated structure of UPRAIL can go over any landscape delivering material directly from deposit fields to seaports.

Thanks to modularity, UPRAIL can be used to transport various goods and cargoes. Individual wagons of different purposes can be coupled together to form a single multi-functional train.



URBAN TRANSPORTATION

UPRAIL is able to provide transport net between remote areas and the city centre or between several skyscrapers and other infrastructure objects at the level of any storey over pedestrian zone and congested roads and highways.

UPRAIL can be attached to or come through any building, used as a horizontal transporting, or lifting system, allowing people to travel between business centres or any other infrastructure objects over-the-air at any level.



UPRAIL is a new mentality & new way of conveyance. People expand their horizons of transportation; they get brilliant solution perfectly combined with all existed as well as newly developed infrastructure.

UPRAIL TESTING AND APPROBATION

UPRAIL system is a readymade project ready for construction at any place of the world. The technology has already passed all scope of tests and probes. All component parts and involved engineering solutions were successfully realized in various infrastructural projects.

UPRAIL TESTING TRACK

UPRAIL testing track was successfully erected in 2001 for the purpose of carrying out all necessary tests to prove accuracy and implementability of UPRAIL technology. More than 2000 tests were conducted for 8 years of the track's existence, which proved durability of supports and track structure, vandal resistance and excellent technological endurance.

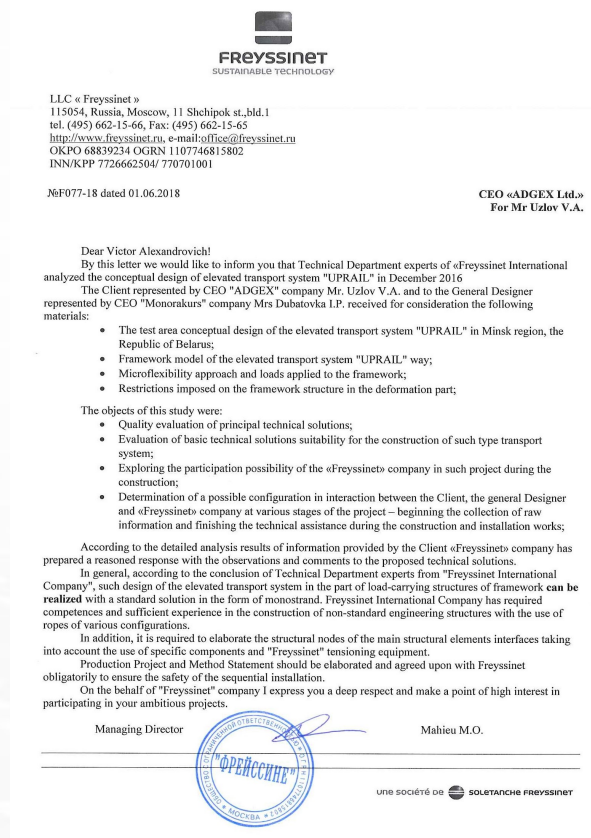
CABLE ASSEMBLY

Cable assembly of the UPRAIL pre-stressed structure is provided by **"Freysinet Sustainable Solutions"** - the leading French Provider of integrated Technical Solutions in the field of Civil Engineering Infrastructure.

Similar cable-stayed system in the form of monostrand is installed by "Freysinet" in suspension bridges and objects all over the world.

In December 2016 Technical Experts of "Freysinet International" made a detailed analysis of load-carrying structures and overall design of the UPRAIL system.

"Freysinet" Company reported that the UPRAIL project is technically feasible to implement and expressed a high interest in participating in design & construction stages.



INFRASTRUCTURE OBJECTS

The pre-stressed cable-stayed structure used in the UPRAIL system is actively implemented in various infrastructure objects by **ADGEX ADEC** division.



One of such project is **the largest in Europe bus-station** constructed in Minsk, Republic of Belarus.

Three-level office and trade center with 5-level parking is placed on a huge deck, positioned at the height of 7 meters above ground level. The feature of the present bus station is the deck, supported by stylobate towers, which are evenly positioned along the entire 340m length. All upper stores are hanged over the deck on highly pre-stressed cables, withstanding incredible loads.

Another example of the same technology use is **Multifunctional Cultural and Sports Complex "Minsk-Arena"** (Minsk, Republic of Belarus).


Unique unsupported structure of the roof of "Minsk-Arena" Complex was designed with use of pre-stressed cable-stayed technology. The technology allows "hanging" the roof of 128m in diameter over the auditorium, using the same pretension method as UPRAIL.



ROLLING STOCK DESIGN

Rolling stock is designed, produced and certified with direct involvement of **Belkommunmash Company** — the leading Belarusian manufacturer of Electric Public Transport Vehicles. The core elements of UPRAIL rolling stock, notably bogie and control system will be adopted from Belkommunmash's low-floor double-articulated tramway BKM-843.



A high-speed train, primarily yellow with blue and red accents, is shown traveling from left to right on an elevated track. The track is supported by a metal lattice structure. The background features steep, rocky mountains with patches of green and autumn-colored trees. The sky is bright with some light clouds. The overall scene conveys a sense of speed and integration with nature.

UPRAIL provides ideal coexistence of wildlife with human infrastructure without any risk and danger.

GREEN BOND PROJECT

UPRAIL is ecologically sustainable solution that perfectly integrates in wildlife and urban environment with minimal land disturbance, preserving original appearance of nature and city infrastructure.

Ecological responsibility of a unique UPRAIL system allows keeping wild nature unharmed and unaffected. UPRAIL can be erected in such environmental sensitive zones as national parks, conservation areas, rivers and lakes, and others.

UPRAIL is resistant to flooding, soil corrosive effects and all landscape irregularities.

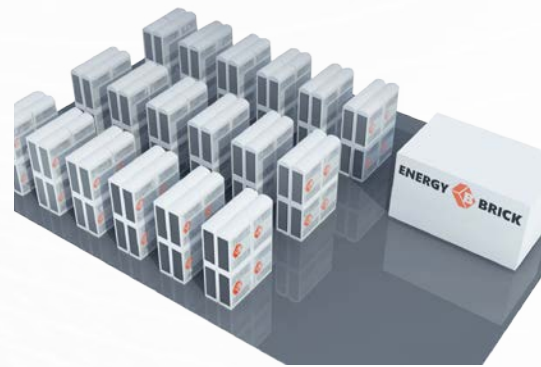
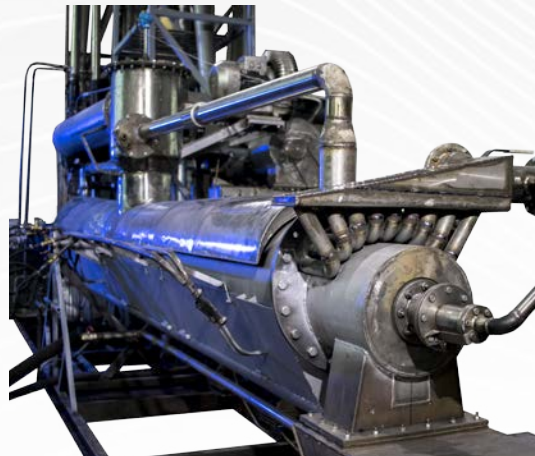
Elevated track structure has no underlying surface that allows building and operating UPRAIL with minimal land disturbance.

Cable-stayed structure does not break environmental integrity as it requires no massive & cumbersome supporting towers. The carrying weight is distributed equally over the entire track structure using delicate but durable anchor and intermediate supports.

STANDALONE INFRASTRUCTURE SOLUTION

ADGEX is a developer of sustainable infrastructure projects holds the potential to create an energy-independent elevated railway. UPRAIL system combined with the greenBLAZE and energyBRICK projects makes it possible to design and construct an energy-efficient transport eco-system.

greenBLAZE represents a mobile waste to energy processor, capable of converting all organic waste into electric energy, which is stored in the commercial energyBRICK facilities.



Such combination positioned within the reach from UPRAIL track structure will provide uninterrupted power supply to the rolling stock and all such adjacent transport infrastructure as UPRAIL stations, interchange hubs, rail terminals and other auxiliary objects.

Thanks to modularity of the rolling stock and automated non-stop operation, UPRAIL may be perfectly used for conveyance of passenger during daytime,

delivery of feedstock for the greenBLAZE processor as well as transportation of charged energyBRICK units to end customers during night.

Such self-sufficient solution allows solving several pressing issues of any country:

- provide high rate of passenger flow over any terrain and distance;
- supply affordable electric energy to all residents;
- remove all organic waste and convert it into usable energy sources;

**UPRAIL IS A TRULY GREEN SOLUTION TO DEAL
WITH BOTH LOCAL AND GLOBAL PIVOTAL CHALLENGES!**



AWARDS AND INTERNATIONAL RECOGNITION

AWARD WINNER OF THE BEST CUSTOM-BUILT STAND

ADGEX produced the world's first model of elevated UPRAIL track structure in 1:15 scale and participated in 4 international exhibitions around the world, including AUSRail Plus 2015 Conference and Exhibition, where the stand with the model was officially recognized as the best custom-build stand of the exhibition.

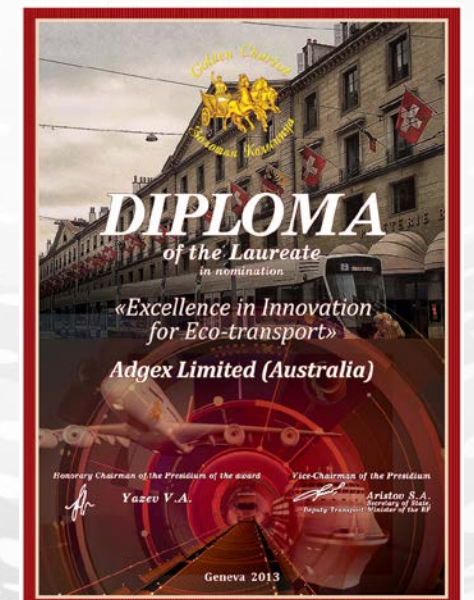
Melbourne, Australia, 2015



TRANSPORT AWARD "EXCELLENCE IN INNOVATION FOR ECO-TRANSPORT"

ADGEX received international recognition for "Excellence in Innovation for Eco-Transport" from the "Golden Chariot" International Transport Awards

Geneva, Switzerland, 2013





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