RoGBC Green Finance Recommendations for consideration by BNR's Green Finance Task Group.

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EXAMPLE - Allowing Energy Savings as Alternate Income on Mortgage applications.

Summary:

"A penny saved is a penny earned". Therefore, residential projects with credibly modeled or demonstrated energy savings (or revenue generated from green energy production) should afford the buyer of homes in that project a higher income relative to someone who purchases a poor performance, expensive-to-maintain house. This provision will allow the very critical but marginal additional loan size to unlock better design and construction budgets that, in turn, provide a lower cost of operations and ownership of a home and an improved ability to repay a mortgage.

The Energy Performance Certificate (EPC) audit provides not only a modeled energy savings but also a projected financial savings that can provide this cash flow information to a bank to incorporate into their mortgage underwriting process. The addition of these financial institutions as reliant stakeholders in the accuracy and credibility of EPCs will ensure the financial information collected is improved over time.

This example of a Best Practice is already available in Romania.

I. Integrate Sustainable Residential Real Estate Finance Initiatives and Capital Markets Union Priorities

Summary: enable expanded sources of funding for developers bringing sustainable projects to the market and financial institutions financing such development while enhancing the resilience of the financial system through ambitious yet common standards for sustainable real estate finance.

As EU policy initiatives are successful in removing the obstacles currently holding back the development of a cross-border market for sustainable financial products, these actions will also be instrumental in fostering further growth of this segment. Measures should be taken to reinforce efforts to deepen and further integrate EU capital markets, providing new sources of funding for developers bringing sustainable projects to the market and financial institutions

financing such development and ultimately sustainable home ownership while enhancing the resilience of the financial system. Thus common standards for sustainable financial products can be a powerful driver of financial integration.

II. Align Regional, National and Local Regulations with the EU Taxonomy for Sustainable Activities

Summary: unify and clarify the metrics, thresholds, reporting requirements and disclosures used for sustainable residential real estate finance through consistent disclosure regimes aligned with the EU Taxonomy for Sustainable Activities ('EU Taxonomy'). Develop a residential real estate sector-wide sustainability database for reporting and decision-useful analysis of such disclosures.

The environmental performance data and analytics provided by the disclosures and propagated throughout the database would inform consistent policy development across jurisdictions and regions. As the sustainability of the European building stock varies significantly, consistent environmental performance data would enable regions where the standards are low to rapidly transform environmental standards for new construction whereas regions where existing standards are already high would have greater ability to continue innovating and pioneering breakthroughs in residential real estate sustainability along with incentive to continually raise environmental performance standards. A conceptual introduction to the database is provided below along with existing disclosures which could support development of such a database.

- **Residential Real Sector-Wide Sustainability Database:** develop a sustainable residential real estate finance database which incorporates the full suite of loan-level environmental and financial performance for acquisition, development, construction, renovation and mortgage product-sets for sustainable residential real estate. The sustainable features of each project should be tagged at the property level then linked to each corresponding feature of each associated financial product and financial instrument. The database would be aligned with the full scope of sustainable residential real estate finance product-sets considered an eligible portfolio within a Green Bond Framework supporting the issuance of an EU Green Bond. Property-level environmental performance and loan-level financial condition should be reported at consistent intervals to measure environmental performance measured against EU policy initiatives and assessment of relative financial performance between conventional and sustainable residential real estate finance product-sets.

  Industry-wide aggregate environmental and financial performance would be made available to financial institutions which contribute to the development and operation of the database. The aggregate environmental and financial performance would be available to contributing financial institutions on an open-source basis for further developing their own sustainable residential real estate finance incentives. The aggregate data would be used to introduce new loan-level financial incentives for the

introduction of new sustainable residential real estate product-sets enabling the citizen to gain the sustainability and economic benefits. The aggregate date would be used in the design of sustainable residential real estate finance issuance programs, transaction structures and capital markets instruments allowing mainstream institutional investors to fully participate in existing and emerging sustainable economic activities in the residential real estate sector.

- **Sustainability-Related Disclosures in the Financial Services Sector (SDR):** consistent sustainable residential real estate disclosure against the Taxonomy should form part of a broader sustainability-related disclosure regime in conjunction with the SDR, including pre-contractual, website and periodic reporting obligations.

- **Non-Financial Reporting Directive: ('NFRD'):** companies disclosing against the Taxonomy are also required to comply with the NFRD and should be required to report at the same level of detail and consistent units of measure for sustainable residential real estate disclosures level of detail and consistent units of measure for sustainable residential real estate disclosures.

III. Establish European Definition and Market Convention of a Sustainable Residential Real Estate Securitization

Summary: The EU Green Bond Standard ('EU GBS') should define what a sustainable residential real estate backed securitization or financial instrument constitutes by standardising criteria for assessing and reporting the environmental impact of the underlying loans and mortgages.

A harmonised regime is key for development of the EU sustainable securitisation market and for increased bank lending capacity for sustainable residential real estate projects. Such a regime is also critical to any financial and environmental analysis of a pool of sustainable residential mortgages. The historical loan level data demonstrating the relationship between property-level environmental performance and borrower credit is critical to assess the relative performance and quantify the risk-differential between sustainable and conventional product-sets. The EU Green Bond Standard ('EU GBS') proposes that any type of listed or unlisted bond or capital market debt instrument issued by a European or international issuer that is aligned with the EU GBS should qualify as an EU Green Bond. The proposed draft model links the use-of-proceeds of EU Green Bonds to the EU Taxonomy Regulation. The EU GBS should clarify what a sustainable securitisation looks like by standardising criteria for assessing the environmental impact of underlying assets to support potential issuers, verifiers and investors in the analysis of sustainable real estate securitizations.

IV. The Simple, Transparent and Standardized ('STS') Regime to Include Sustainability as a Condition for Qualification

Summary: The European Banking Authority should propose a specific framework for preferential risk-based capital treatment of sustainable residential estate securitisations and financial instruments as part of the 'Simple, Transparent, and Standardised' regime.

While sponsors and originators must disclose the environmental performance of the underlying assets to receive preferential capital treatment under the 'Simple, Transparent, and Standardised' (STS) regime, the STS regulation does not make sustainability a condition of STS qualification[2]. Article 501c of the EU Capital Requirements Regulation mandates the European Banking Authority ('EBA') to assess prudential treatment for assets associated substantially with environmental and/or social objectives. Amendments to the EU Securitisation Regulation proposed in the European Parliament on 10 November 2020 call for the EBA to report on the development of a specific framework for sustainable securitisation by 1 November 2021[3]. This report would consider whether preferential capital treatment could be justified for green securitisations through introduction of sustainability factors. The EBA and the European Parliament should consider the 15 types of risk reduced by sustainability, including: Climate Risk, Transition Risk, Physical Risk, Credit Risk: Probability of Default, Credit Risk: Loss Given Default, Credit Risk: Correlation: 1st Order: Borrower Specific, Credit Risk: Correlation: 1st Order: Property Specific, Credit Risk: Correlation: 2nd Order: Securitized Product, Market Risk: Climate VaR, Market Risk: Stressed VaR, Option-Adjusted Spread, Prepayment Risk, Interest Rate Risk, Underwriting Risk, Liquidity Risk and Operational Risk.

V. Align Risk-Based Capital Prudential Frameworks with the Risk Profile of Sustainable Real Estate Mortgage Finance by Integrating Climate Scenario Analysis into Stress Testing Exercises at Financial Institutions

Summary: Central banks should recommend a global risk-weight reduction regime for sustainable residential estate finance which is aligned with the EU Taxonomy and dynamically integrates Primary Energy Demand Reductions (kWh/m^2/year)/(% of energy use reduced/avoided).

Global and European policymakers should use the prudential framework to provide more favourable capital treatments for sustainable residential real estate finance. Top-down modeling exercises undertaken by central banks to assess the impact of climate risk on a wide-ranging set of economic and financial variables (e.g. GDP, inflation, employment, house prices, yield curve shifts, OAS spreads, bond prices, loan-level and pool-level valuations.) This includes risks that arise from different physical and transition outcomes across a wide range of sectors and geographies. Central banks should report the results and the key assumptions underpinning them to address specific areas of risk and monitor key risk indicators. Bottom-up scenario analysis exercises undertaken by financial institutions to provide a basis for alignment of loan-level features with the risk profile of sustainable real estate mortgage finance product-

sets including calibration of mortgage insurance premiums, interest rate, Loan-to-Value ratio and Debt-to-Income ratio at underwriting. The European Banking Authority ('EBA') in July 2020 told the European Commission that it would prefer to complete its review into incorporating Environmental, Social and Governance (ESG) factors into the bank prudential framework, which is only due by June 2025, before the Commission publishes specific legislative proposals on its Renewed Sustainable Finance Strategy. Overall, the EBA's desired sequencing suggests that a beneficial capital treatment regime for sustainable finance activities may not be a near-term prospect yet environmental risk and climate scenario analysis capabilities make such risk-based capital adequacy supervision a practical solution for immediate application.

VI. Incentivize Sustainable Flexible Residential Housing

Summary: Healthy living space that enables productivity should be incentivized as a part of broader sustainable real estate finance policy initiatives.

Address the current economic and epidemiologic developments while meeting the elevated demand for healthy indoor environments by enabling multi-family building owners and single-family residential developers to accommodate work-from-home situations. This pandemic will pass but flexible working will remain parts of its legacy. An average of three days per week in the office is emerging as employees' expected post COVID-19 preference. With flexible working set to remain ingrained in the working week, healthy living space that enables productivity will be highly sought after.

VII. Increase Lending Capacity through Synthetic Risk-Transfer

Summary: enable the transfer of performance risk from banks to energy companies through standard financial structures.

A bank can increase lending capacity for sustainable real estate finance through synthetic risk transfer. The environmental risk which is not minimized through the development process can be transferred to third parties. Performance risk is one area where a bank can transfer the uncertainty to third parties with specialized understanding and the wherewithal to manage such risk. The transfer of this risk will free up balance sheet capacity for sustainable real estate finance where the bank is able to focus its expertise in managing traditional financial risk types such as credit, market and operational risks.

VIII. Enhance the Attractiveness of Energy-Efficiency Delivery to the Housing Stock by Offering Energy-Efficiency Equipment 'as-a-service' Type Business Model.

Summary: Shift the residual asset value risk, market risk and performance risk from the ultimate homeowner, the bank and the developer to the energy service provider.

The model would involve selling on-site renewable power or energy efficiency as a service where future performance is guaranteed. This shifts the cost-of-capital, residual asset value risk, market risk and performance risk from the ultimate homeowner, the bank and the developer to the service provider. While the bank would be financing the service provider but by reducing the cost of capital for such service providers the bank can assist small and medium size developer gain access to energy efficiency. This would reduce a barrier to financing sustainable real estate through reducing two risk for two stakeholder groups, including: performance risk for institutional investors investing in large-scale deals backed by sustainable residential real estate projects and reputational risks for banks originating sustainable mortgages for the purchase of new construction.

IX. Create a Platform to Scale Small Ticket Sustainable Residential Real Estate Projects Allowing Developers to Raise Additional Forms of Debt

Summary: Consider additional regulatory measures combined with forms of debt finance and equity finance structures to scale small scale sustainable residential real estate projects and channel institutional investment toward emergent sustainable residential real estate projects.

Provide the opportunity for the capital markets to channel institutional investment toward emergent sustainable residential real estate projects. Consider additional regulatory measures and policy instruments such as grants and subsidies, tax incentives, energy efficiency obligations and energy efficiency feed-in-tariffs. Consider forms of debt including soft loans, leasing, energy performance contracts, energy service agreements, revolving funds, commercial loans, property assessment clean energy and on-bill energy. Consider forms of equity finance including energy performance contracts, energy service agreements and crowdfunding. Create a platform for crowd funding to source the equity base in the capital structure of small ticket sustainable residential real estate projects allowing developers to raise debt. The typical minimum institutional investment size for sustainable residential real estate is €85mn but can be as low as €15mn.

X. Integrate Sustainability into Sustainable Residential Real Estate Finance Product-Sets

Residential real estate finance product-sets should fully capture the risk reduction of environmental sustainability in their structural features and reflect how the degree of environmental performance impacts 15 types of risk reduced by sustainability, including: Climate Risk, Transition Risk, Physical Risk, Credit Risk: Probability of Default, Credit Risk: Loss Given Default, Credit Risk: Correlation: 1st Order: Borrower Specific, Credit Risk: Correlation: 1st Order: Property Specific, Credit Risk: Correlation: 2nd Order: Securitized Product, Market Risk: Climate VaR, Market Risk: Stressed VaR, Option-Adjusted Spread, Prepayment Risk,

Interest Rate Risk, Underwriting Risk, Liquidity Risk and Operational Risk. Depicted below are assumed adjustments to typical mortgage terms to convert a conventional mortgage into green mortgage based on the sustainability characteristics.

Mortgage Conversion: Conventional to Sustainable				
Risk Type	**Mortgage Insurance Premium**	**Mortgage Rate**	**Loan-to-Value**	**Debt-to-Income**
Climate Risk	x0.1	x0.95		
Transition Risk	x0.1	x0.95		
Physical Risk	x0.1	x0.95		
Credit Risk: Probability of Default	x0.1	x0.85	+1.10 up to 100%	+150bps
Credit Risk: Loss Given Default	x0.1	x0.85	+1.10 up to 100%	+2pps
Credit Risk: Correlation: 1st Order: Borrower Specific	x0.1	x0.85	+1.10 up to 100%	+150bps
Credit Risk: Correlation: 1st Order: Property Specific	x0.1	x0.85	+1.10 up to 100%	+150bps
Credit Risk: Correlation: 2nd Order: Securitized Product		x0.85		

Market Risk: Climate VaR		x0.98		
Market Risk: Stressed VaR		x0.98		
Option-Adjusted Spread		x0.85		
Prepayment Risk		x0.8		
Interest Rate Risk		x0.8		
Underwriting Risk	x0.1	x0.9		
Liquidity Risk		x0.98		

XI. Adequately Calibrate Residential Real Estate Product-Set Features to an Environmental Performance Coefficient

Summary: Single-family and multi-Family residential real estate finance underwritten with an environmental performance coefficient ('EP Coefficient') established, calibrated and monitored by bank supervisors and implemented by financial institutions for application to sustainable residential real estate finance product sets and transaction structures serves to transform the sustainability profile of the building stock, improve the supply of sustainable finance while providing investors with certainty about environmental performance over time. The EP Coefficient establishes a means of incentivizing development of EU Taxonomy-aligned residential real estate projects and origination of sustainable real estate finance product-sets and transaction structures necessary for issuance of an 'EU Green Bond' under the EU Green Bond Standard.

The EP Coefficient would increase the supply of readily investable sustainable projects by providing certainty for investors, protection against greenwashing and systematic allocation of resources to those projects meeting regulatory and investor-driven sustainability criteria. The EP Coefficient would thereby be an effective means of channeling capital toward sustainable projects. The supply and demand gap for sustainable residential real estate is expected to continue rising as we are facing an era of under-building with future pipelines also restricted,

compared to previous cycles. For example, the largest RANDSTAD cities, including Amsterdam, currently suffer from a shortage of 300,000 homes. This means new construction of sustainable residential real estate along with renovation, retrofit and refurbishment measures are viable means of addressing the housing demand while unlocking latent demand by institutional investor for sustainable deal flow.

The environmental performance coefficient is composed of metrics including:

- **Primary Energy Demand Reductions (kWh/m^2/year)/(% of energy use reduced/avoided);**
- **Carbon Reductions (kgCO_2/m^2/year)/(tonnes of CO_2 reduced/avoided);**
- **Water Efficiency (annual water savings m^3/year);**
- **Waste Management (% of total waste minimised, reused or recycled); and**
- **Others deemed essential for inclusion of buildings within a sustainable investment portfolio**

The weighting of the individual metrics that compose the EP Coefficient are calibrated to incentivize EU Taxonomy alignment and maximize sustainability outcomes.

The EP Coefficient is integrated with residential real estate environmental performance through certification systems outlined below. While there is one certification system known to facilitate alignment with the EU Taxonomy, there must be positive evidence that each certification system and certification category below can facilitate EU Taxonomy-alignment before a financial institution can implement the incentives under the EP Coefficient regime.

The EP Coefficient is calculated based on the actual environmental performance divided by the expected environmental performance. The EP Coefficient is a ratio where a value of 1.0 indicates actual environmental performance is the same as expected whereas anything below 1.0 would be favorable performance and above 1.0 would be poor performance.

The Environmental Performance Coefficient would be integrated with the mortgage rate, mortgage insurance premiums, loan-to-value ratio and debt-to-income ratio established at underwriting. The debt service coverage ratio is included for application to multi-family residential projects.

The Environmental Performance Coefficient has two basic implementation methods which can be described as:

- **One-Way Pricing Structure**: pricing is reduced and terms are adjusted if energy efficiency targets are met but there is no penalty for buildings failing to meet the target.
- **Two-Way Pricing Structure**: pricing is reduced and terms are adjusted if energy efficiency targets are met while they increased for building failing to meet the target.

The one-way pricing structure provides incentives for developers to meet energy efficiency targets but does not discourage failure. While two-way pricing structures incentivise developers to meet targets and discourages failure it can result in the lender benefitting from the failure of the project to meet energy efficiency targets. A solution to the downside of a two-way pricing structure would be to put the incremental proceeds from price increases into a separate account which is designated specifically for the borrower to make energy efficiency improvements.

XII. EP Coefficient: Mortgage Rate Calibration

Summary: The mortgage rate discount which the financial institution provides for acquisition, development and construction loans as well as mortgages and renovations loans and related residential real estate finance product-sets would be a function of market-based rates and the EP Coefficient.

The discount offered by the financial institution for projects achieving the 1st Tier Certification from any of the certification systems which can facilitate EU Taxonomy alignment would be 80% of the equivalent market-based rate. The discount is then reduced for achieving a 2nd Tier Certification. There is a penalty for properties built to code which can be used to fund certified green properties. The penalty can be dropped to avoid the financial institution being at a competitive disadvantage. The interest rate for a sustainable financial product is therefore a function of the EP Coefficient applied to the market-based rate for a standard acquisition, development and construction loans as well as mortgages and renovations loans and related residential real estate finance product-sets.

Sustainable Residential Real Estate Financial Product-Sets are subject to an Environmental Performance Coefficient to dynamically adjust their features as a function of their environmental performance.		**EP Coefficient**		
		Certification: 1st Tier	**Certification: 2nd Tier**	**Conventional: Code Built**
Feature	**Baseline**			
Mortgage Rate (-/+)	Market Based	0.8	0.95	1.05

XIII. EP Coefficient: Mortgage Insurance Premium Calibration

Summary: The mortgage insurance premium discount financial institutions can offer through a sustainable mortgage insurance program would reduce or eliminate premiums for sustainable residential real estate projects which presents lower default risk to the lender and favorable affordability characteristics to the borrower. A financial institution can eliminate mortgage insurance requirements for projects achieving the 1st Tier Certification while reducing it by 50% for 2nd Tier Certification then requiring market-based mortgage insurance premiums for all rating categories below the 2nd Tier Certification.

The credit enhancement provider or financial guarantor would provide first loss coverage to the lender for a premium formulated as a function of the sustainable and economic profile. The EP Coefficient simplifies this through capturing the sustainability profile as well as the financial risk profile then translating that into a sustainable residential mortgage insurance premium. Multi-family, bridge and mezzanine real estate lenders as well as real estate preferred equity investor currently offer sustainable residential real estate mortgage insurance premium reductions for properties achieving high levels of environmental certification. Incentives would vary by mortgage product sector, credit tier, property type and geography.

Sustainable Residential Real Estate Financial Product-Sets are subject to an Environmental Performance Coefficient to dynamically adjust their features as a function of their environmental performance.		**EP Coefficient**		
		Certification: 1st Tier	**Certification: 2nd Tier**	**Conventional: Code Built**
Feature	**Baseline**			
Mortgage Insurance (-/+)	Underwriting Based	Eliminate Mortgage Insurance	0.5	Market-Based Mortgage Insurance

XIV. EP Coefficient: Loan-to-Value Ratio Calibration

Summary: The LTV at underwriting can be adjusted upward for residential real estate projects achieving the 1st Tier Certification. The LTV at underwriting is adjusted upward to a lesser degree for residential real estate projects achieving the 2nd Tier Certification.

The Loan-to-Value Ratio (LTV) for single family homes can benefit from proper calibration which properly reflects incremental value added to a residential property through sustainable real estate development measures. The value added directly attributable to sustainable building measures can be challenging to quantify given such homes are built to higher standards than

homes which may be used for comparable based value assessment. The added value of green building approaches are exhibited through characteristics fundamental to the property such as the quality of building materials and efficiency of energy systems. The home buyer can benefit from being able to finance the incremental cost of green building measures which can provide them with annual savings equivalent up to two mortgage payments on a high LTV loan. The mortgage originator will benefit by developing a portfolio of higher quality borrowers, higher quality properties, and higher levels of borrower performance and property performance.

Sustainable Residential Real Estate Financial Product-Sets are subject to an Environmental Performance Coefficient to dynamically adjust their features as a function of their environmental performance.		**EP Coefficient**		
		Certification: 1st Tier	**Certification: 2nd Tier**	**Conventional**
Feature	**Baseline**			
LTV (-/+)	Underwriting Based	1.1	1.05	0.95

XV. EP Coefficient: Debt-to-Income Ratio Calibration

Summary: The typical Debt-to Income ratio can be increased by three percentage points for residential real estate projects achieving the 1st Tier Certification based on the higher credit quality, additional income and lower expenses associated with sustainable measures.
The Debt-to-Income ratio should be adjusted upward before the impact of green building measures is recognized as income. This provides an additional incentive that is split between the lender and the borrower. The lender is able to offer competitive terms to a prospective client and add a mortgage to their portfolio which delivers both improved financial and sustainability returns. The borrower is able to get the benefit of increased purchasing power for a green home along with the energy cost savings. The combination of these factors creates monthly savings consisting of two components: a lower mortgage payment and lower operating costs.

	EP Coefficient

Sustainable Residential Real Estate Financial Product-Sets are subject to an Environmental Performance Coefficient to dynamically adjust their features as a function of their environmental performance.		Certification: 1st Tier	Certification: 2nd Tier	Conventional: Code Built
Feature	**Baseline**			
Debt-to-Income (-/+)	Underwriting Based	1.03	1.01	0.98

XVI. EP Coefficient: Debt-Service Coverage Ratio ('DSCR')

Summary: The DSCR is adjusted downward for residential real estate projects achieving the 1st Tier Certification. The baseline debt-service coverage (DSCR) ratio for a multi-family residential property is 1.30 which is the typical industry standard for conventional buildings before consideration of environmental performance.

The debt-service coverage ratio for multi-family properties benefits from sustainability measures as lease up periods, rent per square meter, occupancy rates increase from higher demand for green buildings while operating expenses decrease from energy cost savings. According to the IFC, building green can range from savings of 0.5% to additional costs of 12.0% while decreasing operational costs by up to 37%, achieving higher sales premiums of up to 31%, increasing occupancy rates by up to 23%, increasing rental income up to 8% while providing faster sale times. The combination of the increased revenue and decreased expenses benefit the debt-service coverage ratio justifying incentives such as a lower required DSCR at underwriting.

Multi-family property loan covenants typically require maintenance of a minimum coverage, often 1.25 or 1.30 below which a loan may be accelerated, reserves increased, or other penalties applied. A loan that falls below 1.15 or 1.10 may be considered impaired although of course specific DSCRs will vary in each situation. Cash flow improvements from high standards of environmental performance can significantly improve debt service coverage. An analysis of 550 multi-family residential buildings in the Northeastern United States tested the impact of 30% (hypothetical) energy savings on debt service coverage. On average, those savings would improve DSCRs by 24%. For 10% of the assets, this improvement would:

- Shift them from a DSCR below 1 (i.e. unable to pay debt service) to positive coverage; or
- Move them out of an "impaired" coverage status closer to target minimum coverage; or
- Lift coverage ratios from at or below minimums typical in loan covenants to healthy coverages exceeding those minimums

For a lender, an across-the-board improvement significantly reducing exposure in 10% of its loans is a dramatic result warranting close attention.

Sustainable Residential Real Estate Financial Product-Sets are subject to an Environmental Performance Coefficient to dynamically adjust their features as a function of their environmental performance.		EP Coefficient		
		Certification: 1st Tier	Certification: 2nd Tier	Conventional: Code Built
Feature	**Baseline**			
DSCR (-/+)	1.3	0.9	0.95	1.05