

# 発電用補機関 試験運転時に発生する電力の活用への試み

## A New Approach to Utilizing Power from the Test Operation of Auxiliary Power-Generation Engines

ダイハツディーゼル守山工場では、発電用補機関の試験運転で発生する電力を回収して工場内で活用する試みを始めています。

節電等によるエネルギー低減への社会的な要請が高まる中、新たな環境負荷低減の手段と位置づけ、実現へ取り組んでいます。

協力:西芝電機株式会社様

(2012年12月末より電力回収装置による電力回収を開始)

The Daihatsu Diesel Moriyama Factory has begun turning electric power that it recovers from test operating auxiliary power-generation engines into factory power. As society increasingly demands greater reductions in energy usage through energy-saving and other measures, activities such as these represent a new and innovative way to lower environmental impact.

Collaboration: Nishishiba Electric Co., Ltd.

### 電力回収の課題

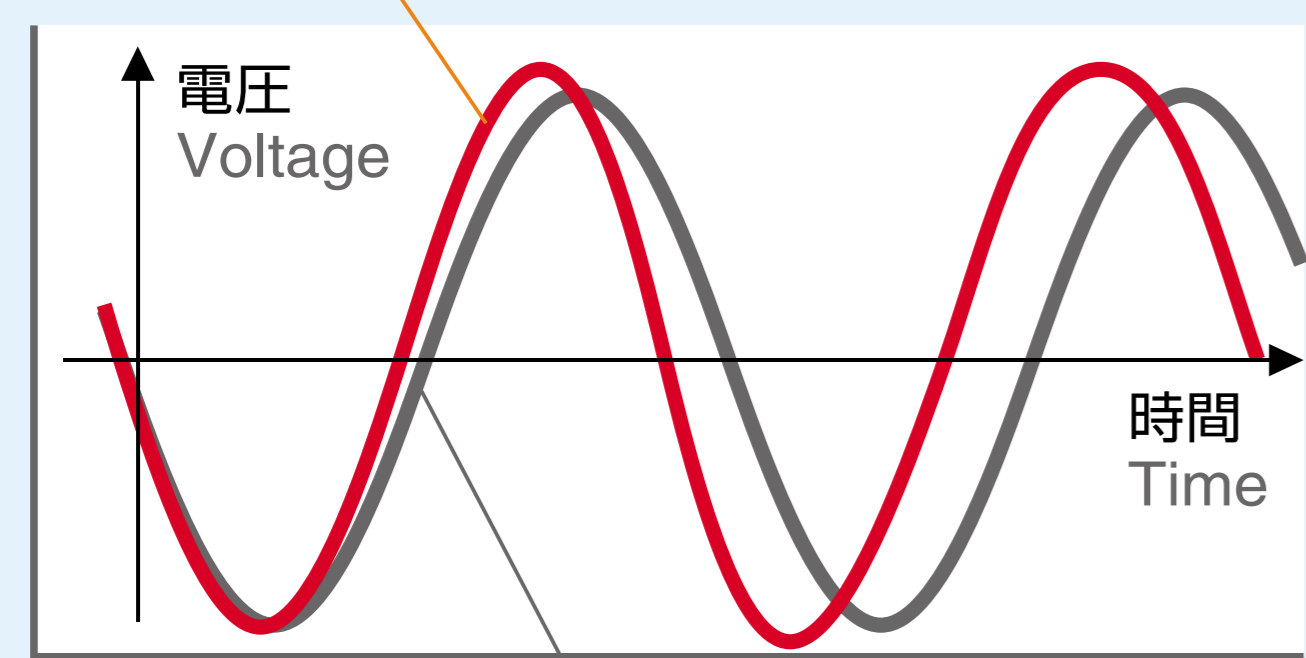
#### The Problem of Electric Power Recovery

試験運転の電力は、周波数・電圧が変動し、工場電源へ直接接続できない課題があり、試運転で発生した電力は、水抵抗負荷槽で熱として全て廃棄していました。その一方で、電力会社様より電力を購入する矛盾がありました。

The electric power that results from test operation fluctuates in frequency and voltage, so it cannot be directly connected to the plant's power supply.

In the past, this power was completely discarded as heat in a water resistance load tank. This was a waste because electric power was being purchased from a power utility.

試運転電力 60~63Hz  
Test operation power: 60 to 63 Hz



電力会社様からの電力 60Hz一定  
Power from the utility: Constant 60Hz

周波数の不一致イメージ  
Unmatched frequency image



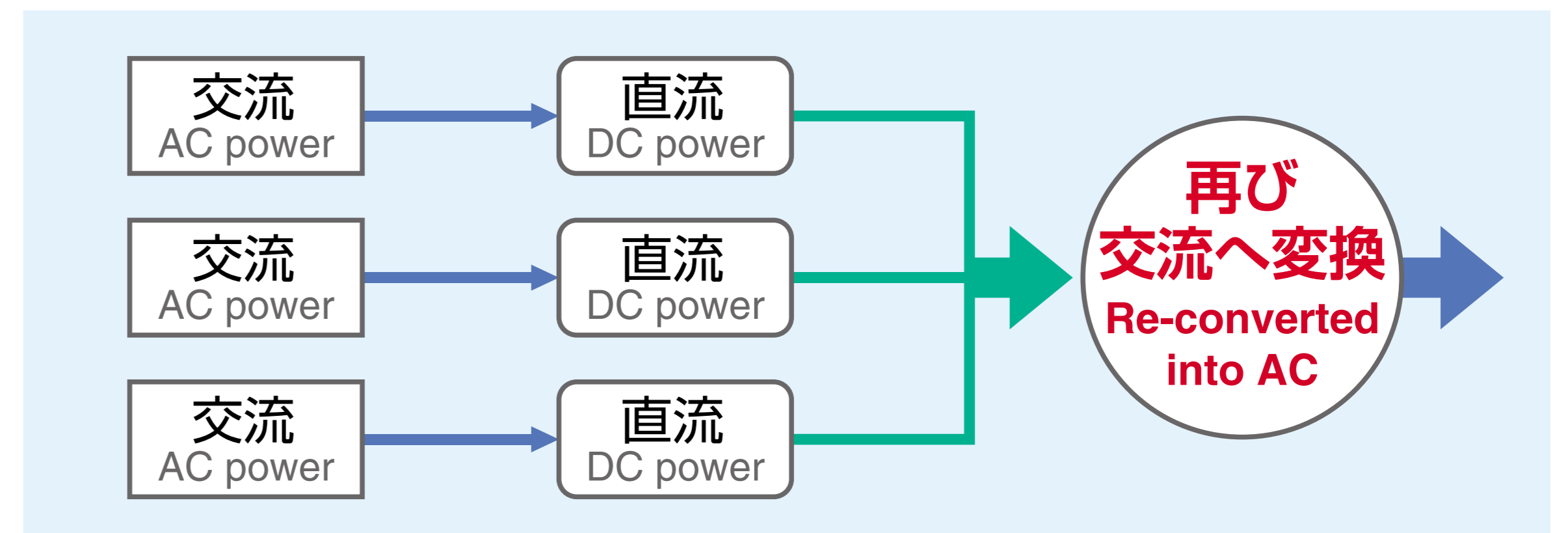
試験運転時、水負荷槽から発生する多量の蒸気  
Large amounts of steam being generated from the water resistance load tank during test operation.

### 課題への対策

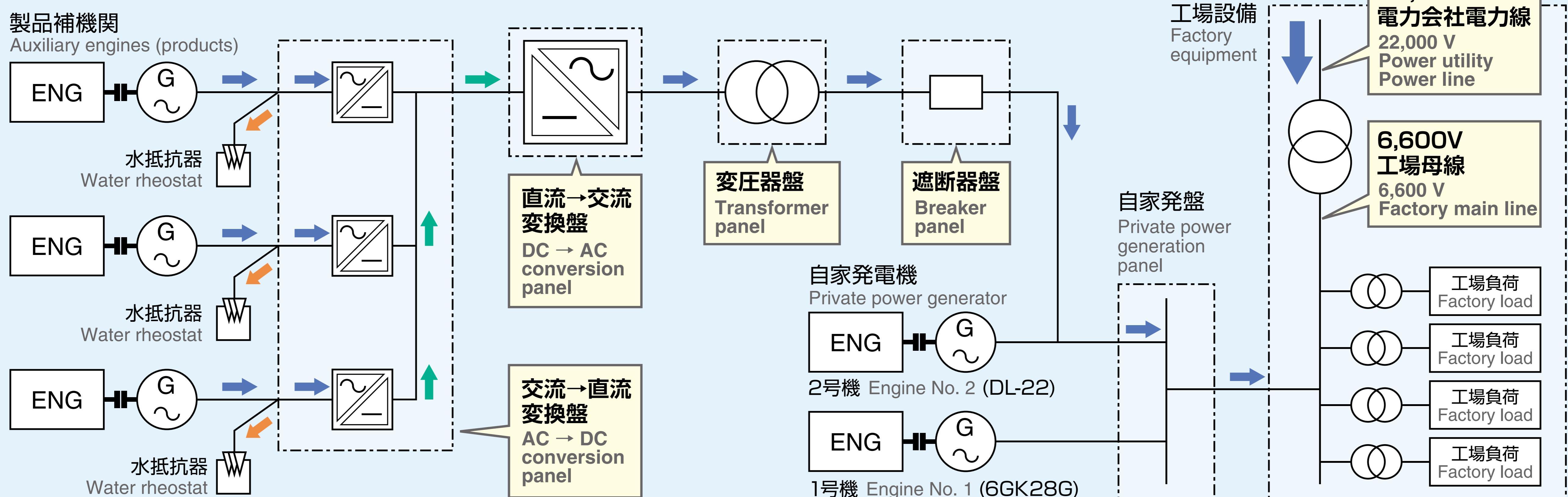
#### Measures to Solve the Problem

複数の試験運転の電力は、周波数に関係ない直流に変換して接続し、定電圧・定周波数の交流に再変換して工場内母線へ接続します。従来熱として廃棄していたエネルギーの多くは、工場内の電源として有効に利用することが可能になります。

The electric power from multiple test operations is converted to DC power, which is unaffected by frequency. It is then re-converted to AC power with a constant voltage and frequency, and connected to the factory's main power line. This allows most of the energy that was previously discarded as heat to be effectively used as a power supply for the factory.



### 仕組み The System



### 回収装置導入の目的と効果

#### Objectives and Effects of Introducing a Recovery System

#### 1 エネルギーの回収

廃棄していた、補機関試験運転時の発生電力を回収。

##### Recovering Energy

Recovering the power that was generated when test operating the auxiliary engines, i.e., the power that was previously discarded.

#### 2 低CO<sub>2</sub>社会への貢献

試験運転発生電力の工場内活用による総CO<sub>2</sub>排出量削減。

##### Contributing to a Low CO<sub>2</sub> Society

Reducing the total CO<sub>2</sub> emissions by utilizing the power generated when test operating the auxiliary engines inside the factory.

#### 3 第3の自家発としての買電節電

1,000kW容量の発電装置となる。(出力は試運転工程により変動)。

##### Reducing Purchased Electricity as a Third Private Power Generator

Providing a power generating system with a capacity of 1,000 kW (output varies depending on the test operation process).

#### 4 上水道消費削減

水抵抗負荷槽での蒸発補充充分が削減。

##### Reducing Water Consumption

Reducing the steam replenishment water for the water resistance load tank

### 回収目標

#### Recovery Target

弊社守山第1工場にて  
40~55MWh使用の内  
**2MWh(2,000kWh)/日**  
(使用量の約4%)

を回収電力でまかなう。

The aim is to use recovered electric power to cover

**2 MWh(2,000 kWh)/day**  
(approximately 4% of the usage amount)

from 40 to 55MWh used at the Moriyama No. 1 Factory.

電力を“捨てる”から“活かす”へ

Shifting from "Discarding" to "Utilizing" Electric Power