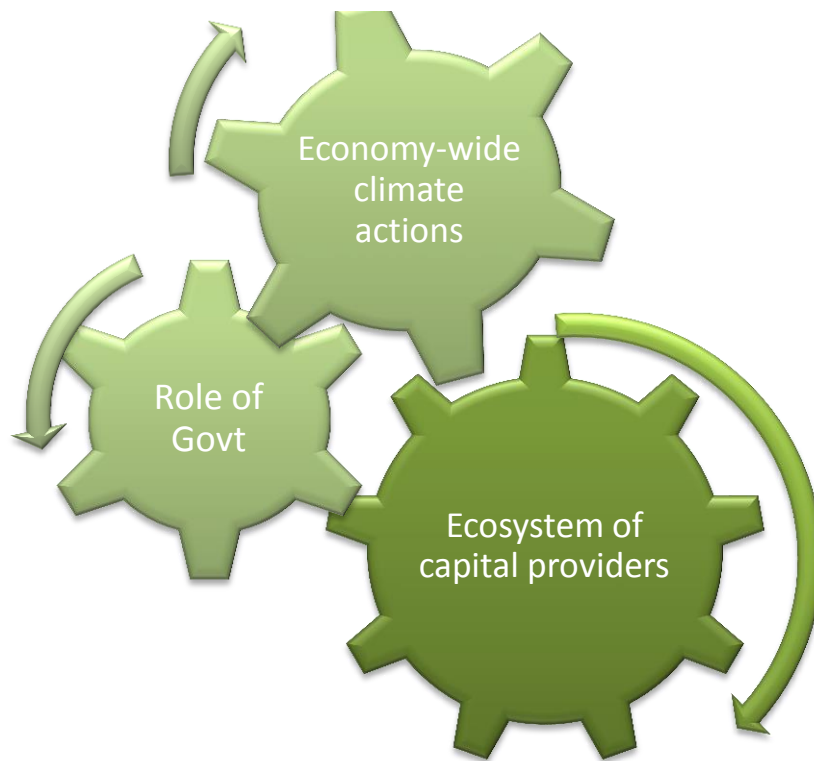


Discussion paper

'Investment Confidence' for Governments:
Integrating investment into climate-related policymaking



Kirsty Hamilton
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Author

Kirsty Hamilton has three decades of international climate and energy policy experience and leadership, with a 15 year track record working with senior financiers involved in renewables and new low carbon energy. As an Associate Fellow with Chatham House, in 2004 Kirsty set up an initiative to bridge between leading finance practitioners and government counterparts on ‘investment grade’ policy. This led up to the establishment of the Low Carbon Finance Group (2010-2015), founded by experienced energy financiers post-financial crisis to help governments factually understand policy and market conditions to attract greater capital. Kirsty led its policy work during a complex electricity market reform process.

She has had a number of invited positions including World Economic Forum and the UN’s Finance Initiative and has been an expert reviewer and contributing author of the IPCC. She does advisory work at the nexus of investment and the role of government; in 2019 she is a Specialist Advisor to a UK Parliamentary Inquiry into Energy Infrastructure Financing.

Summary Points

- To deliver climate actions that are consistent with Paris and the IPCC 1.5C report, it will be essential that governments set conditions that secure the private investment required.
- “Investment confidence” for governments – means confidence that the frameworks they are implementing will indeed attract investment in the way assumed (including a mix of public and private).
- Closing gaps of understanding between policymakers and finance practitioners is a key element for integrating investment considerations into the design and monitoring of policy regimes, to reach a common understanding about what will work.
- Doing so systematically can help tackle policy delivery risk – the risk that policies are not on track to deliver outcomes – to the extent that private investment is central to that determination. A forward looking approach is needed to provide an early warning on risks to investment and enable course correction.
- The pace and scale of climate action underlines the importance of getting policies right first time (with all the levers at the disposal of governments). The world of finance itself has risk-related tools and approaches that may be translated over to help policymakers better calibrate their actions in a world of considerable change, alongside structured engagement.

Issue	Relevant finance-sector tools	Next steps
‘Whole of system’ – integrating climate-related investment factors at all tiers of government	TCFD → ‘TCFG’ Climate-related finance for Governments ~ 4 elements: governance, strategy, risk mitigation, monitoring ~ Integrates consideration of investment across decision-making	Review: develop a 'TCFG' framework and use to review the institutional and decision-making approach across government policy: ~ develop a practical review template ~ collaborate with national/ local government implementation.
Elements	Credit Risk Assessment process → risk focused ‘investment assessment’ of policies ~ forward looking ~ identify specific investment-related risks that could impact achieving outcomes ~ basis for transparent monitoring Green evaluation of policies ~ indicative green value associated with investing under a specific policy	Develop straightforward template + collaborate to live test in real-world contexts: - sector transition (current policy / back-casting exercise) – leading indicators and metrics - simplified version for low resource situations - dashboard approach for complex or fast-moving areas - test value of a green / ESG policy evaluation.
Policy – Finance real time feedback / access to data	Structured investor engagement: ~ involve the relevant ecosystem of finance and investment practitioners ~ transparent and regularised to enable rapid response.	Draw on lessons learned from models to date.

1. Introduction

The Paris Agreement and the IPCC's report on 1.5C¹ reinforce the need to accelerate the pace and scale of investment into climate solutions: the 1.5C objective requires significant emissions reductions from “*rapid and far-reaching transitions in energy, land, urban and infrastructure ... and industrial systems*”². It is difficult to overstate the unprecedented scale of the challenge, or the consequences of failing.

Many scenarios and initiatives focus on the trillions of dollars needed for investment into climate-related solutions and out of fossil fuels³ and the factors needed to re-wire 'capital' to work for long-term green and sustainable development.

However, solving for the overall availability of capital is not the same as securing investment into near-term climate goals at sector-level at the speed required. To do this, it will be essential that plans attract the requisite investment into developments on the ground and that identify if this is not occurring as anticipated.

Arguably the gap that needs closed is the practical one between investment and policy-making and to do so in a forward-looking way to give time to step in if things are not working.

'2-way' Investment Confidence

- Government investment confidence:
 - Plans will attract capital anticipated to achieve objectives
 - More countries benefit from significant low carbon investment opportunities.
- Investor confidence: in policies, underlying drivers and detail.

Q: Governments (national and local) set the climate and sector objectives and goals, but how will we know if those policies are well designed and working from an investment perspective? How will we identify when we are off track and make course corrections *in advance*?

1.1 Structure

This working paper explores how to better integrate investment factors into climate-related policymaking – focusing on tools from the finance sector itself. This should help provide a foundation for getting to the right conditions, faster for scaling investment, to the extent that private investment is required and not occurring. As such, this should help build stronger 'investment confidence' on both sides.

¹Intergovernmental Panel on Climate Change (IPCC), 'Special Report Global Warming of 1.5°C', 8 October 2018. Available from URL: <http://ipcc.ch/report/sr15/>.

²This is from the Summary for Policymakers, paragraph C2, page 21. In full: “C2. Pathways limiting global warming to 1.5C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings) and industrial systems (high confidence). These systems transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and imply deep emissions reductions in all sectors, a wide portfolio of mitigation options and a significant upscaling of investments in those options (medium confidence).”

³The IPCC 1.5°C Report outlines investment-linked scenarios in its Chapter 4. Other notable scenarios include the New Climate Economy Report 2018: “We expect to invest about US\$90 trillion in infrastructure to 2030, more than the total current stock. Ensuring that this infrastructure is sustainable will be a critical determinant of future growth and prosperity. The next 10-15 years are also essential in terms of climate...”

After setting the scene, three practical and linked approaches to integrate investment-related factors into policy-making are outlined. These draw on analytic approaches used or developed from the financial sector and how they can be translated into a policy context: the credit risk assessment process; the newer field of green and resilience value assessment and the broader framework developed by the TCFD (Taskforce on Climate-Related Financial Disclosures) alongside direct engagement with financiers and investors. These are relevant at national or sub-national level and are advanced as a basis for feedback and further work.

1.2 Starting points

The discussion paper builds on 15 years of practical work with leading finance practitioners, across debt and equity, involved in the first-phase of renewable energy growth into the broader energy transition. This illustrated the elements and detail of ‘investment grade’ policy⁴. The benefit of closing the gap between finance and policy through effective direct engagement was evident in different policy design contexts⁵, and highlighted the importance of understanding key risks from a financing perspective – critically in an on-going process rather than one-off fashion.

The landscape has developed over this period with the climate imperative and technology advances creating urgency, challenge and opportunity ~ and many moving parts ~ within which governments must act. Multiple policy lessons have been learned.

Where governments seek private capital to deliver outcomes, a consistent, transparent and responsive decision-making framework can make that moving landscape lower risk for investors as well as lower risk for governments.

Shaping an agile and systematic early warning if there are risks that private-sector investment is not coming to bear would enable a more rapid and targeted response.

This is a practical approach to accelerate the scale of development and build-out of projects, businesses and infrastructure. This is the base of the pipeline that both creates investment opportunities and delivers emissions reductions and system-level, long-term decarbonisation.

Policy is used as shorthand to mean the role of government –all of the tools and levers available, including public finance.

Each jurisdiction – national, city or sub-national, or regional (cross-border) – will have its own context, priorities and drivers within sectors, even as they grapple with national climate plans under the Paris Agreement (NDCs⁶), sector objectives or the broader sustainable development goals (SDGs).

1.3 Alignment of trends

Two particular characteristics of the post-Paris period, on the investment side, point to this as a moment of significant opportunity for policymakers. Firstly, the supply of finance – the availability of ‘the trillions’ - is being bolstered by a set of maturing initiatives to ‘green’ the

⁴For example: Hamilton, K, ‘Unlocking finance for clean energy: the need for ‘investment grade’ policy’, Chatham House programme paper, December 2009.

⁵Evidenced in the work of the Low Carbon Finance Group during the UK’s detailed Electricity Market Reform process (2010-2015); the author was Policy Director of this senior financier-led group. Further detail in section 2.3 and footnote 30 below.

⁶Nationally determined contributions – the climate plans submitted by countries under the Paris Agreement. Governments agreed a ‘ratchet’ for NDCs – they should successively become stronger (Article 4.3).

financial sector, not least those framed by central banks and supervisors⁷. Broadly, these are focused on re-aligning overall financial flows with long-term climate and sustainable development objectives, including pricing and actions on climate risk.

Secondly, there is a strong institutional investor appetite for infrastructure assets. This has continued to increase in the post-financial crisis period and includes renewable energy and other low carbon options, under the right conditions. Indeed, a 2019 survey of global institutional investors indicates that close to 90 per cent plan to maintain or increase their target allocation to infrastructure⁸ and for European infrastructure alone, an anticipated US\$1.2 trillion of institutional investor capital will become available to invest over the next decade⁹.

Long-term investment in infrastructure is taking place as new technologies, the role and preferences of consumers and climate change raise fundamental questions over how to ensure today's project or business assumptions are robust across a five year, 10 year, 20+ year time-frame.

In this context, the attractiveness of renewable energy and low-carbon options has been boosted by an alignment of factors, including technology maturity and track record, cost reductions, the underlying growth in demand for energy in many countries, energy policy regimes to date as well as broader financial conditions. Indeed, infrastructure trade press states that it is “*no exaggeration to call the on-going energy transition the biggest global investment opportunity of the century*”¹⁰.

International context:

- Strong investor appetite under the right conditions;
- Money is mobile – looking for opportunities to match internal strategy (investment, lending policies) – international and domestic sources of capital;
- Broadening ecosystem of capital providers (different scale, returns, duration of investment, ‘impact’ outcomes);
- Risks and return is key;
- Policy and regulatory factors play a central role in risk-return equation.

The rise in attention on ESG (environment, social and governance) factors by investors is further expanding the pool of capital with an active interest in infrastructure type assets like low carbon energy. This includes investors able to take more risk to achieve those outcomes (e.g. new technologies and ‘frontier’ countries) or deploy ‘patient’ capital seeking a different return profile. The role and involvement of public finance, including the new genre of national ‘green banks’, is part of this broader picture, although not an explicit focus here.

However, mobilising green or sustainable finance will not in itself trickle down to meet policy objectives fast enough if national or local conditions do not work for the providers of capital

⁷ The Central Banks and Supervisors Network for Greening the Financial System (NGFS) involves over 30 institutions, describing its role as: 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.’ In April 2019 it published its first comprehensive report with steps to translate commitment into concrete action. URL: <https://www.bankofengland.co.uk/climate-change> and <https://www.banque-france.fr/en/financial-stability/international-role/network-greening-financial-system>.

⁸ Infrastructure Investor, ‘Highlights from Infrastructure Investor’s LP Perspectives 2019 survey’, presented at the Berlin Infrastructure Investor Summit, 20 March 2019. In more detail: 61 percent of investors intend to maintain target allocation at the same level, and 27% intend to increase target allocation in 2019.

⁹ Linklaters’ analysis in ‘Opportunity plus: 2019 edition, Understanding the opportunities and risks of core, core+ and core++ infrastructure investment’, Linklaters 2019. Available from: <https://www.linklaters.com/opportunityplus>

¹⁰ Editorial in ‘Energy Transition Report’, PEI Infrastructure Investor, June 2018.

or the developers, businesses and communities making the investments. Policy and regulatory risk remains one of the top risk factors for investors.

1.4 Avoiding climate policy ‘delivery risk’ – a forward-looking exercise

Policy delivery risk is a useful way to frame the problem on the policy side: the risk of not being on track to deliver climate-related outcomes, in this case due to policy or regulatory conditions not attracting investment as anticipated.

This approach differs from monitoring overall climate-related investment as it is a forward-looking exercise: to avoid the gap that can occur between a policy decision and the resultant decisions by private investors, should that not arise as expected. The measurement of financial flows per se, in contrast, is largely a backward-looking exercise that tracks capital that has been committed, post financial-close.

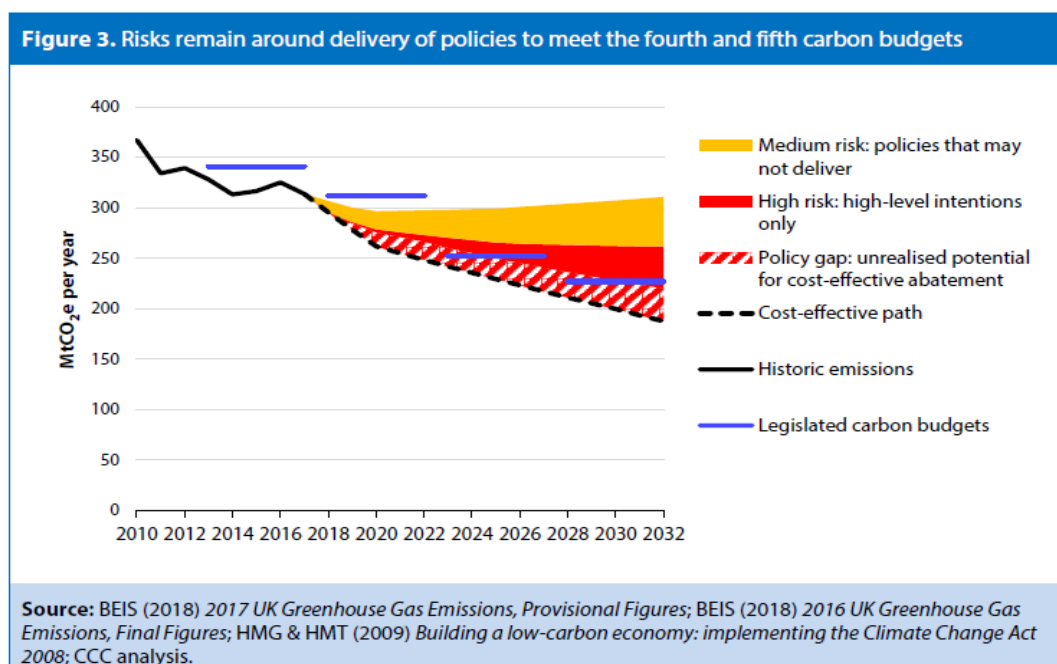
Clearly the design of policy interventions in the first place is critical to reducing delivery risk. Integrating an assessment of how well the policy design works for investors is a critical part of the process to close any finance-policy gap.

Graphic 1. Delivery Risk – the Committee on Climate Change

The UK Committee on Climate Change (the CCC) assigns a risk-weighting to whether specific policy-related emission reductions at sub-sector / technology level are on track for being achieved.

The delivery risk weighting - low, medium, and high - is applied against a forward cost effective carbon abatement trajectory in line with 2050 goals. There is also a ‘policy gaps’ category that signals the potential for further cost-effective emissions reductions.

Three main criteria are used, in this example, in the assessment of delivery risk, although not investment per se; whether the policy or measure: i) tackles the right barriers; ii) creates the right incentives; iii) has necessary public funding.



‘Reducing UK Emissions, 2018 Progress Report to Parliament’, The Committee on Climate Change, June 2018. Available from URL: <https://www.theccc.org.uk/publication/reducing-uk-emissions-2018-progress-report-to-parliament/>

1.5 Focus on decision-making: economics and finance

The fundamental question is the re-wiring of decision-making to integrate investment-related factors into analysis more systematically: is this needed? How can this be done? What are the components of a 'due diligence' of policy itself, from an investment perspective?

Public policymakers commonly use economic analysis and economic impact assessments to examine the costs and benefits of policy interventions. Although inter-related, this differs from the risk-based analysis that financiers use in making specific investment decisions. Determining an optimum outcome from a purely economic perspective may not provide visibility on how investors will respond.

Equally, dealing with policy and finance separately, even where they are aiming at the same objectives, is very likely to produce sub-optimal, more costly or delayed outcomes. For example, a 'finance' approach might focus on de-risking through public funds or finance tools, but if there is a high level of risk associated with, for example, energy policy or regulation, from an investment perspective, then it very likely to be better and lower cost to tackle those specific risks directly. An investment due diligence process will assess the package of risk factors facing any given investment opportunity.

Bridging between financiers and policymakers in a straightforward way is arguably a critical step in securing outcomes where private investment is sought or anticipated to respond.

This goes beyond identifying the elements of 'investment grade' policy design and points to the need for attention on the institutional arrangements, decision processes and analytic tools: the starting point in this paper draws on those used by the financial sector itself.

Expertise Pooling

Sharing insight across the finance and policy sectors is one premise of this work. Calibrating what is needed from various parties is a foundation stone for scaling up actions more rapidly.

A round table discussion provided insight from a range of investors and analysts on the state of the market and tools relevant for risk assessment: a valuable context for policymakers on the kind of barriers and detail that are relevant, especially at a time of technology and system change¹¹.

The discussion, outlined in a longer paper, ranged across the trends and issues that often exist in separate silos:

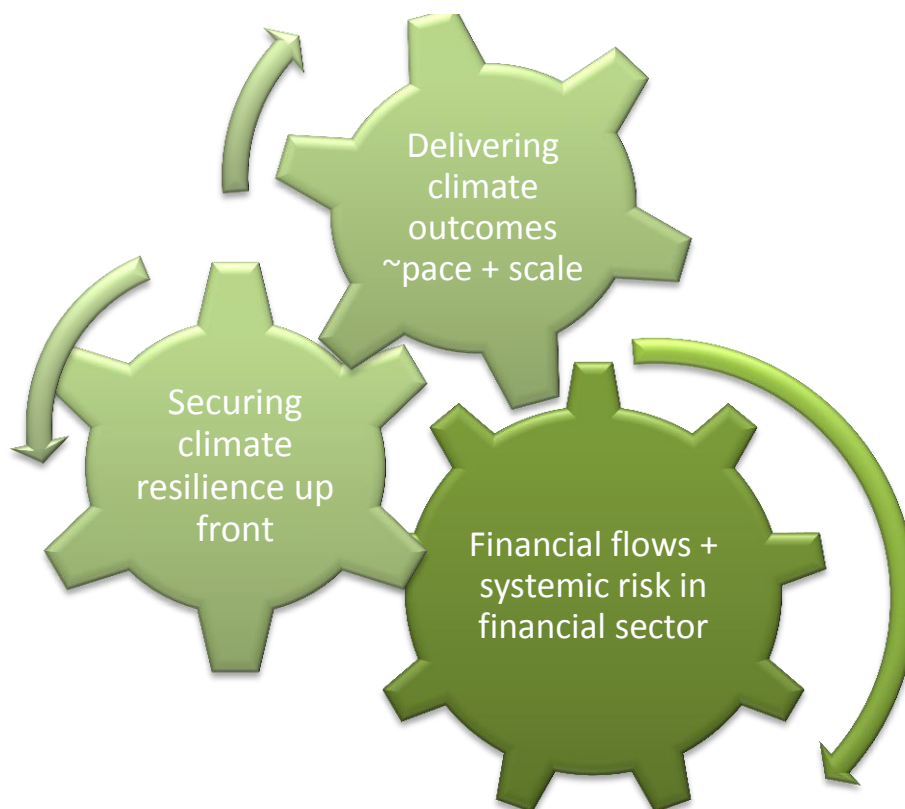
- Investment in new technologies and infrastructure as sectors decarbonise;
- Broader green finance and new financial evaluation tools;
- Climate resilience and adaptation analytics.
- Infrastructure project credit risk evaluation and how policy, regulation and other factors modify the assessment.

Detailed work and developments at intersections between these parts of the landscape emerged as an important theme.

¹¹The Roundtable "Securing investment for climate policies: assessing whether the money will flow?" took place at S&P Global Ratings in London, under the Chatham House Rule. It brought leading finance practitioners and experts together with senior officials in government and official bodies. Quotes in this briefing are not attributed for this reason. This paper is available directly from the author.

Box 1. Investor discussion, themes in brief:

- “We’re 20 years in to a 50-year transition and the last 20 years were the easy bit.”
- Investment and policy realities are changing as sector-level transition is underway involving a diverse set of assets and issues across energy and transport, for example. As well as new technologies and ‘harder to reach’ sectors, mature technologies still need attention to avoid barriers to further growth as they reach competitiveness: “*subsidy-free is not policy free*”.
- Broader ESG, ‘green’ and ‘sustainable finance’ are rising up the agenda for investors, financial regulators and governments; standardisation is a theme across the sector.
- Long-lifetime, high carbon assets already face impairment over the next decade as data underpinning pricing and risk firms up.
- Integrating resilience to climate impacts into investment is a rising focus of attention, combining insurance analytics, asset management and access to data.
- The pace and diversity of sector-level change means agile, transparent processes are critical to connect investors with policymakers.



2. Re-wiring decision-making: integrating investment into policy

Timing and scale are key issues for climate policy and differentiate it from other, even complementary sustainable energy, transport policy or health policy drivers such as air pollution.

Investors still see the role of government as a central component of reaching specific outcomes: “*Policy is huge*”. Notwithstanding the competitiveness of parts of the market and considerable investor interest in new technologies that do not require direct subsidies, policy and regulatory risk remain a top-line item for investors, not least in jurisdictions at an earlier stage of activity^{12, 13}. There are opportunities and capital, however, to deliver outcomes against a timetable a clear set of policies are needed to “*tilt the whole playing field*”, a view strongly reinforced by the implications of the IPCC 1.5°C report.

Integrating investment in a consistent way across the various silos of policymaking can produce a more responsive ‘whole of system’ outcome.

Although this paper focuses on investment-related factors: to be sustainable and deeply rooted it is clear that all parts of society need to be involved and served, outside of national capitals. This is reflected in rising investor attention on social factors within ESG, ‘just transition’¹⁴ and local economic development and jobs, and the broader sustainable development goals (SDGs)¹⁵.

Drawing on roundtable and other inputs, this section sets out how analytic tools and processes from the financial sector have the potential to help policymakers assess and tackle delivery risk in a practical, systematic way. The principle avenues are set out for feedback and further work:

System level

- The framework developed by investors (financial institutions and corporations) under the TCFD for systematically integrating and operationalising a complex topic into decision-making at institutional level.

Key elements

- Drawing on the credit risk assessment process outlined above: assess the risk profile of policy at the design phase – an investment assessment - identifying risk elements can then be monitored.
- Structuring a feedback loop between the diverse pool of relevant investors and market actors and policymakers.

It is useful to reiterate that ‘policy’ is being used to mean the role of government across the tools and levers at their disposal (goals, regulatory or fiscal measures, public finance, procurement etc.).

¹²For example, ‘Opportunity of the century’ by Kalliope Gourtis; and ‘First mover advantage’ by Partners Group, articles on renewables in Asian countries, in PEI Infrastructure Investor, ‘Energy Transition Report’, June 2018.

¹³At the Global Infrastructure Investor Summit (18 March 2019, Berlin), one Emerging Markets (EM) renewables investor described a country’s regulatory regime as the number one factor from an investment perspective, noting the track record in larger EMs where that regime is in place. The second and third issues were energy system constraints and logistics (potentially more difficult creating projects on the ground due to local issues (generally surmountable with local partner).

¹⁴Climate Change and the Just Transition – A Guide for investor Action’, produced by Grantham Research Institute on Climate Change (LSE) and the Initiative for Responsible Investment (Harvard Kennedy School) in partnership with Principles for Responsible Investment (PRI) and the International Trade Union Congress (ITUS). Available from URL: <http://www.lse.ac.uk/GranthamInstitute/publication/climate-change-and-the-just-transition-a-guide-for-investor-action/>. On energy side, is Sustainable Energy for All – with a primary mission to ensure universal access to modern energy services backed with goals for renewable energy and energy efficiency and Sustainable Development Goal 7 (SDG7).

¹⁵Conversations around the Global Infrastructure Investment Summit, Berlin, March 2019.

2.1 'TCFG' – Climate-related Finance for Governments?


The Taskforce on Climate-related Financial Disclosure, TCFD, comprising finance and investment practitioners, developed a framework to calibrate climate risk and value in the operations of companies and financial institutions¹⁶. In that sense, the Taskforce examined a straightforward way to integrate a complex issue (climate-related risk) that is traditionally not well understood, or systematically taken into account, within an institution's decision-making.

The four-part approach and its features offer a highly relevant 'whole of system' template to review how well policymakers integrate investment. In other words, just as the TCFD focuses on bringing climate-related factors into private investment, policymakers would focus on integrating investment factors into a climate-related_policy context.

Graphic 2. From TCFD's: Core elements of Climate-Related Financial Disclosures¹⁷



Graphic 3. Using the TCFD framework to integrate 'investment' into policy decision-making.

<p>Governments</p> 	<p>Governance: is a structured assessment of climate-related investment integrated into decision-making across government and its departments/units?</p> <p>Strategy: is it a cross-economy priority to establish conditions to secure climate-related investment, and reflected in policies and plans? - Is there an Investment Assessment process in place to test investment assumptions with capital providers?</p> <p>Delivery Risk Management: does the Investment Assessment process identify and manage risks to meeting specific goals, short and medium term?</p> <p>Metrics and Targets: are there metrics and processes in place (qualitative & quantitative) for monitoring whether plans are on track to deliver the investment assumed?</p>
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¹⁶The TCFD was launched in Paris, COP21, by Michael Bloomberg, former New York Mayor and businessman and Mark Carney, Chair of the Financial Stability Board (FSB) and Governor of the Bank of England. The Taskforce of financial and commercial sector experts was charged with setting up a voluntary framework to help companies and financial institutions to understand and disclose climate risk in their annual reporting and accounts URL: <https://www.fsb-tcdf.org>

¹⁷TCFD Final Report (June 2017), Executive Summary, page v.

Furthermore, the TCFD outlined how it intended its framework to be adopted and used¹⁸ – also relevant for policymakers (Box 2 below).

Box 2. End user features of the TCFD recommendations for governments

<p>TCFD</p> <ul style="list-style-type: none"> ○ Adoptable by all organizations ○ Included in financial filings [reporting] ○ Designed to solicit decision-useful, forward-looking information on financial impacts ○ Strong focus on risks and opportunities related to transition to lower-carbon economy 	<p>Read across to governments</p> <ul style="list-style-type: none"> ● Adoptable by all tiers of government (national, local, regional) ● Included in progress monitoring/reporting ● Designed to solicit decision-useful, forward-looking information on policy impact (wrt investment) ● Strong focus on risks and opportunities related to transition to lower-carbon economy
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2.2.1 Observations - re-purposing the TCFD framework for governments

Practical starting points:

1. ‘TCFG’ Review Template: some elements of the four-part TCFD framework will very likely already be in place within governments, but ensuring this is systematic and robust for securing outcomes is not dissimilar to the process financial institutions are undergoing to implement TCFD. Using this framework as a template to review of what is and is not in place across government institutions and policy-making and monitoring is a practical starting point.

2. Finance expertise exchange across parts of government is another practical step to tap into existing ‘in-house’ knowledge. This has been instituted in the UK, for example, with a senior civil servant group involving those with financial sector experience and responsibilities across different departments, spanning sector policy and different approaches to public funding (e.g. funds for categories of infrastructure Investment with Government as a cornerstone investor¹⁹). Other governments are leading with dedicated top down Cabinet coordination across Ministers with relevant portfolios, and including public regulators, public finance institutions or pools of specific expertise e.g. procurement agencies or sector specific experience e.g. renewable energy tenders. The latter may bring investment-related assurance and other assessment processes and metrics to the table from one part of Government to another.

3. Incorporating an investment assessment at the point of policy design, as described in 3.2 below, can help lower risk for both investors and governments. This should contribute to de-politicising the process and create visibility for investors on what factors and assumptions underpin policy decisions as well as pinpoint risk elements for monitoring for policymakers.

4. Monitoring – building on above, establish investment-specific elements for monitoring (including leading indicators). This could incorporate collaboration with investors and

¹⁸TCFD, “Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures”, June 2017; Executive Summary, page iii, from URL: <https://www.fsb-tcf.org/publications/final-recommendations-report/>

¹⁹The [EV] Charging Infrastructure Investment Fund has £200m budget allocation from Treasury; a private fund manager was procured through the Infrastructure and Projects Authority to match and deploy the capital, <https://www.gov.uk/guidance/infrastructure-investment-funds>

businesses on access to sources of data relevant for both sides. Direct engagement, 2.3 below, is also a key part of this.

There is already considerable investor expertise in specific market and technology segments in different risk categories in many countries. For policy-makers, tapping into this knowledge can avoid delays on the 'human learning curve' and streamline or sharpen up decision-making to deliver specific objectives.

These approaches are implementation focused. Obviously, well-defined objectives, political leadership and societal engagement at national or local level are a first step and central to meet climate goals.

2.2 Investment risk for policymakers and green evaluation

Populating elements under this framework (strategy and risk assessment) policy design and monitoring can benefit from risk-focused tools and testing as a means to understand how investors might respond.

2.2.1 Looking at credit risk assessment

Infrastructure project credit risk analysis offers one structured process for understanding the risk elements that underpin creditworthiness. A key characteristic is that it is a forward-looking exercise, assessing the risks to delivering on financial obligations and debt repayment in project finance structures (indeed, with policy and regulatory risk as part of the assessment).

The mirror in the policy context is an assessment of the risks to securing or attracting the investment required for meeting policy obligations.

The end point is not to determine a single 'credit rating' or ranking of the policy, but rather as a structured approach for testing investment assumptions being made by policymakers during the design of policies (as seen by the relevant ecosystem of investors) identifying specific risk elements and monitoring how these play out during implementation, in the context of external conditions; engagement will play a key part in this.

Graphic 4 below provides a very simplified version of elements of a project finance credit risk assessment process of a typical renewables or infrastructure project. Different components of risk are examined for the construction and operational phases of a project and in the context of market and country risk, the financial structure and policy and regulation²⁰. The Roundtable discussed, for example, the offshore wind experience in this context²¹.

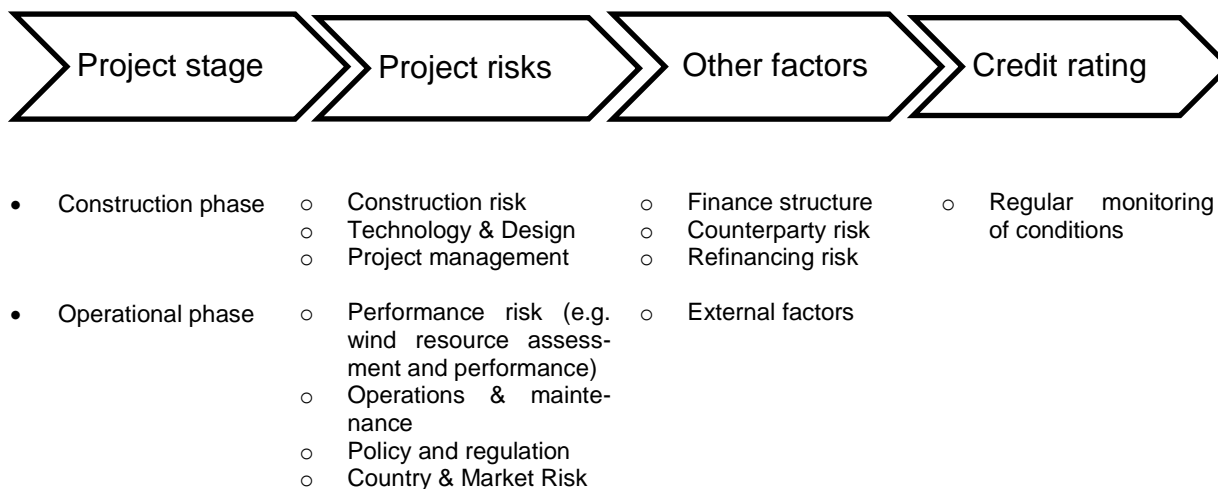
Not reflected below, but useful to note is the project or business development phase in which policymakers also have a key role e.g. planning, consenting, permitting and land access, as relevant²². Delays during planning have cost implications and a knock on impact on the timing of revenue generation. This phase is also increasingly in the investor ESG lens, linked to building deeper, more enduring community engagement (the 'S' of ESG) as a core part of a sustainable outcome.

²⁰ This is an indicative, highly simplified graphic. For the structure referred to at the roundtable, see S&P Global Ratings 'Project Finance Ratings Methodology' brochure, available from, URL: https://www.spratings.com/documents/20184/86984/SPRS_Methodology+Brochure_Project+Finance+Ratings.pdf/e8f50d4b-5d8c-44ed-9995-55d8e3b8dac2

²¹ S&P Global outlined key risk factors experienced as the European offshore wind sector has developed, including wind performance; technology performance; operations and maintenance; market and regulatory risk and refinancing risk. The policy shift to auctions and tendering was discussed.

²² Refer, for example: Finance Guide for Policymakers: <http://about.bnef.com/white-papers/finance-guide-policy-makers/>

Graphic 4. Simplified project credit risk process



Graphics 5 and 6 below use this process and relate it to both policy design and monitoring respectively. The intent is to show how this simplified credit risk assessment process, might be repurposed for policymakers²³ to help risk or stress test implementation at different stages, from an investment perspective. This could be set out in a template format with a practical set of steps.

One link across to economic analysis is how policy-related elements influence the risk profile and actual risk premiums used by investors. This influences the cost of capital and consequently the overall cost assumptions in any policy assessment. This is relevant when considering different approaches to policy intervention and the trade-offs, for example on the spectrum of market approaches to regulated outcomes, or tackling market barriers through direct intervention compared to buying down risk through public finance tools (specific measures such as regulation, fiscal policies, incentives or public finance tools or indeed system-related re-regulation).

A concrete example is the pathway to ‘subsidy free’ renewables where there is an end to some or all government support. A sudden termination of support, for example, resulting in exposure to wholesale power prices will raise risk, at least initially, and risks freezing investment especially from lower risk investors and lenders. An end to subsidies will be anticipated by investors as technologies and sectors mature, however, how it is done needs to be visible and integrated by policymakers across often complex regulatory changes. This is especially true if a policy objective, in this case, is that renewables growth continues, attracting lower cost capital and lower overall costs to consumers.

On the policy design front, there are likely to be internal experts, assessment processes or templates already in use. For example, within public finance institutions, assurance services linked to public or public-private investments²⁴ and within the analytic framework for sectors with regulated returns. Identifying who, internally, is following external trends and developments, and how comprehensively, will be important.

²³S&P Global Ratings, *ibid* footnote 16; Moody’s Analytics ‘Credit Risk Management for Renewables Energy Project Finance’, 2018; KBRA Kroll Bond Rating Agency ‘Global Project Finance Rating Methodology’, November 2017; Fitch Ratings, ‘Renewable Energy Project Rating Criteria’, February 2018.

²⁴In the UK, as an example, the Infrastructure and Projects Authority have an assurance review toolkit for review teams linked to the government’s major project portfolio; it includes a ‘Delivery Confidence Guide’. Available from URL: <https://www.gov.uk/government/collections/infrastructure-and-projects-authority-assurance-review-toolkit>

Repurposing risk assessment for policy design and monitoring

While the graphics below relate to a simplified fairly standard policy process, the intent is to help clarify the role of government in an agile and responsive way, whether that is public investment or procurement to defining market-based approaches through a range of policy tools including use of public funds and balance sheet.

Graphic 5. Policy design - investment assessment



- | | | | |
|--|--|---|--|
| <p>Policy design phase</p> <ul style="list-style-type: none"> • Identify objectives • Identify barriers • Specific investment-related barriers? | <ul style="list-style-type: none"> ○ Design policy to overcome specific barriers ○ Clarify the investment assumptions in policy approach i.e. how and which investors are expected to respond ○ Test inv. assumptions and risk profile of policy with relevant pool of investors ○ Identify outstanding gaps | <ul style="list-style-type: none"> ○ Test investors if there are risks inherent in any economic, financial and market conditions or assumptions that impact delivery ○ Is there coherence of approach across the policy landscape? ○ Is climate resilience integrated? | <ul style="list-style-type: none"> ▪ Determine the 'investment risk factors' for monitoring during implementation; ▪ Identify time-specific factors. ▪ Identify data sources & availability. |
|--|--|---|--|

Graphic 6. Implementation – investment monitoring & delivery risk



- | | | | |
|---|--|--|---|
| <ul style="list-style-type: none"> • Policy & regulatory risk • Sector/market risk • Macro-economic conditions | <p>Categories</p> <p>Investment risk factors from policy design phase</p> <ul style="list-style-type: none"> ○ Development risk (level of project / business development) ○ Public acceptance ○ Sector-specific / market (e.g. route to market; auction outcomes) ○ Supply Chain risk ○ Finance risk (changed assumptions, cost) ○ Emergent unintended consequences | <p>Categories</p> <ul style="list-style-type: none"> ○ Economic & financial (Interest rates, currency) ○ Sector (oil price, WS electricity price) ○ Political risk ○ Macro-economic conditions (supply & demand assumptions) ○ Outliers e.g. <ul style="list-style-type: none"> - extreme events (risk of rapid policy change) - conflict - unanticipated changes to transition assumptions | <ul style="list-style-type: none"> ▪ Modified delivery risk ▪ Integrate with 'whole of system' climate delivery dashboard |
|---|--|--|---|

2.2.2 What is happening on the ground? Monitoring and data

Accessing data and tracking projects or market activity, beyond traditional larger infrastructure projects or technologies with specific regulatory support or procurement processes is not straightforward. This emerged as a key theme across the discussion areas for both financiers and policymakers: getting data on an absolute basis is described as “extremely challenging”.

Two UK examples of tracking activity along the project cycle:

- The UK’s regularly updated Renewable Energy Planning Database²⁵ (REPD) monitors renewable electricity projects at pre- and post-consent stages. Reflecting changes in market activity this was modified from January 2019 to include smaller projects (down to 150kW from 1MW) as well as storage projects for the first time.
- The Infrastructure and Project Authority produces a National Infrastructure and Construction Pipeline that tracks public and private projects at a size of £50 million and above. It can incorporate newer technologies at small-scale but only if data is available and in a form that can be aggregated up to the £50 million threshold.

Being able to capture data on capital that is currently able to invest in the ‘high delivery risk’/ ‘gap’ policy areas (e.g. in the CCC’s Graphic 1 above) will help understand what drives developments in those sectors. Trade Associations can also be a key repository of data and market insight.

Further work needs done on how to track smaller-scale, newer businesses and technologies and ‘hybrid’ combinations (renewables and storage; vehicle-to-grid infrastructure) plus sectors such as buildings, heat and newer areas such as climate resilience. Working with parts of government and private actors funding early developments in the innovation chain will be essential to access data and incorporate that into the understanding of activity on the ground. A different model may be required at the point where systematic roll-out of new infrastructure is needed to avoid constraints i.e. how ‘innovation’ phase evolves into a policy-enabled growth phase.

2.2.3 Observations: re-purposing credit risk assessment processes for policy

A priority is creating an approach that is non-complex, flexible and importantly relevant from the outset for lower/low resource contexts (e.g. cities and low-resource policy situations).

Straightforward ‘investment assessment’ templates for policy due diligence need to work alongside, or be integrated with standard economic assessments, and stream-line this procedurally. However, in that situation, a clear process to deal with different or conflicting results would be needed.

In the financial services sector some rating agencies offer ‘off the shelf’ as well as different levels of customization detail, depending on factors such as data availability and level of internal experience, for example²⁶. This could also work for policy situations with the use of a simplified template, as appropriate.

Credit risk assessment involves both quantitative as well as qualitative metrics to provide information about the probability of defaulting on obligations. For climate policy, the ultimate

²⁵The Database is available from URL: <https://www.gov.uk/government/publications/renewable-energy-planning-database-monthly-extract>

²⁶Moody’s Analytics Credit Risk Management for Renewables Energy Project Finance, 2018.

quantification of success is impact on GHG emissions but the specific metrics or leading indicators to monitor how investment is responding to sector and sub-sector policy conditions is an area for further work. The methods used by ratings agencies and investors to assess policy or regulatory risk can help, as well as the range of technology or sector specific factors and regulatory context²⁷ Capturing the inter-relationship is essential.

One option is to create a 'dashboard' that can be regularly updated as data becomes available, providing an activity and early warning screen. This can help monitor the overall picture as this includes technologies or subsectors evolving at different speeds but with increasing inter-linkages (rather than a single policy or sector), as well as providing a base for the read across to other metrics reflecting local objectives such as supply chain benefits, social impacts and climate resilience, for example.

2.2.4 Green evaluation of policy for investors?

The measurement of green impact is steadily emerging as an additional component of value, as applied to specific financings, reflecting the moves towards assessing non-financial impact and value²⁸.

This may be useful: it was pointed out at the roundtable that, in relation to newer technologies, there are "*not enough metrics [yet] toallow institutional investors to say 'if I put my money here it is going to have this impact'*".

One additional question arises – is it possible to quantify or provide an indicative green or sustainability impact factor across the scope of a policy or measure itself against the relevant national or local baseline, for use by investors.

The prospect is that this could help increase the pool of investors able to access newer parts of the market by simplifying understanding of the indicative green or ESG value of government interventions: 'investing in this sector comes with this indicative level of green impact'. This would be complementary to the analysis applied to individual financings by commercial firms.

2.3 Structured investor engagement ~ qualitative feedback

Well-designed engagement with finance practitioners and investors is essential in the above structures to enable a real-time, qualitative feedback loop, as well as a stronger link to sources of relevant data.

Ensuring this is structured, regularised and contestable, with relevant government data or assumptions made available, will help build the transparency that can lower risk perception. It is important that this is integrated into the policy process rather than in a separated 'finance' stream. The author's experience leading the Low Carbon Finance Group²⁹ policy engagement through a complex electricity market reform process suggests the features set out in Box 3, below:

²⁷ Moody's Analytics (2018) notes that '*The diversity of renewable energy resources [new technologies] and countriesdrives the need for detailed analysis and a standardised approach, as each has differing risk factors.... and market dynamics'*.

²⁸ For example, S&P Green Evaluation: https://www.spratings.com/en_US/products/-/product-detail/s-p-global-ratings-green-evaluations

²⁹ This group was founded and led by leading financiers in the aftermath of the financial crisis and comprised senior energy finance practitioners from across debt and equity, with a shared interest in renewable energy. The aim was to provide factual, non-partisan input to governments on policy conditions to attract capital at greater scale with extensive engagement on an Electricity Market Reform process (2010-2015) in the UK as well as relevant EU and international policy.

National development banks or the new set of 'green banks' being set up by national or sub-national governments may be able to play a role as trusted convenors of such engagement with policymakers. However, engagement must be systematised within transparent policy processes not ad hoc, the aim is to embed analysis and feedback into Government decisions rather than separate it out.

BOX 3. Qualitative feedback: elements of finance/investment practitioner engagement

- Owned by Government ~ mandated from the top level of government; backed by internal finance capacity (or access to finance capacity*) is strongly beneficial.
- Two tiers of engagement:
 - Strategic context: broader financial conditions and 'state of the market' in specific sectors to understand medium-term external factors or trends that have a bearing on investment (this might be at 'Ministerial' level);
 - Specific sector/technology intervention: engagement on interventions (policies, regulations, public finance) for specific technologies, sectors or targeted outcomes and can focus on design detail or monitoring linked to delivery risk.
- Involve the broad ecosystem of relevant finance and investment practitioners, across debt and equity, in a flexible format to reflect a changing cast of business developers and investors (from institutional investors to crowd-funding).
- Streamline the engagement process as a direct part of an 'Investment Assessment' across policy or government units to integrate more systematically. This might comprise:
 - Early assessment of barriers/risks in the context of objectives;
 - Testing the 'investability' of specific policy approaches during development and assumptions about how investors will respond;
 - Identifying gaps where targeted public finance or additional support is needed;
 - Monitoring: regular engagement, test risk factors identified during earlier phases.
- Engagement under the streams (above) needs to be regularised (not one-off), transparent and contestable and in an investor-relevant format.
- Two-way – this is a basis for policymakers to also brief investors as budgets, policy or regulatory interventions or underpinning assumptions undergo revision, to maintain investor confidence during transition**.
- For fast moving sectors more frequent, agile feedback may be important – for example in the start-up and new technology or new cross-sectoral areas. This can help identify and anticipate barriers, regulatory challenges as well as emerging sources of data.
- This two-way engagement itself can build greater investor confidence by providing more visibility on government drivers, strategic direction and policy assumptions.

* National development banks or emerging 'green banks' may be able to help Governments to convene private finance practitioners as part of a policy-embedded process. Any perceived conflicts of interest need to be understood. Internal Government finance experts are another resource, for example procurement (e.g. social/economic infrastructure), state-owned entities shareholders, regulators, specialist Government funds.

** In the UK, the Business, Energy and Industrial Strategy department (BEIS) has an in-house Investor Relations team that does this for specific policy situations; the electricity regulator also has an Investor Relations role.

This process will also help identify any challenges for ‘project’ developers or innovating businesses which are at the base of the low carbon investment pipeline. The policy context can have a critical role in simulating project and business activity (from procurement to interventions aimed at influencing market and investment behaviour including direct support, fiscal policy or public finance) as well as for tackling gaps in enabling infrastructure (e.g. EV charging infrastructure).

New institutions or approaches are starting to emerge. Two recent developments are:

i) UK Green Finance Institute³⁰

This is being established as an independent institution supported by seed-funding (UK Government, City of London) as a central plank of delivering the Government’s ‘Green Finance Strategy’³¹ which covers both actions to ‘green’ the financial sector and mobilising finance for ‘green’ outcomes (including the policies linked to climate change goals). One of the Institute’s aims is to convene ‘mission driven’ collaborative multi-stakeholder approaches to unlock the barriers to the deployment of capital in specific areas.

This will be a valuable test model, including how re-framing a wider set of actions through a ‘green finance’ lens intersects with the existing policy arms of Government (e.g. energy or transport); how this helps coherence across Departments including the different parts of Treasury as well as independent advisory institutions. The extent to which an ‘outsourcing’ to an ultimately self-funded, expert institution opens up a space to better integrate and deliver outcomes or whether it further separates out finance expertise.

ii) EU Energy & Climate Governance

Work on the EU climate and energy plans in 2017 raised the original question behind this paper ~ how should policymakers assess whether policies and plans were on track for attracting the investment required? What tools and analytics were needed for such a forward-looking exercise³²?

The EU Governance Regulation entered into force on 24 December 2018, establishing the EU country framework for the National Energy and Climate Plans (NECPs)³³, including the reporting format. It has incorporated a step to institutionalise an investment-relevant analysis of policy regimes, see Box 4 below.

BOX 4. The EU Governance Regulation includes an Impact Assessment stage specifically on investment:

‘Impact assessment of planned policies and measures’*

5.3 Overview of investment needs

i existing investment flows and forward investment assumptions with regard to the planned policies and measures

ii. sector or market risk factors or barriers in the national or regional context

iii. analysis of additional public finance support or resources to fill identified gaps identified under point ii

Governance Regulation, Annex 1, Section B ‘Analytical Basis’, Section 5.

³⁰ Green Finance Institute: <https://www.gfi.green>.

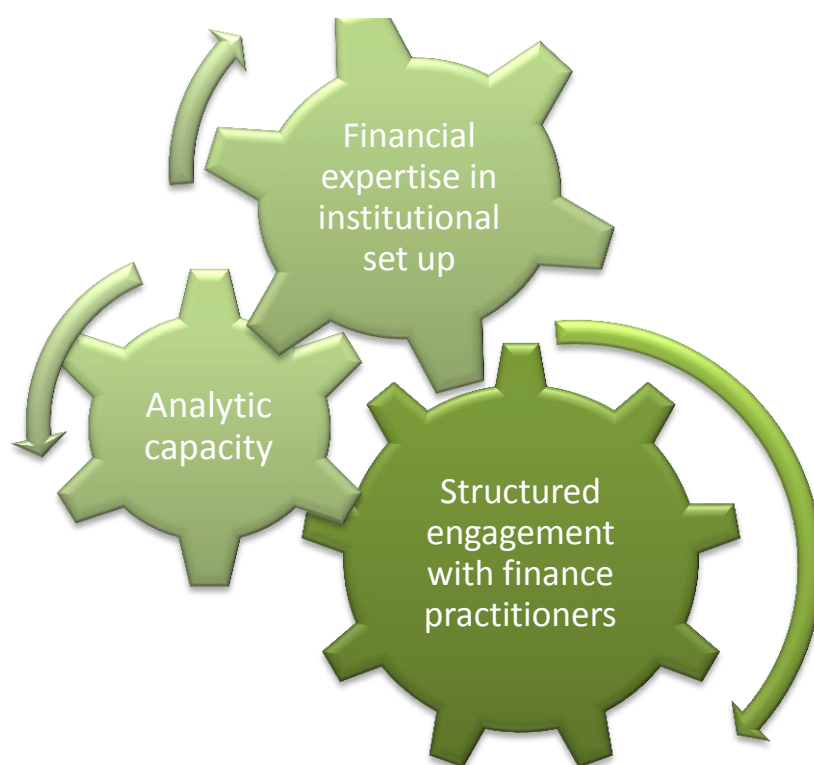
³¹ The Green Finance Strategy, 2 July 2019: <https://www.gov.uk/guidance/green-finance#green-finance-strategy>.

³² Submissions during the development stages of the Regulation (2017/2018) and an invited presentation at the European Parliament are available from the author.

³³ The Governance Regulation is available from URL: <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/governance-energy-union>

The value of this will depend on how it is interpreted and used as part of a policy and progress review. A focus on overall investment volumes will provide some indicative information about the scale of capital required but is arguably, far less useful than testing investment assumptions used in the design of underpinning policies themselves: how investors and market actors are assumed to respond to the individual policies/measures/financing tools and then whether those assumptions are on track for being met.

If such an approach is adopted in response to this provision it should provide an opportunity to track and respond to delivery risk, not least if it enables countries and the European Commission to understand where there are likely to be gaps in private finance that require additional public finance support or investment (as per 5.3 iii, in the box above).



3. Taking this forward

Decision-making processes and metrics for getting to scale, faster.

The sheer magnitude of the 1.5°C challenge makes it difficult to see how this can be achieved without a more fundamental rewiring exercise across economies, communities and governments to enable a much deeper, more rapid and more resilient response to climate change in the context of wider sustainable development goals.

This paper may appear abstract, but the intention is for a discussion on the mechanics of securing the investment-part of implementation which is always going to be embedded in specific context or location – national, sub-national, regional. The issues raised arise out of the author’s direct experience in building a constituency and working with finance practitioners in a policy context, and then asking: what does an enduring outcome for closing the finance-policy gap look like? Finance may not be a blockage or even an issue, but lowering risk, accelerating decisions that work and fostering visibility on changes ahead as society grapples with the scale of the challenge is going to be vital – and embedding that capacity into decision-making.

The broader and often challenging context of delivering a national infrastructure or energy portfolio is well-known: this goes beyond green finance and clean energy and involves significant legal obligations and interests around public investment, cost, social acceptance and inclusion. As one policymaker quoted at the roundtable:

“Policy is akin to carrying out open heart surgery on someone walking down the road. It’s not as simple as a good idea with metrics behind it; many other considerations are in play: value for money, politics and so on.”

The more politicised or non-transparent the drivers or decision-making environment, the higher risk it will be and indeed may simply result in investment being frozen until there is clarity or confidence in the direction and detail. Reducing investor risk can also reduce cost.

3.1. Further Work

The main areas for further attention came out of this work: a further ‘deep dive’ around risk assessment processes with some real-world testing with both policymakers and investors, and at a systems or ‘landscape’ level – reviewing the decision-making framework for governments. These will involve expertise pooling and indeed feedback on this working paper is welcomed.

3.1.1. ‘TCFG’ – Climate-Related Finance for Governments: Review template

A government-ready ‘TCFG’ version of the TCFD framework can be used as a template for reviewing the integration of investment factors into decision-making across the whole of system - attracting private capital and targeting gaps that require public finance³⁴. Many governments will be using elements of this, albeit in a fragmented fashion.

This can incorporate or complement a focus on financial regulation to foster overall green or sustainable financial flows and tackle high carbon investment, but needs specific attention given the timing factor for delivering climate change outcomes.
Testing might include

³⁴ See separate Annex.

- Development of a practical review template;
- Collaboration with national/ local government to trial a review.

3.1.2 Structured investment assessment of policy

Practical tools: further examine the process and relevant components used by the financial sector for risk assessment and stress testing to develop a set of steps for an ‘investment assessment’ of the policy framework itself. A template and/or dashboard could be used at both policy design stage and for monitoring implementation to help identify the key risk factors to securing investment.

A next step is testing this against real world situations to ensure it is of practical use, for example:

- Specific policy development – current or back-casting to provide insight, including leading indicators and metrics;
- How to make this straightforward: e.g. an ‘off-the-shelf’ template for low-resource decision-making situations such as cities or under-resourced governments;
- Whether a ‘dashboard’ layout can usefully combine information and data that is available but changing at different paces, and in turn inform areas that need to be on the monitoring radar;
- Application in this ‘innovation’ phase of sector transition: can this work for multiple smaller-scale, new technologies entering the market (how is this being approached in different places);
- Whether policies can be evaluated (with a local baseline) to provide an indicative ‘green value’ metric for investors seeking to differentiate on the basis of green impact.

3.1.3 Investor engagement

Structured but flexible investor engagement will be central to securing an agile feedback loop that helps refine and more rapidly respond if barriers arise.

A next step is to capture lessons learned and different policy or financier-led models, at different tiers of government, on the steps to effective and integrated engagement.

3.2 Conclusion: Re-designing the engine

The theme of this working paper – examining whether tools from the finance sector are transferrable into a policy context – sits alongside a number of areas of analytic work that could be characterised as re-wiring the system to meet the climate challenge.

It is complex to frame an area of inquiry which does not yet have commonly understood ‘shorthand’ or vocabulary. This is particularly so when words are being used in plain language way by one party but which have a precise and detailed meaning at practitioner level for another.

The original roundtable was a microcosm of the challenges and the possibilities: it takes time for a tour-de-table of people that are doing focused work in intersecting, but currently separate silos (investment into energy sector technologies, broader green finance, resilience analytics plus policy and tracking).

Much of the detail being grappled with is at the intersection of these elements and with fast moving elements in a number of areas.

This has been described as ‘gearbox’ work: unpicking the separate cogs down to the granularity of the teeth to forge mechanisms for integration in new, operationally relevant ways. This is to some extent new territory and collaboration will be essential to take this forward.

In common with other areas, understanding new data sets, processes and forms of evaluation/analytics, with the translational issues involved, is a notable theme.

To deliver outcomes, things have to actually work on the ground, so getting under vocabulary to the features and details that are relevant for execution is critical (this has been described as the ‘hierarchy of generality’ issue in another context³⁵).

This is the practical end of connecting things up. We have to have systems that enable a broader set of decision-makers to move, faster and with more precision on their role and outcomes, even if the terrain is uncertain and we don’t have a map of the exact path ahead, or even the nature of the final destination.

As the re-tooling of the finance sector gets underway to produce longer-term, more sustainable outcomes, we need to ensure simultaneously, that governments themselves – whether national, state or city - have straightforward tools to provide investment confidence. Confidence that decisions today will secure investment into climate solutions on the ground, with an early warning system if progress is not on track.

³⁵The ‘levels of generality’ problem was identified during an official workshop with financiers, organised by the author, linked to the development stages of the UNFCCC’s Green Climate Fund (mid 2011). To paraphrase, at one level the debate may be about mobilising a certain volume of capital, at another level is it about execution on the ground, which requires attention to a completely different level of detail.
http://unfccc.int/files/cancun_agreements/green_climate_fund/application/pdf/london_consultation,_aug_4,_chatham_house.pdf