

Call for Expressions of Interest (EOI) **Analytical implementation of NGFS short-term scenarios**

Background

The Central Banks and Supervisors Network for Greening the Financial System (NGFS) is inviting Expressions of Interest (EOI) from modelling teams to support the development of short-term climate scenarios of the NGFS. The NGFS is a group of Central Banks and Supervisors willing to contribute to the development of environment and climate risk management in the financial sector and to mobilize mainstream finance to support the transition toward a sustainable economy.

The NGFS partnered with an expert group of climate scientists and economists to design a set of hypothetical climate scenarios. Climate scenarios were originally designed to provide policymakers with advice on the risks from climate change and identify possible solutions. They form a key part of scientific assessments such as those conducted by the Intergovernmental Panel on Climate Change (IPCC). Since 2020, they have been adapted by the NGFS to help central banks and supervisors explore the possible impacts on the economy and the financial system. They are regularly made available as a public good ([NGFS Scenarios Portal](#)) and have a number of useful applications, including scenario analysis and disclosure, strategy and policy alignment, or academic research.

The Workstream on Scenario Design and Analysis aims to help NGFS members in their journey to undertake climate scenario analysis and promote its use within the financial system more broadly. The current scenarios include a detailed number of economic variables over long horizons and provide economic information for various transition paths. The improvements the workstream should conduct in its mandate over 2022-2024 includes the development of additional short-term adverse scenarios in order to enrich the set of existing NGFS scenarios.

Description of the project

The project aims at developing 3 to 5 short-term adverse scenarios in collaboration of the workstream members based on detailed narratives and recommendations in terms of scenario design, shocks and calibration and model implementation.

- 1 to 3 disorderly transition scenarios, including abrupt implementation of carbon taxation, financial turmoil due to stranded assets and uncertainty shocks;
- 1 scenario representing a fragmentation in transition policies across groups of countries;
- 1 scenario with current policies leading to physical hazards.

Details about narratives and proposals for shock calibration are currently summarized in a conceptual note on short-term scenarios and will be provided to the modelling team by September 2023. The short-term scenarios should span 3-5 year horizons. The inclusion of longer-term effects beyond these horizons may also be useful.

Key requirements

The project requires advanced modelling to provide a detailed set of macro-financial variables for each scenario. We are primarily seeking a well-established macroeconomic model that could simulate various shocks related to transition and physical risks together with the services of experienced and competent modelling experts to assist us in achieving our project objectives. In addition to the macroeconomic model we seek in this proposal, we are open to including other complementary models which work together to produce the pathways we intend to create, and would welcome suggestions from respondents concerning ancillary models for this project.

Deliverables

The selected modelling team will be expected to work in close collaboration with NGFS workstream members, follow the project timelines, and provide high-quality deliverables that meet the project's requirements. More precisely, the modelling team will be expected to provide modelling and analytical services related to the following deliverables:

- 1) Adapting scenario narratives based on the on-going conceptual work of the workstream, which will be used as background documentation to the project
- 2) Translating narratives into model shocks and paths for exogenous variables in order to simulate the short-term scenarios
- 3) Collecting results for a set of macroeconomic variables (a list of variables is provided in Table A in Appendix for illustration purposes) into a template of macroeconomic variables
- 4) Scenario data reported in a public database to be stored on the NGFS scenario portal (managed by IASA), making them compatible with the portal requirements in terms of data format.
- 5) Contributing together with the workstream members to the scenario documentation, including slide decks, notes and technical documents.
- 6) Providing technical assistance to workstream members in the use of the scenarios could potentially be considered as an additional service.

Guiding principles for decision-making

We are looking for teams with a proven track record in providing modelling services to provide support to policy-making institutions (central banks, international institutions, ministries...) and with expertise in climate-related risk assessment. There are a number of important considerations for the NGFS in reaching a decision. These include:

- **Existing proven expertise in scenario building** – publication of model-based applications in support of policy work or academic research involving scenario analyses.
- **Ability of the model to account for climate-related shocks and policy variables** – use cases of model applications involving climate-related topics, including effects of transition policy to low-carbon economy and weather-related events.
- **Geographical coverage** – information about the regional breakdown and countries modelled, with special attention to the production of macroeconomic and financial data at the highest feasible level of granularity per country.
- **Time steps and simulation horizons** – quarterly or annual frequency; although the scenarios focus on shocks over a 5 year-horizon, users may need longer time series.
- **Sectoral decomposition of the model** – aggregated variable (one-good model) or disaggregation by sectors (number of sectors, details on the energy sector).
- **Variables, database and statistical sources** – clear definition of the main variables, statistical sources and availability of historical data, time horizon and time-step, and integration of physical and transition impacts.
- **Calibration of the baseline/reference scenario** – model in deviation from an implicit baseline or macroeconomic/financial/climate projections available for forward-looking part of the model horizon.
- **Support for users' questions and feedback** – availability of the team to interact with users during the project timeline and beyond.
- **Timeline** – the project spans the year 2024 with most of the model-related work concentrated in the first half
- **Intellectual property rights** – The NGFS requires the simulation data not to be protected by IP rules that prevent them from being used by other organisations.

Information to be submitted

Interested modelling teams should provide a brief EOI that includes the following information:

1. A brief description of the team's experience and expertise in modelling and related areas.
2. A list of similar projects that the team has worked on, including details of the services provided and outcomes achieved.
3. A summary of the team's approach to the project, including any innovative solution that the team proposes to adopt (e.g., including suggestions for including other ancillary models).
4. A brief description of the team's capabilities in terms of resources, infrastructure, software and training possibility.
5. Any standard documentation explaining model properties and uses.
6. A proposed budget and timeline of the project given the deadline given above.
7. Any other relevant information.

The EOI should not exceed 10 pages and be submitted **by 15 June 2023** to the NGFS secretariat (sec.ngfs@banque-france.fr). The selection of the modelling team will be based on the evaluation of the EOI against the criteria outlined in this call.

The NGFS looks forward to receiving your EIOs and working with the selected modelling team to achieve the project's objectives.

The NGFS short-term scenario selection committee includes:

- Jean Boissinot (Banque de France and NGFS Secretariat)
- Stéphane Dees (Banque de France and co-lead of the NGFS Sub-stream on Short-term Scenarios)
- David Gayle (BoE)
- Adele Morris (FRB)
- Laura Nowzohour (ECB and co-lead of the NGFS Sub-stream on Short-term Scenarios)
- Martina Spaggiari (ECB and team lead of the chair's team of the NGFS Workstream on Scenario Design and Analysis)
- Livio Stracca (ECB and chair of the NGFS Workstream on Scenario Design and Analysis)

- Sha Yu (IMF)

Appendix

List of variables to be considered by NGFS users

Variable types	List of variables	Included in model
Macro variables	GDP	
	Unemployment	
	(Core) Inflation (by component)	
	RRE/CRE prices	
	HH income and debt	
	Investment (NFCs by technologies, HH for buildings, appliances, transport)	
	Credit growth	
	Private consumption	
	Wages (compensation per employee)	
	Productivity	
	Sovereign debt	
	Exports/Imports	
	Fiscal balance	
	Real effective exchange rate	
Financial variables	Short-term rates	
	Sovereign bond prices	
	Exchange rates	
	Equity prices	
	Asset prices for relevant sectors	
	Interest rate yield shocks	
	Credit spreads – Sovereign /Corporate	
	PDs – changes in profit by sector	
	Discount rates	
	Risk premia	
Lending conditions (e.g. MFI interest rates, Euribor...)		
Climate-related variables (or climate policy/targets)	Oil price / Gas price / Electricity price	
	Carbon price	
	Electricity mix / Energy mix	
	Emissions	
	Share of buildings by EPC	
	Final energy consumption by EPC	
	Quantity of available fossil fuels	

NB: Some macro variables (e.g. Value added) could be defined by sector (See Sectoral decomposition of the model). Level of explicit carbon taxes could also be relevant for users (See Description of the project).