Bundesrepublik Deutschland
Finanzagentur GmbH

Federal Republic of Germany
Green Bond
Investor Presentation

August 2022

Transaction Overview

Details on the new 5-year Green Federal note	
ISIN	DE0001030740
Issuance date / Pricing	To be defined
Settlement	T+5
Issuance volume	Benchmark size
Maturity	15 October 2027
Coupon	1.30% p.a.
First coupon date	15 October 2023
Interest calculated from	30 June 2022
Reference twin bond	5-year Federal note issued on 28 June 2022 (ISIN DE0001141869)
Initial spread guidance	To be defined
Country ratings	Aaa/AAA/AAA
Lead Manager	To be defined

Case Study 12: CoBra

High Temperature Heat Pumps based on the Brayton Process located in Cottbus

(3) Research, innovation and awareness raising

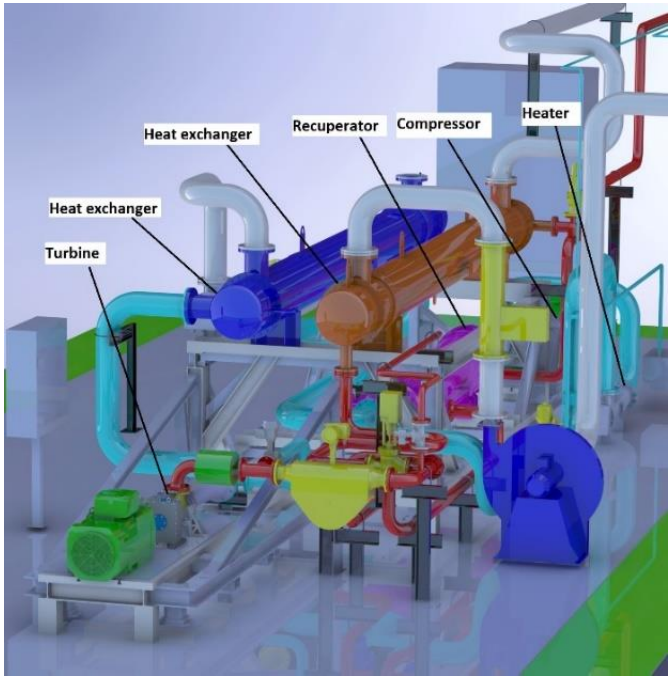
Objective

- Roughly 60% of the industrial energy demand in Germany is used for process heat
- There is significant need in CO2-neutral process heat in the range of 150-500°C. Market cannot provide heat pumps with adequate performance.
- Objective is the development, upscaling and integration of CO2-neutral high temperature heat pumps in energy intensive processes of several industries (chemistry, petrochemistry, iron, steal, paper, food, cement, aluminium)

Output and measures

- Demonstrator high temperature heat pump (HTHP) operational at DLR Cottbus by the end of 2022
- Development of necessary turbo components
- Accompanying research will identify options for operating scenarios
- Virtual model of the HTHP and its embedding in the industrial processes
- Electrification of the industrial process heat demand up to 500 °C could result in CO2 savings equal to the current Switzerland's CO2 emissions

DLR Deutsches Zentrum für Luft- und Raumfahrt
German Aerospace Center



Source: DLR, CAD scheme of the first test facility for a HTHP