



Enpal.

Golden Ray - 1

Case Study

Executive Summary

- On the 31st October 2024, Enpal, through its vehicle “Golden Ray” has successfully priced **Europe’s first public residential solar asset-backed securitisation**
- This first-of-its-kind transaction underscores Enpal’s role at the **forefront of renewable energy financing in the European market** and meaningfully reduces cost of debt for the portfolio that was placed
- Due to very strong investor demand, individual tranches were up to 9,5x oversubscribed during book-building, enabling us to **significantly tighten spreads for classes A2 to E**. Even after over 50bps tightening from initial price thoughts, **individual tranches were up to 6.2x covered at the final levels**.
- The European Investment Fund provided an **embedded guarantee for the A1 tranche**, the European Investment bank **invested €50m in the A2 tranche**
- The inaugural deal **totaled EUR 240 million and is backed by a portfolio of c. 8,500 solar loans** including adjacent components to German residential homeowners
- Golden Ray has been **structured in line with ICMA Green Bond standards** and ISS Corporate has confirmed the alignment with a Second Party Opinion. Separately, SVI **has confirmed that the issuance is in accordance with the STS framework**



Transaction Features

Transaction Overview	<ul style="list-style-type: none"> • Issuance: Golden Ray SA-1 plc is a debut Solar ABS transaction backed by a portfolio of Solar Loans originated by Enpal BV to German homeowners • Seller, Servicer and Risk Retention Holder: Enpal BV • Back-up Servicer: HmcS
Issued Security	<ul style="list-style-type: none"> • Principal Backed Notes: There are 7 principal backed Classes of Notes <ul style="list-style-type: none"> • Rated: Class A1, A2, B, C, D, and E Notes • Unrated: Class F Notes • The Class R funds the reserve and receives residual cashflows
Credit Support	<ul style="list-style-type: none"> • EIF Guarantee: In respect of the Class A1 Notes only, the EIF provides an unconditional and irrevocable financial guarantee to the only benefit of the Class A1 noteholder • Subordination: The Class A to F Notes rank in priority to the right of payment of principal and interest to their respective junior ranking notes. Notes amortise sequentially. Following the Step-up Date and prior to the redemption of the Class A-F notes any Excess Amount is released with Available Principal Distribution Amounts • Excess Spread: Excess Available Interest Distribution Amounts are applied to reduce any debit balance on the PDL Sub-Ledgers. Following the Step-up Date, remaining Available Interest Distribution Amounts following the payment of Interest on the Rated Notes, will be applied as Available Principal Distribution Amounts
Liquidity Support	<ul style="list-style-type: none"> • The Liquidity Reserve was funded on closing to 0.75% of the Class A (A1 and A2) Aggregate Outstanding Note Principal Amount and is available to cover shortfalls in senior items in the Pre-Enforcement Interest Priority of Payments down to and including Interest on Class A Notes. On the first IPD, the Liquidity Reserve Required Amount increases to 1.50% of the Aggregate Outstanding Note Principal Amount of the Class A1 and A2 Notes. • Available Principal Distribution Amounts can be used to cover shortfalls in senior items in the Pre-Enforcement Interest Priority of Payments down to and including Interest on Class A Notes, and additionally Interest on the Class B to E Notes (when the relevant note is the Most Senior Class of Note)
Hedging	<ul style="list-style-type: none"> • 100% of loans in the final pool are fixed rate loans. • A banded balance guaranteed fixed-rate to floating-rate interest rate swap was entered into with Citibank Europe Plc at Closing • An interest rate floor was purchased, with a ten-year tenor and 1% strike rate on a €48mn notional, to further mitigate potential risk of over-hedging in a high prepayment, declining interest rate scenario
Optional Redemption	<ul style="list-style-type: none"> • The Issuer has the option to call the Notes in whole, but not in part, on the First Optional Redemption Date (Interest Payment Date in November 2029) and each Interest Payment Date thereafter • Following the First Optional Redemption Date, the interest on the Notes increases to incentivise the Issuer to call the Notes.

Final Structure

Individual tranches were up to 9.5x oversubscribed during book-building, even after over 50bps tightening from initial price thoughts individual tranches were up to 6.2x covered at the final levels.

Final Pricing	Class	Size (€ mm)	Size (%)	CE (%)	RATINGS (Moody's/KBRA)	WAL ⁽²⁾ (yrs)	Interest Pre-FORD	Interest Post-FORD	DM	Price	Oversubscription Levels
	A1 ⁽¹⁾ (EIF Guarantee)	50.0	20.8	17.0	Aaa/AAA	3.56	1m€+40bps	1m€+80bps	40	100.0000%	Pre-placed
	A2 ⁽¹⁾	149.2	62.2	17.0	Aa3/AA-	3.56	1m€+80bps	1m€+120bps	85	99.8352%	2.5x
	B	12.0	5.0	12.0	A2/A-	5.09	1m€+150bps	1m€+225bps	150	100.0000%	6.2x
	C	9.6	4.0	8.0	Baa3/BBB	5.09	1m€+200bps	1m€+300bps	230	98.6340%	5.7x
	D	4.8	2.0	6.0	Ba2/BB+	5.09	1m€+350bps	1m€+450bps	369	99.1641%	Auction
	E	2.4	1.0	5.0	B2/B+	5.09	1m€+495bps	1m€+595bps	495	100.0000%	Auction
	F	12.0	5.0	0.0	NR/NR	5.09	Fixed 10.0%	Fixed 10.0%	N/A	Retained	Retained
	R	5.2	2.2	0.0	NR/NR	N/A	Class R Note Revenue Amount	Class R Note Revenue Amount	N/A	Retained	Retained

1. Classes A1 and A2 are pro-rata and pari-passu.

4 2. Estimated assuming 10% CPR, redemption on the FORD, 0% defaults, 0% delinquencies

What makes Golden Ray – 1 green?



Significant CO2 avoidance through transition to green energy

The 8,469 PV systems financed by the loans in the portfolio generate c. 94.8 GWh energy p.a. – leading to an avoidance of c. 65,430 tons CO₂ equivalent p.a.¹

Alignment with the ICMA Green Bond Principles

Enpal has defined a concept for Golden Ray – 1 regarding use of proceeds, project evaluation, management of proceeds and reporting, fully in line with the ICMA GBP

Alignment with the UN Sustainable Development Goals

The PV systems financed by Golden Ray – 1 contribute to the SDGs 7 and 13 – environmental and social risks are managed

Consistency with Enpal's sustainability strategy

Golden Ray – 1 is fully aligned with Enpal's Green Bond Framework, which was designed to create a capital market access for residential energy solutions and to accelerate the green transformation

Certification through SPO by ISS Corporate

ICMA alignment of Golden Ray – 1 is confirmed by an SPO from ISS Corporate

ISS-CORPORATE 
Second Party Opinion

Key energy portfolio stats

65,430t

tons of Co2 avoidance p.a.

94.8 MWp

total PV system capacity

94.8 GWh

energy generation p.a.

95.9 MWh

total battery capacity

¹ Assumptions: Yearly energy yield: 1,000 kWh/kWp (source: <https://www.ise.fraunhofer.de/de/veroeffentlichungen/studien/studie-stromgestehungskosten-erneuerbare-energien.html>), PV net-avoidance factor 690 gCO₂Equiv/kWh (source: https://www.umweltbundesamt.de/sites/default/files/medien/11850/publikationen/20231219_49_2023_cc_emissionsbilanz_erneuerbarer_energien_2022_bf.pdf, S. 55)

Portfolio Stats

Overall portfolio composition

Number of Receivables (#)	8,469
Number of Borrowers (#)	8,469
Original Outstanding Balance (EUR)	260,007,541
Outstanding Balance (EUR)	240,000,012
Average Outstanding Loan Size (EUR)	28,339
WA Nominal Interest Rate (%)	5.97%
WA Seasoning (in months)	5
WA Remaining Term (in months)	295



8,469

PV systems financed



8,411

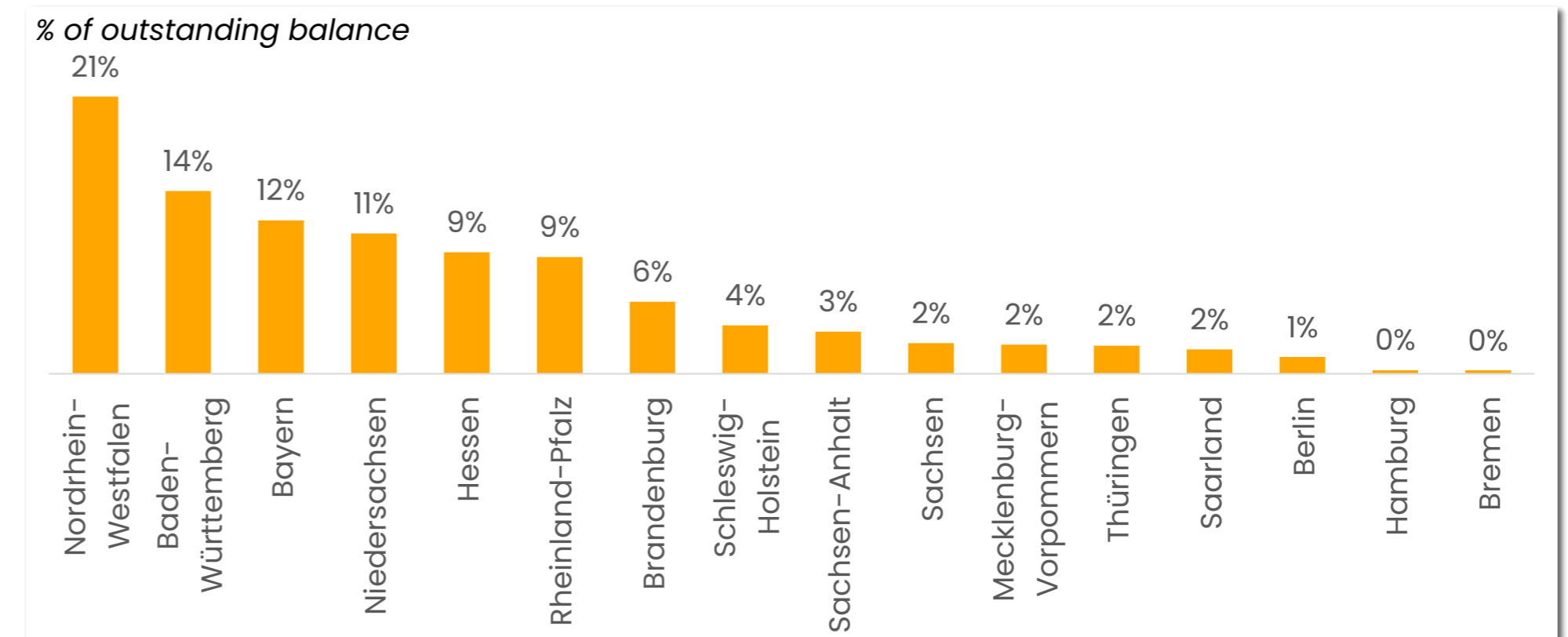
PV systems incl. battery



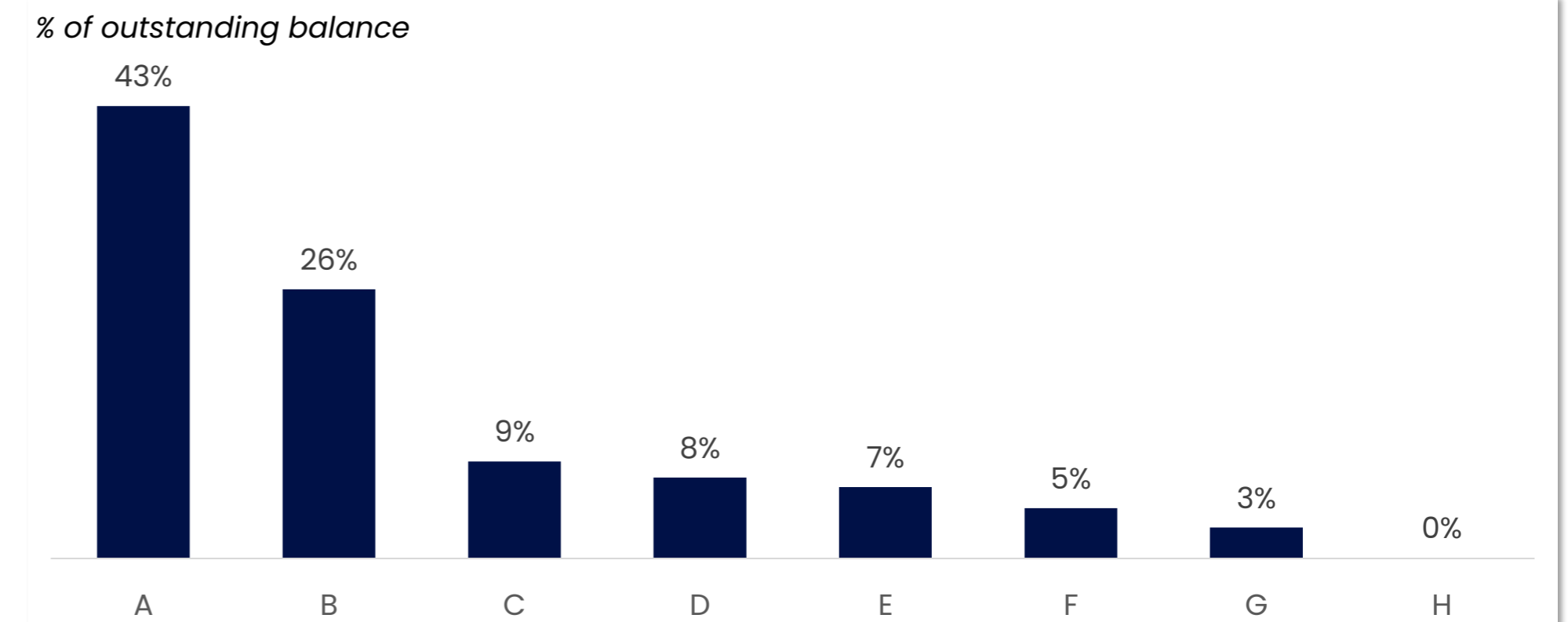
4,579

PV systems incl. EV charger

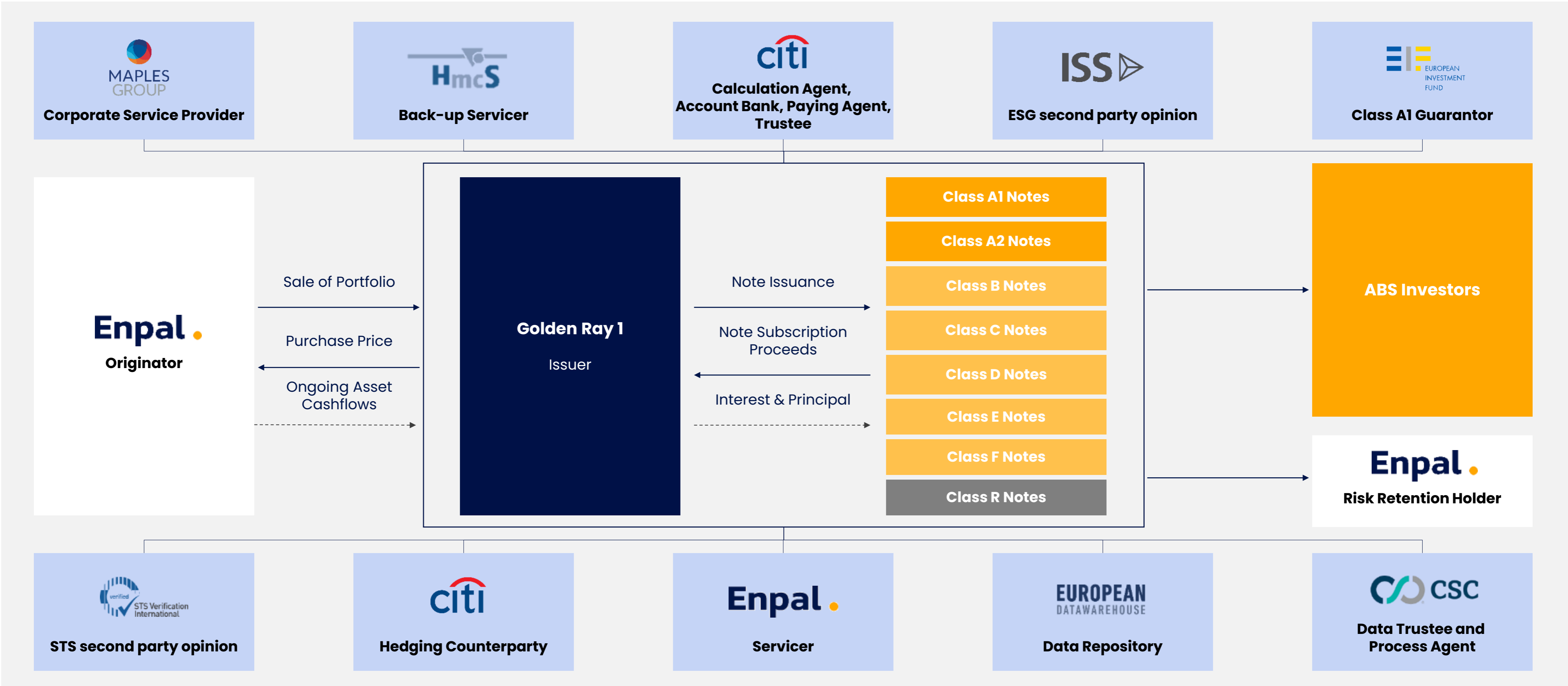
Well diversified portfolio of customers across Germany...



... with the highest Schufa Scores A & B dominating



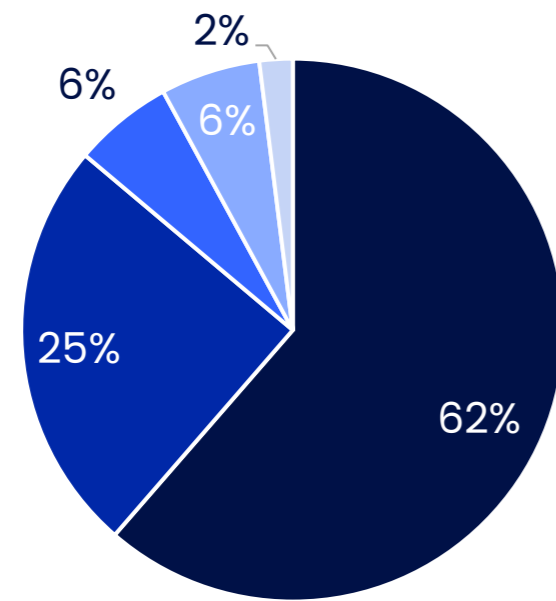
Structure Overview



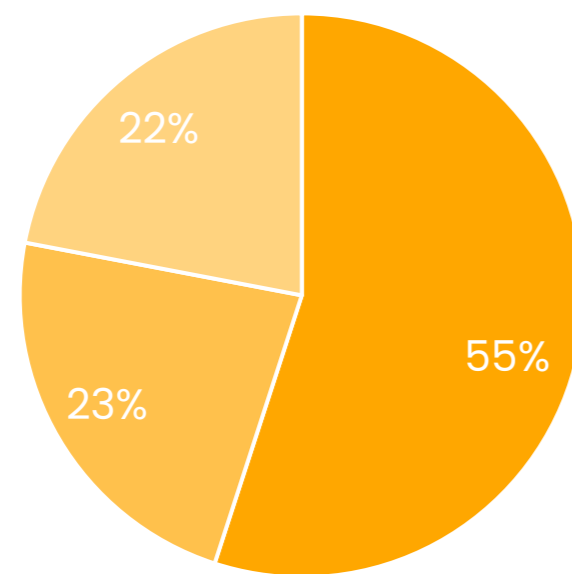
7 Source: Golden Ray-1 Preliminary Prospectus dated [23] October 2024 ("Structure Diagram")

Investor Stats

Breakdown of the 18 investors involved



■ Benelux ■ UK ■ Germany ■ France ■ US



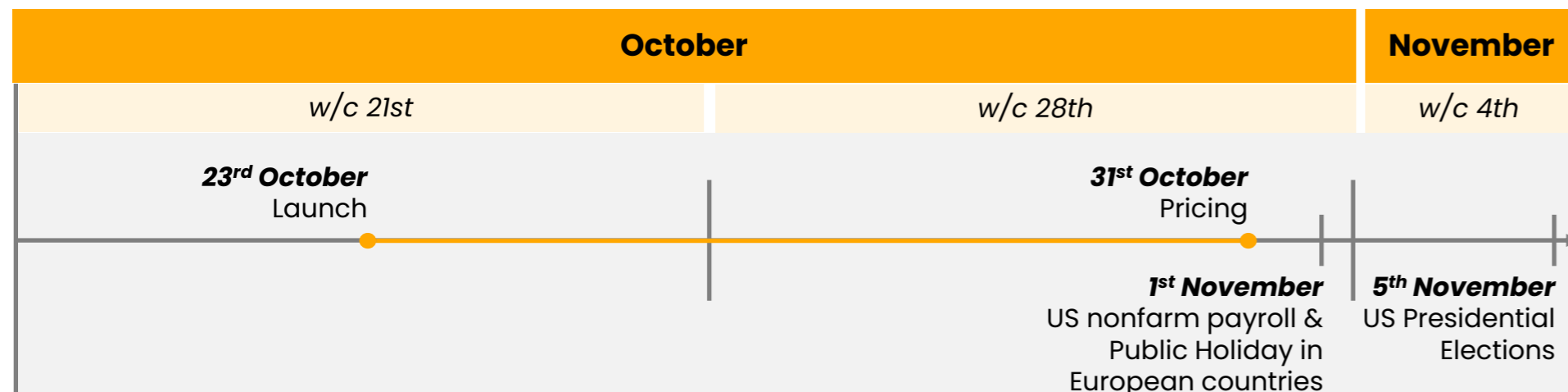
■ Asset Manager / Real money ■ Bank ■ Official Institution

Investor structure by tranche

<p>Class A Notes</p> <p>Class A1</p> <p>Class A2</p>	<p>+ Public Investors</p> <p>Guarantee</p> <p>+ Public Investors</p>	<ul style="list-style-type: none"> In an effort to unite public and private capital to create a new asset class, Enpal has obtained a guarantee for Class A1 from the European Investment Fund The European Investment Bank has additionally put in an anchor order of €50m in the Class A2 alongside institutional investors
<p>Class B Notes</p> <p>Class C Notes</p> <p>Class D Notes</p> <p>Class E Notes</p>	<p>Public Investors</p>	<ul style="list-style-type: none"> From Class B to Class E all tranches have been fully placed with institutional investors
<p>Class F Notes</p> <p>Class R Notes</p>	<p>Enpal</p>	<ul style="list-style-type: none"> Enpal retained the Class F & R Notes in order to comply with regulation

Streamlined Process, Resounding Media Success

Seamless Execution



- **Effective marketing process** gouging investor interest **within less than two weeks from launch to pricing**
- Thanks to the anticipated launch of the transaction and Enpal being widely known in the market, **significant tightening in pricing levels could be achieved**
- Long-stop date in marketing phase due to **European public holiday and US presidential elections in the week after pricing**

Arranger:

JLMs:

Strong Media Reception

Bloomberg
First Solar-Panel Backed Bond Deal to Go to Market in Europe
 ■ German renewable firm Enpal said to hold investor call today
 ■ Deal backed by portfolio of €240 million solar panel loans
 By [Abhinav Ramnarayan](#)
 October 24, 2024 at 7:48 AM EDT
 Updated on October 24, 2024 at 11:07 AM EDT

WirtschaftsWoche
 GRÜNE KREDITE
Können Solar-Verbriefungen die Energiewende stützen?
 Der Solar-Installateur Enpal begibt Europas erste Anleihe, die mit Solar-Krediten deutscher Kunden besichert ist. Für wen eignet sich das Papier?
 Florian Güßgen
 28.10.2024 - 13:28 Uhr

GlobalCapital
Golden Ray markets Europe's first rated solar ABS
 By [Donna M. Mitchell](#) October 24, 2024, 5:20 p.m. EDT 1 Min Read

GlobalCapital
ABS debutant Enpal determined to capitalise on moment in sun
 Tom Lemmon, George Smith November 04, 2024 02:38 PM

GlobalCapital
Dawn breaks on EU solar ABS market with Enpal's Golden Ray
 George Smith October 24, 2024 10:33 PM

A satellite view of the Earth, showing the Middle East, Africa, and parts of Europe and Asia. The text "We are turning the world carbon-neutral." is overlaid in white, with a small orange dot at the end of the sentence.

We are turning the world carbon-neutral.