EUROPEAN CENTRAL BANK

BANKING SUPERVISION

Supervisory perspective on energy efficiency and real estate lending

Trento EEMI Bauhaus Week

The opinions expressed in this presentation are mine and do not necessarily reflect the views of the ECB

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Guide on climate-related and environmental risks

Expectation 8 of the ECB Guide on climate & environmental (C&E) risks

"In their credit risk management, institutions are expected to consider climate-related and environmental risks at all relevant stages of the credit-granting process and to monitor the risks in their portfolios."

The **Guide** outlines some of the possible approaches to factor in C&E risks in the real estate sector

Give consideration to **energy efficiency** in the **collateral valuation** of commercial and residential real estate	Measure **concentrations in assets** plausibly **targeted by transition policies**, for example the distribution of energy efficiency labels	Reflect the impact of **changes to regulation** on energy efficiency in the bank's **business strategy**	If appropriate, **adjust credit scoring / rating models** to factor in the impact of renovations on PDs (via lower profitability / higher capex) or LGD (via lower collateral value)	Establish **loan pricing frameworks** that account for the **risk arising from the energy efficiency of the collateral**

ECB Thematic Review on C&E risks

Appropriate strategies and products builds on **granular data** and **measurable metrics**

Example of materiality assessment and strategic response

Commercial real estate and mortgages	• Elevated transition risk due to comparative inefficiency of buildings (collateral)	• Estimate the carbon footprint of individual customers based on gas and light bills to support targeted increases in credit for building renovation and energy performance measures • Restriction on loans for energy-inefficient buildings (taking into account their energy performance) • Provide support tools for customers to monitor and optimise the energy consumption of homes

Example of product offering

House renovation loans	Special-purpose loans for energy efficient house renovations, sometimes supported by a government scheme. Example: Clients buy real estate with a low-scoring EPC label. They use a loan to increase the EPC label within a certain time period. One institution reduces the interest rate applied to mortgages over the course of its duration if the borrower upgrades the unit to an energy efficient EPC label prior to the interest rate reset date.

Example of data sources

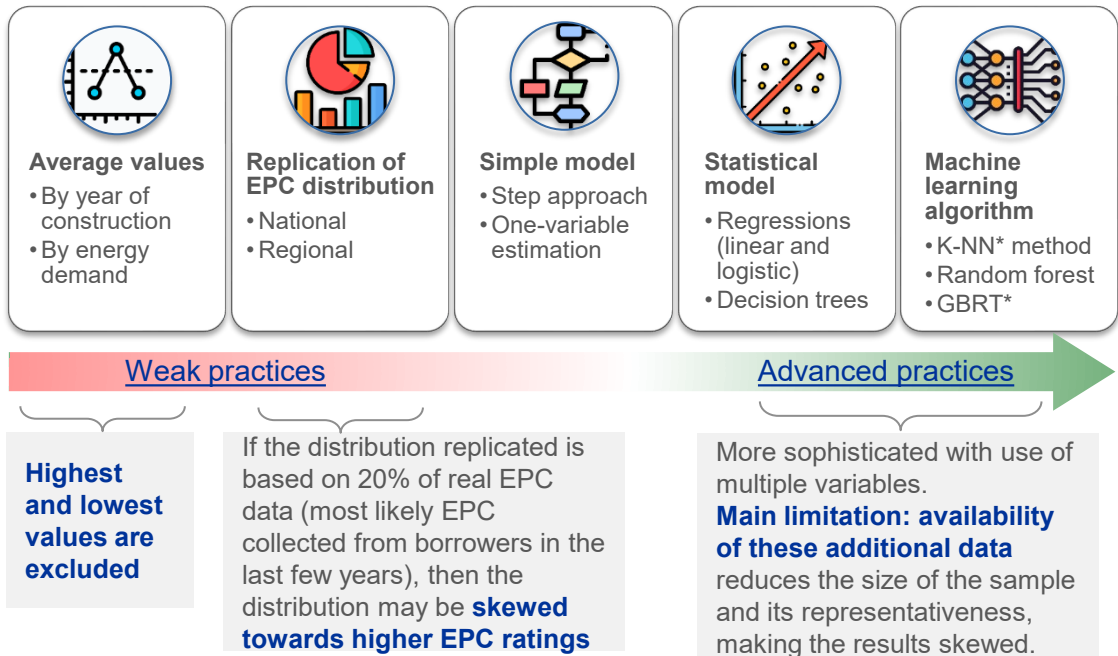| **Residential real estate**	GHG emissions/m²	Volume trajectory	n/a	46% GHG emissions reduction per m2 (2020 baseline)	2030	
	Energy Performance Certificate (EPC)	Standards based (taxonomy aligned)	B2DS Global	Weighted average EPC label "A"	2030	
	kg CO2/m2	Physical intensity	IEA NZE 2050	~20 kg CO2/m2	2030	
				~0 kg CO2/m2		2050

Energy Performance Certificate data

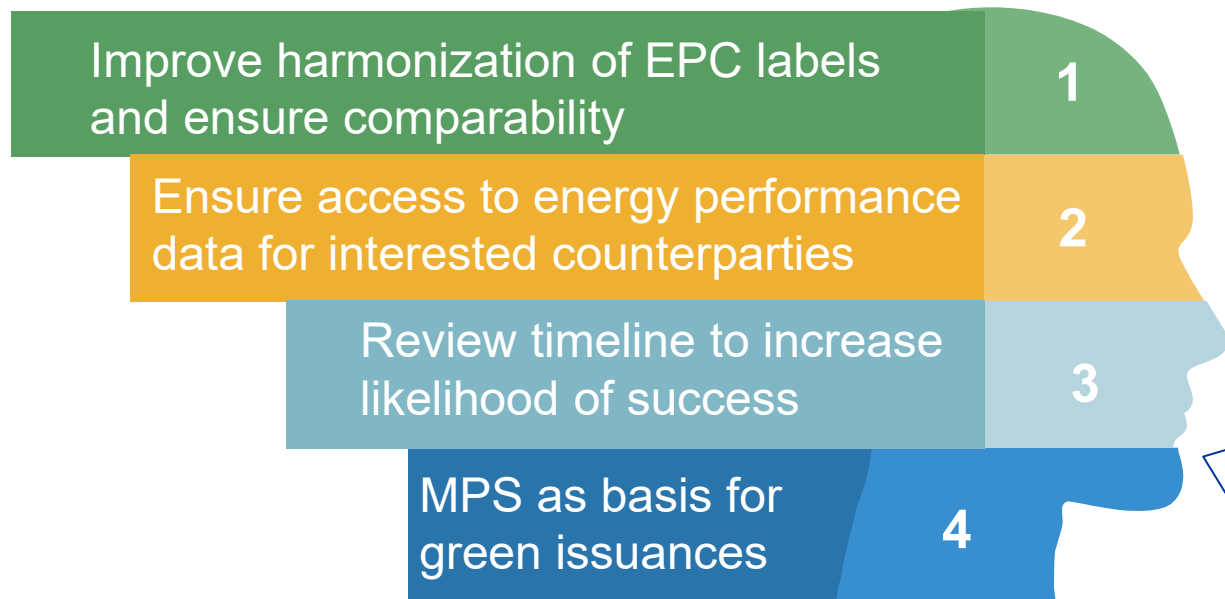**Actual data** should always be preferred when available

[Good practices](#)

✓ **Request EPC data at loan origination** or when carrying out annual review or modifying a loan

✓ Retrieve from public **EPC registers** where publicly accessible

✓ Instruct valuers to collect the EPC data as part of the **collateral valuation review**

Estimation methodologies

Average values	Replication of EPC distribution	Simple model	Statistical model	Machine learning algorithm
• By year of construction • By energy demand	• National • Regional	• Step approach • One-variable estimation	• Regressions (linear and logistic) • Decision trees	• K-NN* method • Random forest • GBRT*

[Weak practices](#) ───────────────────► [Advanced practices](#)

Highest and lowest values are excluded

If the distribution replicated is based on 20% of real EPC data (most likely EPC collected from borrowers in the last few years), then the distribution may be **skewed towards higher EPC ratings**

More sophisticated with use of multiple variables. **Main limitation: availability of these additional data** reduces the size of the sample and its representativeness, making the results skewed.

*K-NN method: k-Nearest Neighbors method. GBRT: Gradient Boosting Regression Tree.

ECB opinion on the EPBD (recast)

1. Improve harmonization of EPC labels and ensure comparability

2. Ensure access to energy performance data for interested counterparties

3. Review timeline to increase likelihood of success

4. MPS as basis for green issuances
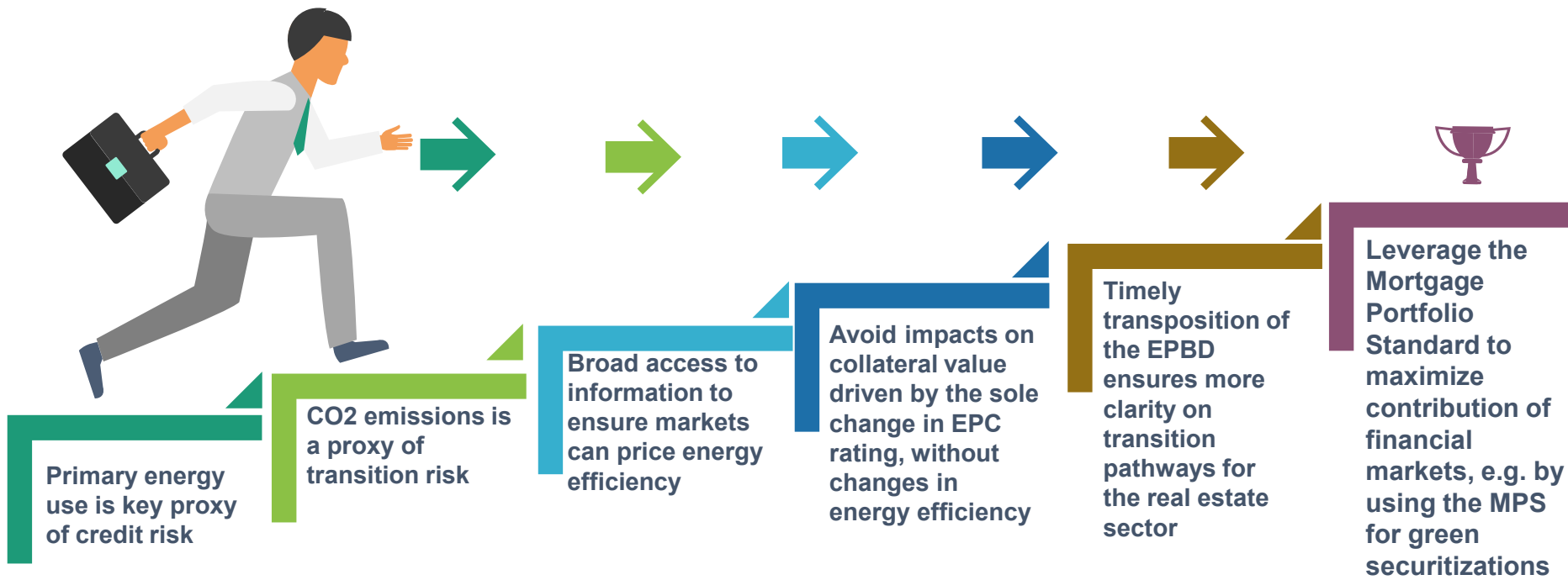
Broad support for the aims of the directive, e.g. to contribute to EU climate goals:

- Reduce reliance on fossil fuels
- Make households and companies more resilient to energy price shocks
- Increase clarity on pace and time of the transition

ECB opinion on the EPBD (recast): improving use of energy efficiency in credit assessment

Primary energy use is key proxy of credit risk

CO2 emissions is a proxy of transition risk

Broad access to information to ensure markets can price energy efficiency

Avoid impacts on collateral value driven by the sole change in EPC rating, without changes in energy efficiency

Timely transposition of the EPBD ensures more clarity on transition pathways for the real estate sector

Leverage the Mortgage Portfolio Standard to maximize contribution of financial markets, e.g. by using the MPS for green securitizations

THANK YOU!

Questions?

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