

CLIMATE CHANGE METHODOLOGY

INTRODUCTION

As issues relating to climate change materialise and as technology and policies evolve, economies and the infrastructure that serves them will be forced to transition to different ways of operating. This will include changes in energy generation and consumption, shifts in the transportation mix and adaptations to the physical impacts of changing climate.

Many of these transitions are likely to occur within the next 30 years, which is comfortably within the lifespan of most infrastructure assets and so has material implications for the value of infrastructure assets.

In purchasing long dated infrastructure assets investors therefore acquire an exposure to climate driven changes in economic activity and government policies. Given the short-term focus of financial markets, these risks and opportunities are unlikely to be correctly analysed or priced by most market participants.

The analysis of such changes is critical to understanding the long-term value of all infrastructure assets and an integral part of our assessment of all investments for all portfolios.



ATLAS has developed a detailed and integrated approach to evaluating the impact of various climate change policy paths on its investments.

This document provides an overview of the ATLAS methodology and examples of how it impacts investment decision making.

CLIMATE TRANSITION APPROACH



Source data: Collect data and forecasts developed by key third-parties. These include the UN Inter-Governmental Panel on Climate Change; the International Energy Agency and various EU policy documents.

Translate outcomes to policies: Postulate the policy environment that would give rise to these outcomes – e.g. What policy would be required to achieve an X% drop in coal volumes in Y period.

Transition Scales: Establish a scale of 1 -10 for policy environments with 1 representing no climate policy settings and 10 representing a highly disruptive policy set that would be required to move quickly to zero carbon emissions.

Scenario Development: Develop a timeline of potential policy phases based on current knowledge and projections, contrasted with two alternative scenarios of faster and slower action.

Company Forecasts & Valuation: Map the behaviour of a company in each of the transitions and the scenarios and reflect these in the cash flow forecasts for each company.

The ATLAS approach seeks to translate top down forecasts from third parties into a structure which is able to be used in company investment models.

The core aim of the approach is to ensure consistency and comparability between sectors and assets.

1. SOURCE DATA

We source and review forecasts produced by third-parties relating to both the science of climate change and the estimated economic transitions over time. These data sets include the United Nations Inter-Governmental Panel on Climate Change (IPCC), the International Energy Agency (IEA), various European Union discussion papers and policy documents, and other reputable external sources. We also utilise research on specific topics that may impact infrastructure assets, such as forecasts of the growth of the electric vehicle fleet and reports on the relative cost of new electricity generation and storage technologies.

2. TRANSLATE OUTCOMES TO POLICY

The data sourced in Stage 1 is predominantly reported at a top-down geographic and sectoral level, such as total generation from coal, gas, wind or total vehicle miles travelled. Whilst this is useful from a whole economy perspective, it is of limited use for generating bottom-up, company specific forecasts.

In order to forecast a specific company's business over time, it is necessary to translate these top-down outcomes to the policy environments which would generate those outcomes. For example, if the IEA expects coal generation to decrease from 30% of total generation to 15% of total generation in a period of 10 years, then this would require a particular policy environment in which there is no new build of coal after a given time. If the forecast is then for a reduction in coal generation to 0%, then the policy environment must require a shut-down of all coal plants, regardless of their age.

ATLAS uses the independent forecasts sourced in Stage 1 and then maps out the specific policy environments which would generate those outcomes.

3. TRANSITION SCALES

In order to standardise the policy states across multiple countries and geographies, we map ten stages which we refer to as the Climate Adaptation Transition (CAT) states.

Each of the 10 CAT states represents a progressively forceful climate change policy and technology environment and can be thought of as defining the environment in which companies will be operating and making investment decisions. The higher the CAT state, the more intrusive and disruptive the regulatory and technological policies are compared to the present.

We develop sector-specific progressions of policies and outcomes and ensure that this mapping is consistent between sectors. For instance, a CAT state which sees a material reduction in coal generation should also see an increase in demand for those technologies which will have to make up the lost generation capacity (gas and renewables), but should have equivalently lower volumes for the coal haulage businesses of rail companies.

On the following page we provide examples of the CAT states for Electricity Generation and Transportation, being the two main contributors to global emissions.

Electricity Generation

The following table outlines our mapping of the 10 CAT states for the main elements of the Electricity Generation sector. A key objective here has been to ensure consistency between the different sub-sectors at different CAT states.

					Transition One			Transition Two		
	1	2	3	4	5	6	7	8	9	10
Primary changes										
Coal-Fired	No change	No new plants	No new plants	No new plants	Shut down & stranded	Shut down & stranded	Shut down & stranded	Shut down & stranded	Shut down & stranded	Shut down & stranded
Gas-Fired	No change	Growth to replace coal	Growth to replace coal	No new plants	No new plants	No new plants	Shut down & stranded			
Renewables	No change	Growth to replace coal	Growth to replace coal	Growth to replace gas	Growth to replace gas	Growth to replace gas	Growth to replace gas			
Secondary impacts										
Transmission Grid	No Change	Growth with renewables	Growth with renewables	Growth with renewables	Growth with renewables	Growth with renewables	Growth with renewables	Growth with renewables	Growth with renewables	Growth with renewables
Pipelines & Storage (Gas)	No change	Growth to replace coal	Growth to replace coal	Demand growth ceases	Demand growth ceases	Demand growth ceases	Loss of excess return; moves to retirement			
Rail (Coal Haulage)	No change	Coal volumes Falling	Coal volumes Falling	Coal volumes Falling	Dom. Thermal coal removed	Dom. Thermal coal removed	Dom. Thermal coal removed	Dom. Thermal coal removed	Dom. Thermal coal removed	Dom. Thermal coal removed
Seaports	No change	Coal volumes falling	Coal volumes falling	Coal volumes falling	Thermal coal exports removed	EM coal declining	EM coal declining; No gas growth	No gas growth; Thermal coal removed	No gas growth; Thermal coal removed	Gas volumes removed; Thermal coal removed

Transportation

The following table outlines our mapping of the 10 CAT states for the main elements of the Transportation Sector.

					Transition One			Transition Two		
	1	2	3	4	5	6	7	8	9	10
Primary changes										
Airports	No change	No change	No change	No change	No change	No change	No change	No growth in <700km travel	No growth in <700km travel	No growth in <700km travel
Rail	No change	No change	No change	Truck to Rail incentivised to structural limit	Structural limit increased for Rail	Structural limit increased for Rail	Structural limit increased for Rail			
Electric cars	No change	No change	EVs increasing up to 50% of cars produced	EVs increasing up to 50% of cars produced	EVs increasing up to 50% of cars produced	EVs increasing up to 100% of cars produced	EVs increasing up to 100% of cars produced	EVs increasing up to 100% of cars produced	EVs increasing up to 100% of cars produced	EVs increasing up to 100% of cars produced
Secondary impacts										
Rail (modal shift)	No change	No change	No change	No change	No change	No change	No change	Modal shift of PAX <700kms to rail	Modal shift of PAX <700kms to rail	Modal shift of PAX <700kms to rail
Rail (auto supply chains)	No change	No change	No growth in automotive	No growth in automotive	No growth in automotive	Decline in automotive to 50% of peak	Decline in automotive to 50% of peak	Decline in automotive to 50% of peak	Decline in automotive to 50% of peak	Decline in automotive to 50% of peak
Seaports	No change	No change	Transport Oil volumes reduced	Transport Oil volumes reduced	Transport Oil volumes reduced	Transport Oil volumes trend to 0	Transport Oil volumes trend to 0	Transport Oil volumes trend to 0	Transport Oil volumes trend to 0	Oil volumes bottom
Oil pipelines & Storage	No change	No change	Transport Oil volumes reduced	Transport Oil volumes reduced	Transport Oil volumes reduced	Transport Oil volumes trend to 0	Transport Oil volumes trend to 0	Transport Oil volumes trend to 0	Transport Oil volumes trend to 0	Oil volumes bottom
Toll Roads	No change	No change	No change	Lower growth in HGV	Flat or decline HGV	Flat or decline HGV	Flat or decline HGV			

4. SCENARIO DEVELOPMENT

There is a broad range of uncertainties associated with potential future climate change outcomes including:

- The timing and nature of climate change policy on both a local and global level;
- The speed of technological changes and the impact of policy on the speed of those changes; and
- Changes to the energy generation mix as existing assets are retired and replaced.

Given these (and many other) uncertainties, scenario testing offers one of the best approaches to try to encapsulate and quantify the potential range of outcomes and their impact on different companies.

Recognising that different regions will move through policy developments at different speeds, we set country specific scenarios for each major region.

As a starting point, the majority of developed nations currently are at CAT state two (based on the ATLAS definitions), reflecting small but meaningful climate change policy.

For example, new coal plants are no longer being built in any developed nation and most nations have rules around vehicle emissions. From this base position, ATLAS has developed three distinct potential future paths for climate change policy:

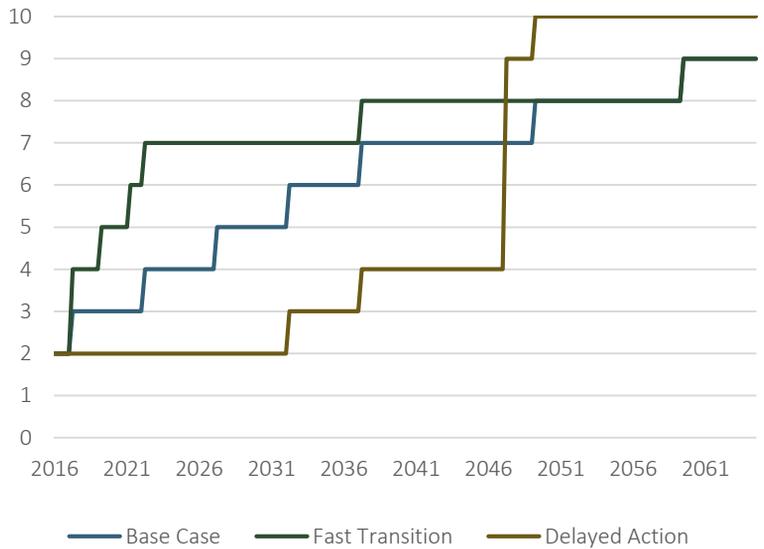
The Base Case proceeds gradually from current state (with minimal climate change policy) towards long-term policy adjustments in the next three decades with a focus on restructuring the highest polluting sectors. This path broadly translates to a 2 degree scenario.

Fast Transition brings forward the restructuring of the highest-emitting sectors (electricity generation) to the early 2020s. This scenario is significantly disruptive to these sectors in the near term, in particular to coal generation and higher emission transportation options. This scenario reflects a full adoption of the Paris Accord, limiting warming to 1.5 degrees.

Delayed Action reflects an environment with limited climate change policy coordination for an extended period up to the 2040s. A feature of this scenario is that it assumes that having taken no material action for several decades, drastic and disruptive government action is then required to transition the economy to a low carbon mode of operation.

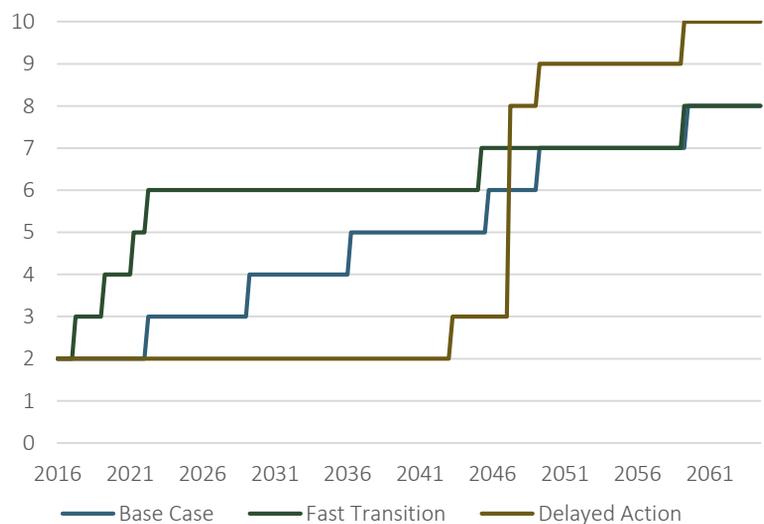
Climate Change Policy Scenarios - Europe

Based on the IEA forecasts identified in Stage 1, ATLAS's Base Case predicts that Europe will implement relatively stringent climate change policies in the relatively near future. The following chart maps out the policy progression expected for Europe in a Base Case, Fast Transition and Delayed Action scenario.



Climate Change Policy Scenarios – United States

In contrast to Europe, the US is expected to follow a slower path to implement climate change policies, with substantial climate action not expected until closer to 2030. Furthermore, the US is expected to have a Base Case long-term policy setting at CAT state 8, which is less stringent than Europe which is expected to have a Base Case long-term steady state climate policy at CAT state 9. This is consistent with the past relative of the two regions.



5. COMPANY VALUATION & PORTFOLIO CONSTRUCTION

Utilising the expected policy settings outlined in Stage 3, together with the scenarios outlined in Stage 4, we are then able to model the expected cash flows for each company in the different policy environments.

For example, in a Fast Transition scenario a company with a relatively new coal fleet is likely to be forced to shut those plants prior to the end of their regular expected asset lives. This is likely to leave those assets stranded, implying that the asset owner would be required to construct replacement generation but without full compensation from the regulator. In contrast, a similar company with an older and more fully depreciated coal fleet may not suffer the same write-off risks. Thus two companies which may appear similar in terms of current generation mix may have very different financial outcomes.

All companies in the ATLAS universe generate three different potential returns – a Base Case IRR, a Fast Transition IRR and a Delayed Action IRR.

Whilst ATLAS will typically prefer companies with a higher IRR in the Base Case, we also consider the risks associated with a Fast Transition environment: what is the exposure of a particular company's returns in a Fast Transition environment.

This is particularly meaningful where two assets have similar returns in the Base Case. In such a situation our portfolio management will have a strong preference for the company with the higher Fast Transition IRR. In this way, the ATLAS portfolio will prefer companies with higher expected returns, but will also comprise investments which perform well in a Fast Transition environment.

ATLAS will also give regard to the expected investment performance of a security under Delayed Action. However, we generally believe that the medium term financial risks in this scenario are lower than for a Fast Transition.

The following table shows the expected 10-year investment returns for the top ten holdings in the ATLAS portfolio as at 3 May 2018 under the three climate scenarios.

A key point to note when reviewing these return expectations is that although the IRRs appear to be similar for some assets across different climate scenarios, the application of this methodology has resulted in a materially different portfolio as a whole than would have been generated without the use of the policy states.

10-Year IRR (%)	Base Case	Fast Transition	Delayed Action
Flughafen Wien AG	9.62	8.78	10.42
Elia System Operator SA	9.49	8.57	9.60
Union Pacific Corporation	9.05	11.44	4.42
Spark Infrastructure Group Ltd.	8.43	8.03	8.78
Terna S.p.A.	8.01	7.53	8.25
Severn Trent Plc	7.46	7.17	7.67
Aena SME SA	7.29	7.19	7.38
Edison International	7.06	6.79	7.72
Transurban Group Ltd.	7.05	7.05	7.05
EDP Renovaveis SA	6.87	8.30	6.83

CONCLUSION

ATLAS has developed a rigorous and consistent approach to incorporating climate change policy risks into its analysis of listed infrastructure companies and portfolio construction. Although the ATLAS approach provides deliberately broad estimates, and remains subject to significant uncertainty, it highlights the directionality and magnitude of the investment returns in different climate policy environments and provides useful insights to our investment committee.

In particular, this approach helps us to avoid exposure to those companies which present significant risks in an environment of accelerated climate change policy and enables us to estimate the behaviour of both specific companies and the entire portfolio in different future climate policy environments.

In addition to evaluating the exposure of the ATLAS portfolio (which is optimised for a Base Case) to a Fast Transition and Delayed Action scenario, this methodology would also facilitate the development of a portfolio which is optimised for either of these alternate environments, should clients have a specific preference for such a portfolio.

DISCLAIMER

ATLAS Infrastructure Partners (UK) Limited and ATLAS Infrastructure (Australia) Pty Ltd (collectively ATLAS) have prepared this promotional / marketing communication.

ATLAS Infrastructure Partners (UK) Limited is authorised and regulated in the UK by the Financial Conduct Authority (FCA Register number 760096) and the US Securities and Exchange Commission (SEC Register number 801-110882). ATLAS Infrastructure (Australia) Pty Ltd is the holder of Australian Financial Services (AFS) licence number 497475 issued by the Australian Securities and Exchange Commission (ASIC).

This material is only available to “sophisticated investors” as defined in the UK by the Financial Services Market Act (2000) and “wholesale clients” as defined in Australia under Section 761G and Section 761GA of the Corporations Act 2001 (Cth).

This material is not independent research prepared in accordance with legal requirements designed to promote the independence of investment research and is not subject to a prohibition on dealing ahead of the dissemination of investment research.

This communication is for information purposes only and should not be regarded as an offer or solicitation to buy or sell any security. Expressions of opinions are those of the author only and are subject to change without notice. The information, data, opinions, estimates and projections contained herein have been obtained from sources which we believe to be reliable. Furthermore, all charts and graphs are from publicly available sources or proprietary data. No representation or warranty either expressed or implied, is made nor responsibility of any kind is accepted by ATLAS its directors or employees either as to the accuracy or completeness of any information stated in this document.

PERFORMANCE DISCLAIMER: Please note that the figures used in this communication represent past performance. Past performance is not a guide to future performance. The value of investments will rise and fall. There is no guarantee the fund and / or portfolio will achieve its objective, and you may not get back the amount you originally invested. Changes in currency exchange rates (for the unhedged share classes) will affect the value of any funds invested. In respect of the fund, further risk factors that apply can be found in the fund’s Key Investor Information Document (KIID) which is available upon request. ATLAS and/or its officers, directors and employees may have or take positions in securities of companies mentioned in this communication (or in any related investment) and may from time to time dispose of any such positions.

ATLAS has a conflicts management policy relating to its activities, which is available upon request. Please contact the ATLAS Chief Compliance Officer for further details.

ATLAS shall not be liable for any direct or indirect damages, including lost profits, arising in any way from the information contained in this communication. This communication is for the use of Professional and Institutional investors only and may not be re-distributed, re-transmitted or disclosed, in whole or in part, or in any manner, without the express written consent of ATLAS. For the purpose of clarity, this communication is not suitable for nor is it intended for Retail investors as defined by the rules of the Prudential Regulation Authority or Financial Conduct Authority.