



LNGlobal safety solutions



THE STRONGEST LINK.

STAHL

**EXPLOSION PROTECTION FOR
THE LNG VALUE CHAIN**

DANGER FROM MANY SOURCES, PROTECTION FROM ONE

LNG can help the world bridge the gap between the traditional energy economy and the coming age of renewables. But in order to do so, it must be protected along its entire way from production to consumption.

That is where R. STAHL comes in. We are a leading supplier of explosion protection equipment with a globally certified portfolio of products and services that keep everyone in the LNG value chain safe. What is more, our decades of experience in the field allows us to customise our solutions so their size, weight, features and materials perfectly match your requirements. That is what makes us the one-stop shop when it comes to explosion protection in LNG.



LNG VALUE CHAIN, MEET STRONGEST LINK

Our job is to keep everyone working with LNG safe. That is why we offer a complete portfolio of products including ready-made components, custom-designed system solutions and efficient services that work across the entire value chain. No matter where in the world, no matter how harsh the environment: if a plant uses R. STAHL, safety is built-in.



SOLID PROTECTION AT ANY TEMPERATURE: LNG LIQUEFACTION

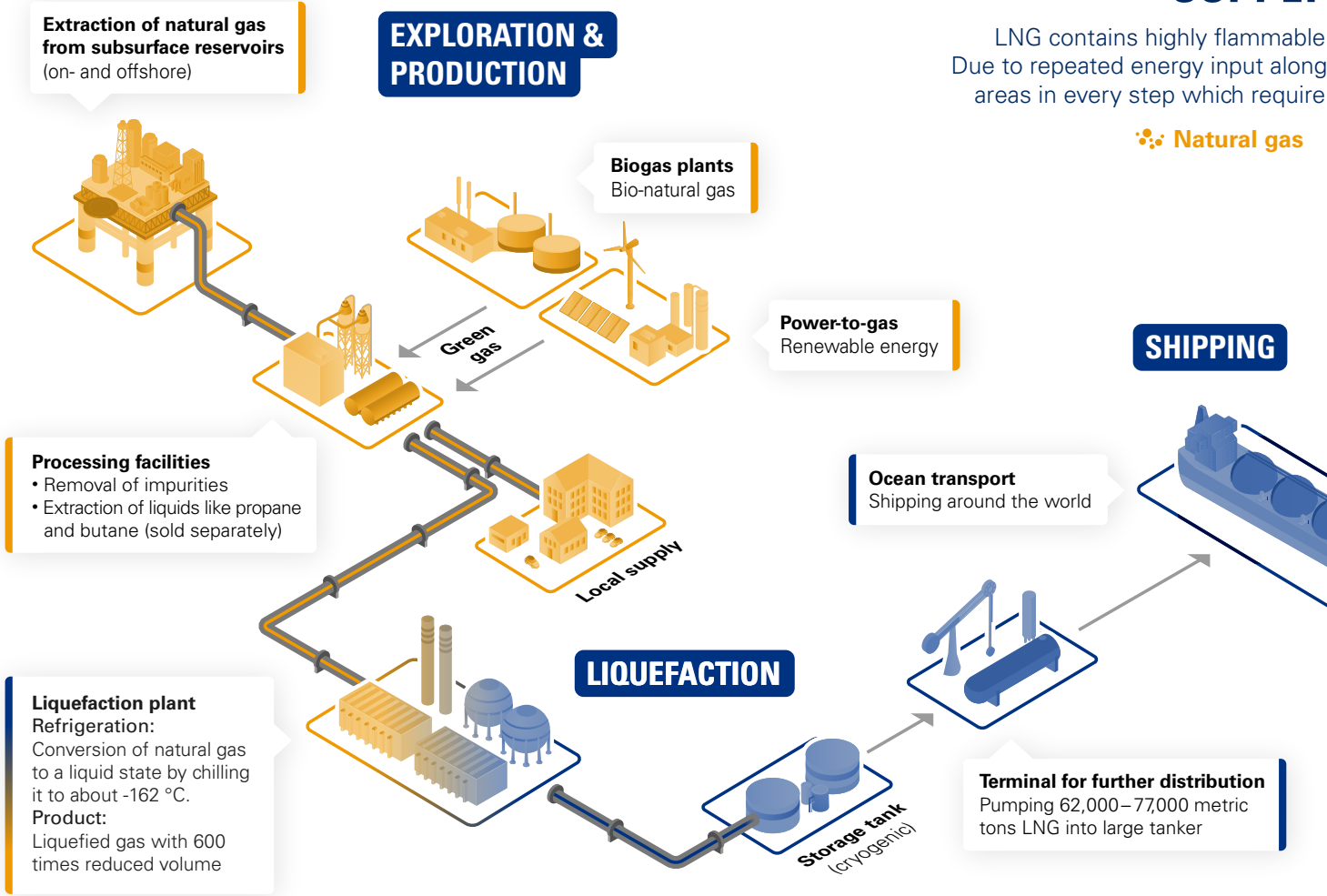
LNG is highly efficient because it is 600 times denser as a liquid than it is as a gas. But it is also hazardous because its vapours are highly explosive. But R. STAHL ensures that it is 100% safe at all times, regardless of temperatures and states of matter.

We do this by tailoring our systems and products to the specific demands of our international customers – just like our work on major Australian LNG projects such as Queensland LNG. In this, we used R. STAHL components from our entire portfolio to create solutions such as a 150 kVa IECEx power transformer, custom receptacles to accept line-side cables without separate junction boxes, and a custom rack that includes panel boards and light circuits which are controlled by onboard photocells.

SUPPLY

LNG contains highly flammable
Due to repeated energy input along
areas in every step which require

 Natural gas



LARGE VOLUMES NEED GREAT SAFETY: LNG STORAGE

LNG is kept in special storage tanks when it is not in transit or actively being used. These tanks need equipment that can withstand cryogenic temperatures to reliably protect them against ignition hazards – that is, equipment like ours.

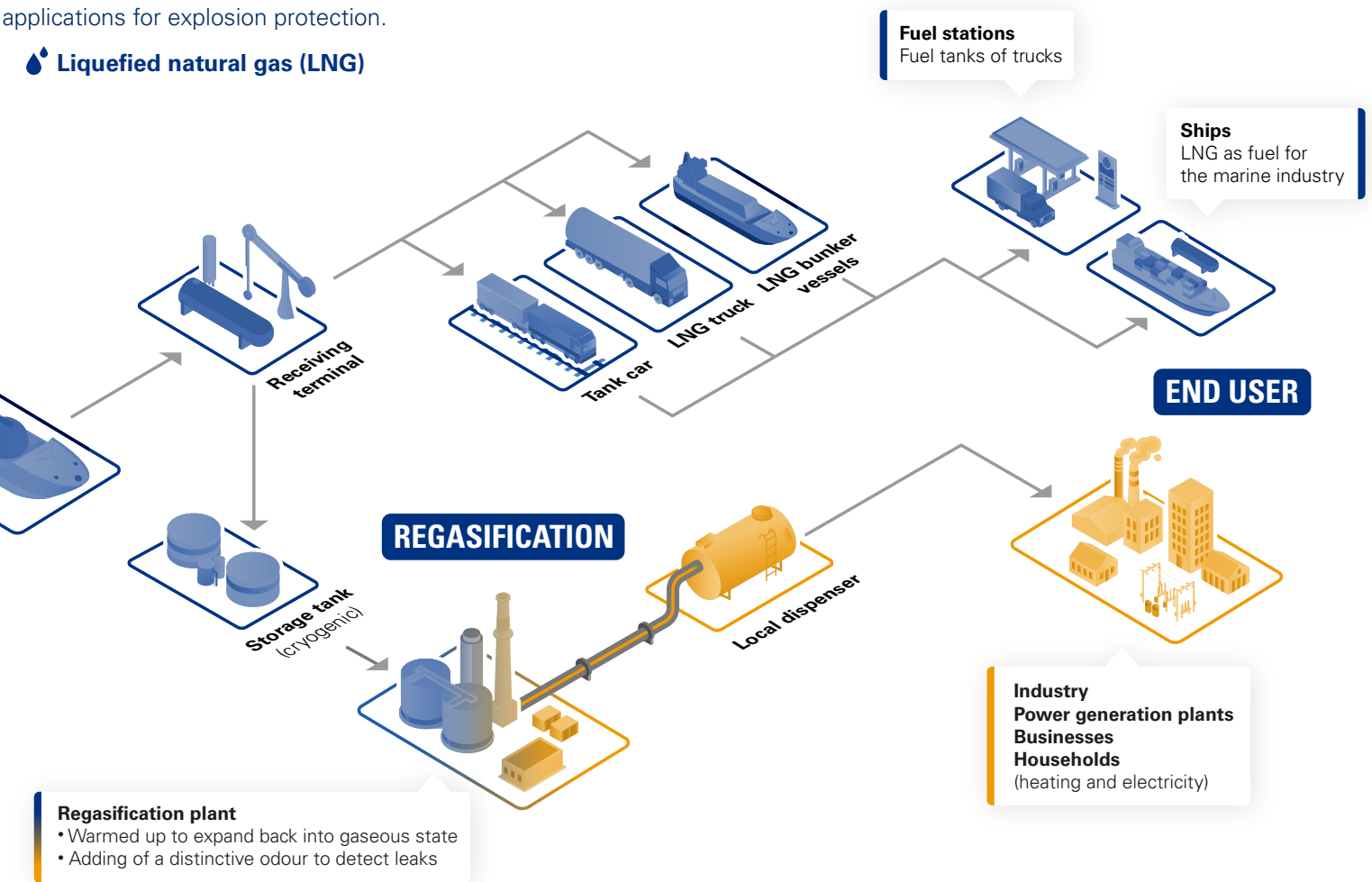
Our long experience with LNG storage systems around the world lets us find a perfect solution for you in no time. For example, we helped a US-based LNG project by modifying their old standard heat trace control panels for use in LNG storage tanks. We used R. STAHL components like breakers and contactors to turn them into custom increased safety Ex e panels that can be used in Zone 1, Zone 2 and Division 2 with no purging – and became the new standard for this customer. That is versatility paired with safety, just like all our products.



CHAIN OF LNG

methane, ethane, propane and nitrogen. the entire value chain, there are hazardous applications for explosion protection.

🔹 Liquefied natural gas (LNG)



GOAL SAFELY ACHIEVED: LNG REGASIFICATION

Many applications require LNG to be reconverted into its natural gaseous state, which is much more volatile than the liquid. But no matter what it looks like: working with LNG must always be absolutely safe for everyone and everything involved.

We have spent the last few decades making sure of just that, supporting LNG regasification plants and their suppliers with explosion-protected systems that enable them to use the full gamut of modern technology despite the hazardous environments of their projects. Our recent work in this field includes an explosion-protected electronic control system including a remote I/O installation, cameras, control stations and signalling devices for a manufacturer of hydraulic LNG loading arms.





Scan the QR code or visit r-stahl.com/en/STAHL4LNG to learn more about our successful work across the LNG value chain.



GUARDING THE JOURNEY: LNG SHIPPING

LNG travels far and puts high requirements on the equipment that travels with it. It should fit in cramped spaces while being able to withstand vibrations and corrosive seawater. And it should be globally certified for hazardous areas.

A tall order that R. STAHL has fulfilled for decades, supplying the leading manufacturers of compressors and automation systems for LNG tankers and FSRUs with various explosion protection solutions. One project includes space-saving remote I/O systems with 16-channel intrinsic safety Ex i modules for Zone 1. They are fully EMC-compliant for zero interference with shipboard radio equipment and so rugged they are approved for on-deck as well as below-deck use – with a total of 12 maritime certificates including DNV-GL, ABS and ClassNK as well as many other certificates.

ALL'S WELL THAT ENDS WELL: END-USER LNG APPLICATIONS

Millions of end users rely on safe LNG technologies every day, whether they are driving forklifts, cars or cargo ships. On these, LNG is a much cleaner alternative to traditional maritime fuels – and we make sure that its benefits never come at the cost of safety.

Just like we did for two South Korean shipbuilders that asked us to protect the fuel gas supply systems (FGSS) in their newest LNG-driven ships. These are highly complex and need close supervision of many variables such as temperatures, pressures or flow rates, both through the ship control system and through independent alarm control monitoring systems. We provided a safe communications infrastructure through our Remote I/O IS1+ with Zone 1 / Division 1 CPU modules and our globally certified SHARK Thin Client HMIs. Modern, safe and easy to use – just perfect for the future.



PURE INNOVATION FOR CLEAN ENERGY

Our work has always been dedicated to keeping people, investments and the environment safe from harm. This was true when there were no alternatives to fossil fuels. It will still be true when they are only a faint memory. And it is true today, as we support energy transition experts from all industries with reliable explosion protection solutions that are just as innovative as their own ideas and approaches.

As a leader in industrial safety, our commitment to protecting new energies has naturally extended to LNG and its entire value chain for years. Consequently, our systems and solutions are currently providing dozens of LNG-using installations around the world with the necessary safety.

PROTECTION NEEDS A STRONG PARTNER

The growth of LNG needs a safe, efficient foundation. And our experts are here to help you build it. If you want to know what sets our technologies apart from the rest, just get in touch with us. Our experts are looking forward to sharing their knowledge with you and to making your world safer, just as you are making the whole world a little bit greener.

- R. STAHL has about 80 years of experience with explosive materials, hazardous areas, harsh environments and extreme use cases.
- We are your one-stop shop for LNG explosion protection technology – from single components to complete system solutions including services and maintenance.
- Our portfolio is globally certified for use in any region, any industry and application that utilises LNG.



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