



>100%



**UTILIZE >100 % OF YOUR ASSETS**

Oil & Gas

ENERGYPACK – SCALABLE  
HYBRID DRILLING SOLUTION.



A Rolls-Royce  
solution

# OUR ENERGYPACK

## Power up your profitability.

Optimally exploiting today's oil and gas resources at remote locations and under extreme conditions requires operating equipment that is highly versatile, reliable and safe. Enter the new EnergyPack.

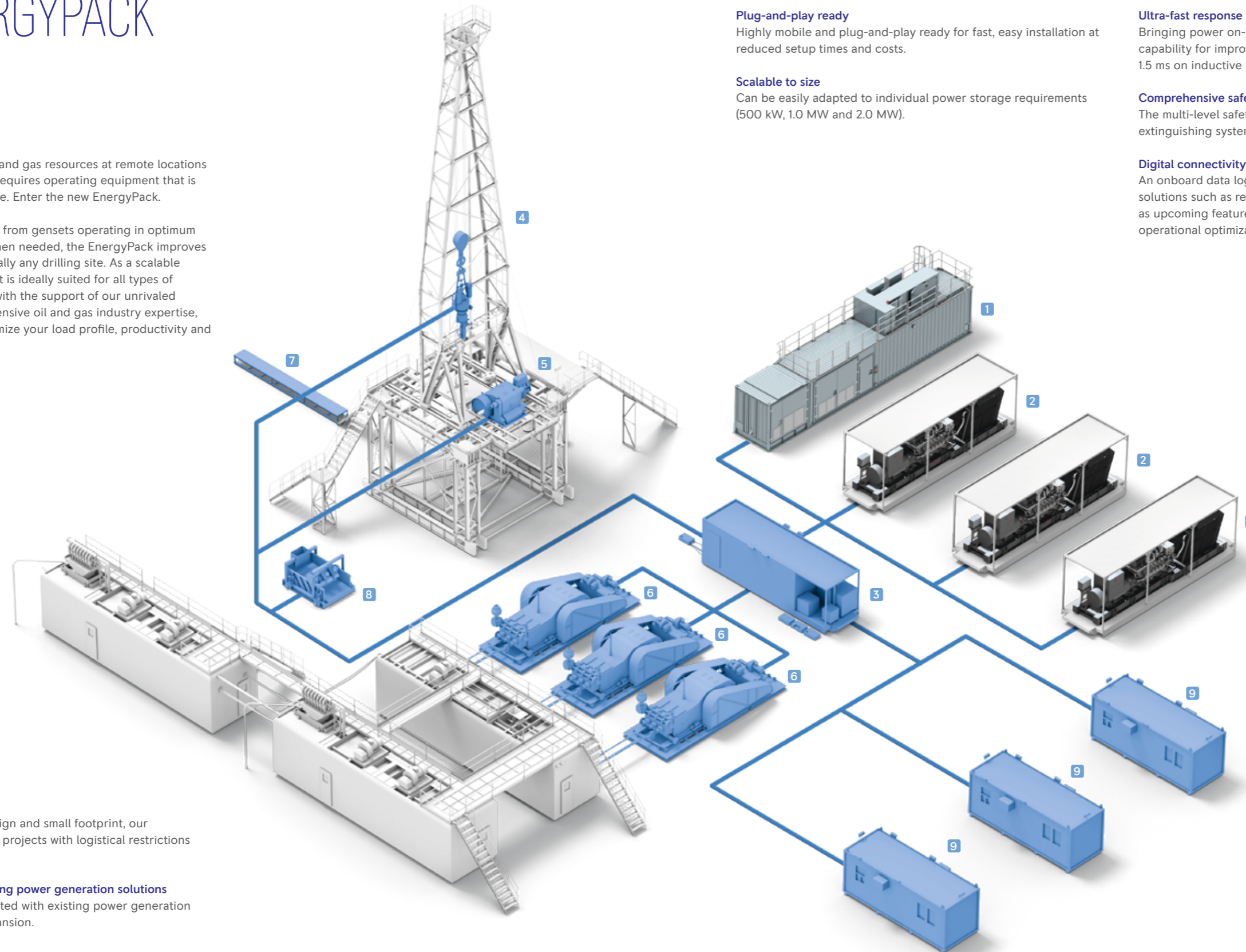
By storing remaining electricity from gensets operating in optimum load profile and delivering it when needed, the EnergyPack improves power supply reliability at virtually any drilling site. As a scalable hybrid drilling power solution, it is ideally suited for all types of drilling operations. Combined with the support of our unrivaled global service network and extensive oil and gas industry expertise, the EnergyPack helps you optimize your load profile, productivity and your profitability.

## High power density

With its extremely compact design and small footprint, our EnergyPack is ideally suited for projects with logistical restrictions and limited space.

## Seamless integration with existing power generation solutions

Our EnergyPack can be integrated with existing power generation solutions for easy capacity expansion.



- 1 EnergyPack
- 2 Electric Drilling Package (EDP)
- 3 Switch gear / powerhouse
- 4 Top drive
- 5 Draw works
- 6 Mud pumps
- 7 Pipe handling equipment
- 8 Hydraulics for additional components or accessories (e.g. shale shaker)
- 9 Accommodation

## Plug-and-play ready

Highly mobile and plug-and-play ready for fast, easy installation at reduced setup times and costs.

## Scalable to size

Can be easily adapted to individual power storage requirements (500 kW, 1.0 MW and 2.0 MW).

## Ultra-fast response

Bringing power on-stream immediately, it provides fast response capability for improved power supply, frequency response (up to 1.5 ms on inductive loads) and backup applications.

## Comprehensive safety features

The multi-level safety concept monitors batteries, fire alarm and extinguishing system.

## Digital connectivity

An onboard data logger provides access to digital our service solutions such as remote monitoring and fast, reliable support as well as upcoming features such as predictive failure prevention and operational optimization.

Utilize >100% of your assets.

## MULTIPLE BENEFITS. OUR ENERGYPACK.

Energy costs play a crucial role for any drilling operation. Power supply reliability even more so. If processes experience a power failure, the whole operation may come to a halt. The EnergyPack optimizes load profiles, adding battery storage capacity to applications with limited grid access. As a result, you save costs while also improving your power management.

### Highly flexible reliability

A modular system that's easy to install and maintain, the EnergyPack ensures year-round stable frequency and voltage, a guaranteed power supply, and the availability of backup power when and where it's needed.

### CAPEX

By running generators at optimal load profiles, surplus energy can be fed to the batteries, which can then be used to compensate load peaks. In essence, it can help reduce capital spending.

### OPEX

Engines operating more efficiently at specific load profiles lower fuel costs as well as maintenance and parts expenses.

### Optimal asset utilization

Why leave untapped life in your diesel engine? The EnergyPack is designed to supplement power at the peak loads, allowing you to more efficiently utilize your power generation assets and lower the total number of generators required to power drilling operations. Specifically, our integrated Electric Drilling Package operates more efficiently in the power range.

### Stable power

Our EnergyPack responds to frequency changes within milliseconds, feeding power when frequency drops and absorbing power from existing generators when frequency rises.

### Improved working environment

Our EnergyPack operates at greatly decreased noise levels, thereby contributing to a safer, cleaner, more comfortable overall working environment.

### Battery auxiliary power

It is also an excellent standalone solution for auxiliary applications such as hotel power or the lighting of campsites.



Compact, flexible, autonomous:

# INSTANT POWER RIGHT WHERE YOU NEED IT.

### Housing

The fully equipped, 40-foot\* container is extremely rugged, offering superb protection from dust, insects, humidity and heat.

- Ideal for harsh environments and challenging logistics
- Highly compact design
- Quick up-and-running solution with short delivery times and fast installation

### Batteries and battery management system

The battery bank consists of 2 x 7 vertical racks (optionally 2 x 9 racks). Each rack contains 11 battery modules with 22 high-quality cells connected in series as well as a battery management system (BMS) to monitor and control the modules.

The circuit breakers are connected to the inverter, allowing each rack to be disconnected from the inverter as required. The BMS units are connected with one another and to the control cabinet via a master BMS.

- 2 x 7 vertical racks (optionally 2 x 9 racks), each with 11 battery modules (2C rated)
- Battery management system (BMS) to control the modules
- Special protection design for each level: cell, module, rack and system

### Control system

Located in a separate compartment within the container, the unique battery container control system (BCC) fully controls all functions of our EnergyPack.

- Built-in touchscreen display
- Enables simple remote access via bus
- Key switches for setting approval options and operating statuses

### Inverter

The inverter operates bi-directionally, converting AC to a DC charge for the batteries and then DC to AC during the discharging process for feeding into the upstream grid. It also regulates the voltage feed.

- Provides local grid functionality and regulates voltage feed
- Offers on-grid functionality: static grid support, dynamic grid support (FRT) and active islanding detection (AID)
- Supports power management functions (peak shaving, energy shifting, etc.)

### Transformer

As the interface to the upstream power grid, the transformer's converts the grid voltage to the level required by the inverter. It also handles the power feed to the battery container.

- Is housed in a separate 10 ft. container (weight: 8.0 metric tons)
- Is connected to the electricity grid
- Regulates the inverter's AC output voltage

### Air conditioning

Located on the container roof, the air conditioning equipment feeds cool air to the battery modules and control rooms to uphold operability at the required temperature.

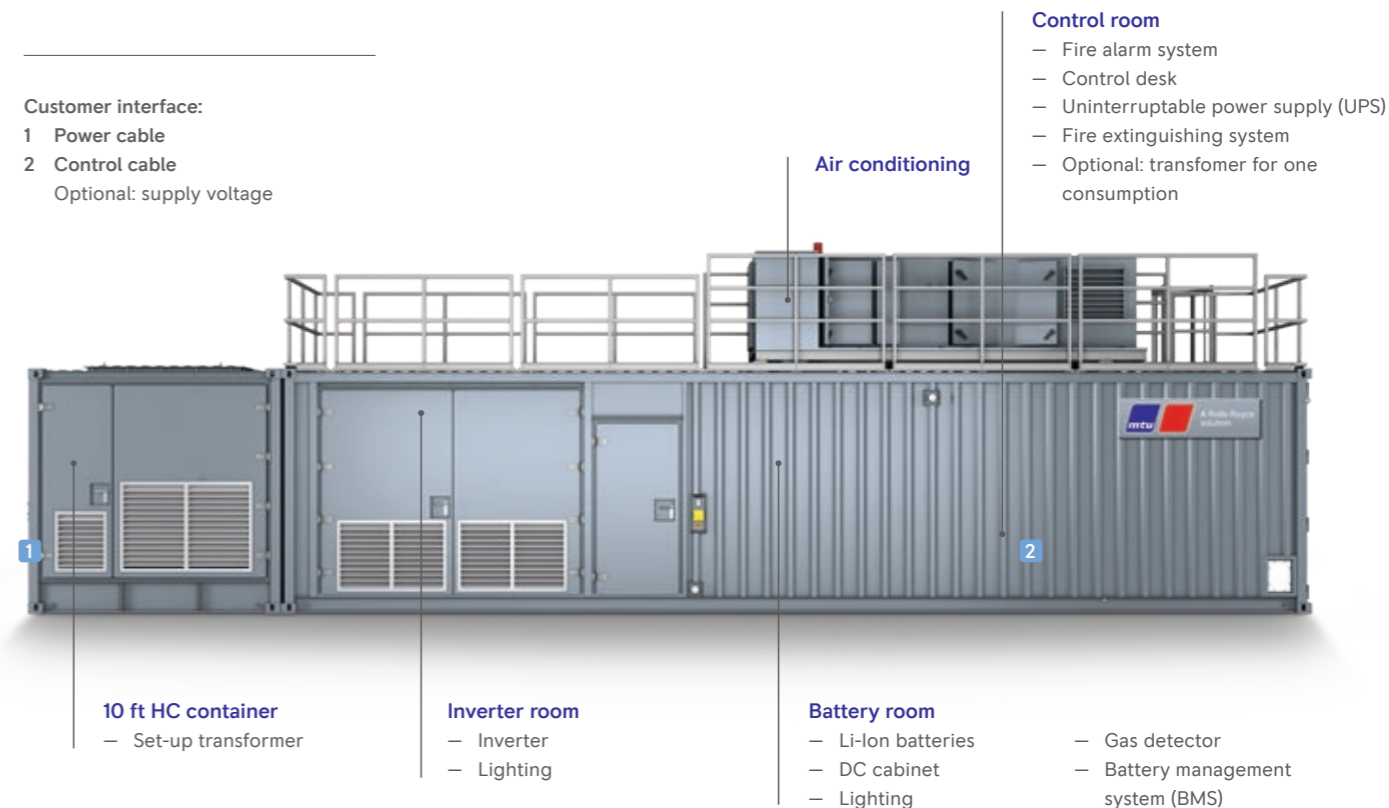
### Safety features

Our EnergyPack 40ft\* features a comprehensive safety concept comprising:

- Fire detection system
- Novec1230 extinguishing system
- Smoke detector
- Escape route lighting
- Emergency-stop button on every access door and in the inverter room
- Fused 24V DC supply to BMS / modules / control cabinet
- Gas warning system

Fully self-contained

# WITH FIRE SUPPRESSION, REMOTE MONITORING AND CONFIGURATION OPTIONS.



Specifications (example 40ft container) *			
Peak Power	2,515 kW (DC)/2,475 kVA (AC)	Supported communication interfaces	Profibus DP/Profinet/Modbus/Modbus TCP/Ethernet UDP
Nominal capacity range	700 – 1,260 kWh	Control and monitoring via external interface	Yes
Current range	1,560 – 2,808 A	Touch screen	as standard
Rate voltage/voltage range	Customer specific	State of charge	LED-panel on container wall
Rate frequency	50/60 Hz	Dimensions (LxWxH)	12.2 x 2.4 x 2.9 (4.3) m* (excl. transformer container)
Battery efficiency (round trip)	92,5 % (2C at BOL)	Weight	27,700 kg (excl. transformer container)
Cell chemistry	Lithium-Ionen	Ambient temperature	Up to 40°C
C-Rate	2C	Installation altitude	1,000 m above sea level
DC voltage range	750 – 992 V (DC)		
Specified cycles at 2C at 80 % DoD at 25°C:	3,600		

Any specifications, descriptions, values, data, or other information related to dimensions, power, or other technical performance criteria of the goods as provided in this general product information are to be understood as non-binding and may be subject to further changes such as, but not limited to, technical evolution at any time. Version: 09.2018, materials and specifications subject to change due to technical advances.

\* Example 40ft container - further battery container sizes and power output can be adjusted to your needs. On request.

