

Development Reimagined

FORECASTING THE INFRASTRUCTURE
FINANCING NEEDS OF GHANA, COTE
D'IVOIRE, NIGERIA AND SENEGAL UP
TO 2030



CONTENTS

01

INTRODUCTION AND METHODOLOGY

02

SCENARIO 1 AND SCENARIO 2 RESULTS

03

INFRASTRUCTURE INVESTMENT GAP

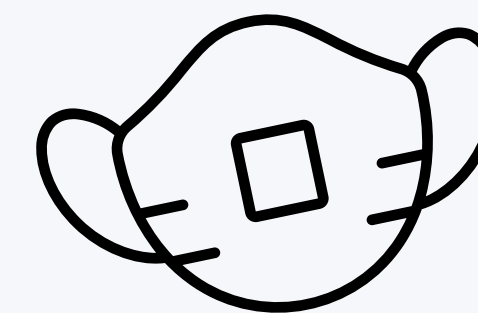
04

CONCLUDING REMARKS

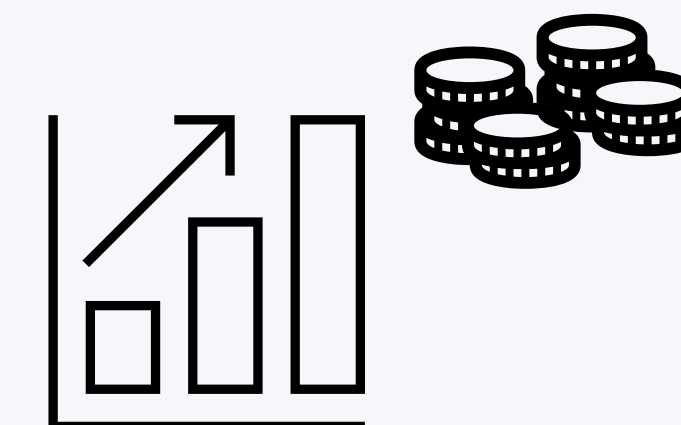
01. INTRODUCTION AND METHODOLOGY

IMPACT OF COVID-19 ON AFRICA'S INFRASTRUCTURE INVESTMENT

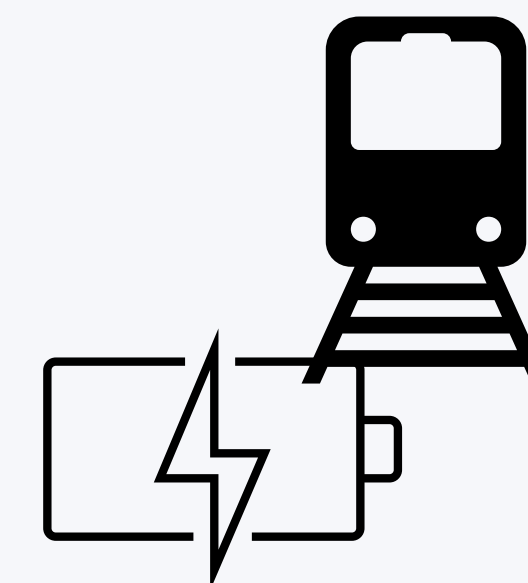
COVID-19 has put additional financing pressure on African countries. Financing socioeconomic policy measures and the costs associated reduced economic activity and vaccine procurement, have resulted in constrained fiscal space levels of debt.



Increased debt levels hinder the access of African countries to capital markets. This is further exacerbated due to the deeply flawed process of the Debt Sustainability Assessment (DSA) by the IMF and the World Bank.



At the same time, African countries must still address large investment gaps, especially in infrastructure, to stimulate post-COVID-19 economic recovery, meet the UN Sustainable SDGs by 2030 and contribute to the AU Agenda 2063.





DR has designed an econometric model to predict the infrastructure investment spending needs of four West African countries from 2021 to 2030 (under two scenarios).

We have 3 key objectives.

1 Forecast the future investment needs of the four countries;

2 To illustrate the size of the financing needs of these countries with reference to their current capabilities and Gross Domestic Product (GDP);

3 Take stock of infrastructure needs in reference to the constraints of the DSA





METHODOLOGY

Step 1:

Determine which sectors of infrastructure investment will be considered in the assessment

Forecasting the infrastructure investment needs of the countries under consideration

Step 2:

Determine the regression model (1) and the Convergence club (2) which will be used to assess the level of infrastructure investment on a yearly basis

Current trend scenario (1)

Meeting SDGs Scenario (2)

Step 3:

The annual investment cost is calculated (for each sector) using the difference of the closing and opening balance (plus depreciation) of the infrastructure stock. This is then multiplied by the unit costs

Calculate annual investment incl depreciation

Multiply annual investment by unit costs

Calculate annual investment incl depreciation

Multiply annual investment by unit costs

02. SCENARIO 1 AND 2 RESULTS



RESULTS – SCENARIO 1: CURRENT TREND OR BUSINESS AS USUAL LOW UNIT COSTS



Using the low unit costs of infrastructure investment, we forecast that the cumulative total infrastructure investment between 2021 and 2030 ranges between;

Country	Cost (USD)
Côte d'Ivoire	24.9 billion
Ghana	29.4 billion
Nigeria	101.8 billion
Senegal	11.7 billion



RESULTS – SCENARIO 1: CURRENT TREND OR BUSINESS AS USUAL



HIGH UNIT COST

Using the high unit costs of infrastructure investment, we forecast that the cumulative total infrastructure investment between 2021 and 2030 ranges between;

Country	Cost (USD)
Côte d'Ivoire	34.7 billion
Ghana	39.7 billion
Nigeria	143.1 billion
Senegal	16.1 billion



RESULTS – SCENARIO 1: CURRENT TREND OR BUSINESS AS USUAL



Table: Average annual infrastructure financing need in the countries under consideration

Country	Development Reimagined		GIH	
	Range (USD billion)	% Of GDP	Range (USD billion)	% Of GDP
Côte d'Ivoire	2.5 - 3.5	4.0% - 5.6%	2.4	3.9%
Ghana	2.9 – 4.0	4.1% - 5.5%	2.7	3.7%
Nigeria	10.2 - 14.3	2.4% - 3.3%	24.9	5.8%
Senegal	1.2 - 1.6	4.7% - 6.5%	2.3	9.2%

Note: The low (high) end of the range represents the unit costs calculated using the low (high) end of unit costs of infrastructure investment.



RESULTS – SCENARIO 1: CURRENT TREND OR BUSINESS AS USUAL

- Ghana, Côte d'Ivoire and Senegal, will need to spend on average 4%-6% of their GDP per annum on infrastructure investment up to 2030 based on their current trend of infrastructure investment, this is lower for Nigeria at 3% of Nigeria's GDP.



4-6% GDP per annum

3% GDP per annum

- The average infrastructure investment calculated for Nigeria and Senegal is lower than the one calculated by the GIH between 2021 and 2030. However, the infrastructure investment needs (GDP %) provided by GIH for Nigeria are materially higher than those provided for Ghana and Côte d'Ivoire. Our range of values is broadly consistent across the different countries under review.
- The range of values provided by DR in the Scenario 1 are closer to reality. This is solidified from the consistency of DR's results and their proximity with the actual investment spending made in the four countries.



RESULTS – SCENARIO 2: MEETING THE SDGs



LOW UNIT COST

Using the low unit costs of infrastructure investment, the total infrastructure investment between 2021 and 2030 ranges between;

Country	Cost (USD)
Côte d'Ivoire	82.5 billion
Ghana	69.8 billion
Nigeria	534.6 billion
Senegal	59.7 billion



HIGH UNIT COSTS

In turn, if we use the high unit costs of infrastructure investment, the total infrastructure investment between 2021 and 2030 ranges between..

Country	Cost (USD)
Côte d'Ivoire	108.4 billion
Ghana	91.0 billion
Nigeria	700.4 billion
Senegal	81.1 billion

RESULTS – SCENARIO 2: MEETING THE SDGs

Table: Average annual infrastructure financing need in the countries under consideration

Country	Development Reimagined		GIH	
	Range (USD billion)	% Of GDP	Range (USD billion)	% Of GDP
Côte d'Ivoire	8.2 - 10.8	13.4% - 17.6%	5.7	9.3%
Ghana	7.0 - 9.1	9.7% - 12.6%	8.1	11.2%
Nigeria	53.5 - 70	12.4% - 16.2%	46.6	10.8%
Senegal	6.0 - 8.1	24.0% - 32.6%	4.0	16.1%

Note: The low (high) end of the range represents the unit costs calculated using the low (high) end of unit costs of infrastructure investment.



RESULTS – SCENARIO 2: MEETING THE SDGs

- Based on the 2020 GDP data, Ghana, Côte d'Ivoire, Nigeria, and Senegal, will need to spend on average **15% or more** of their GDP per annum to achieve the SDGs and move closer to the countries in the Convergence Club up to 2030.



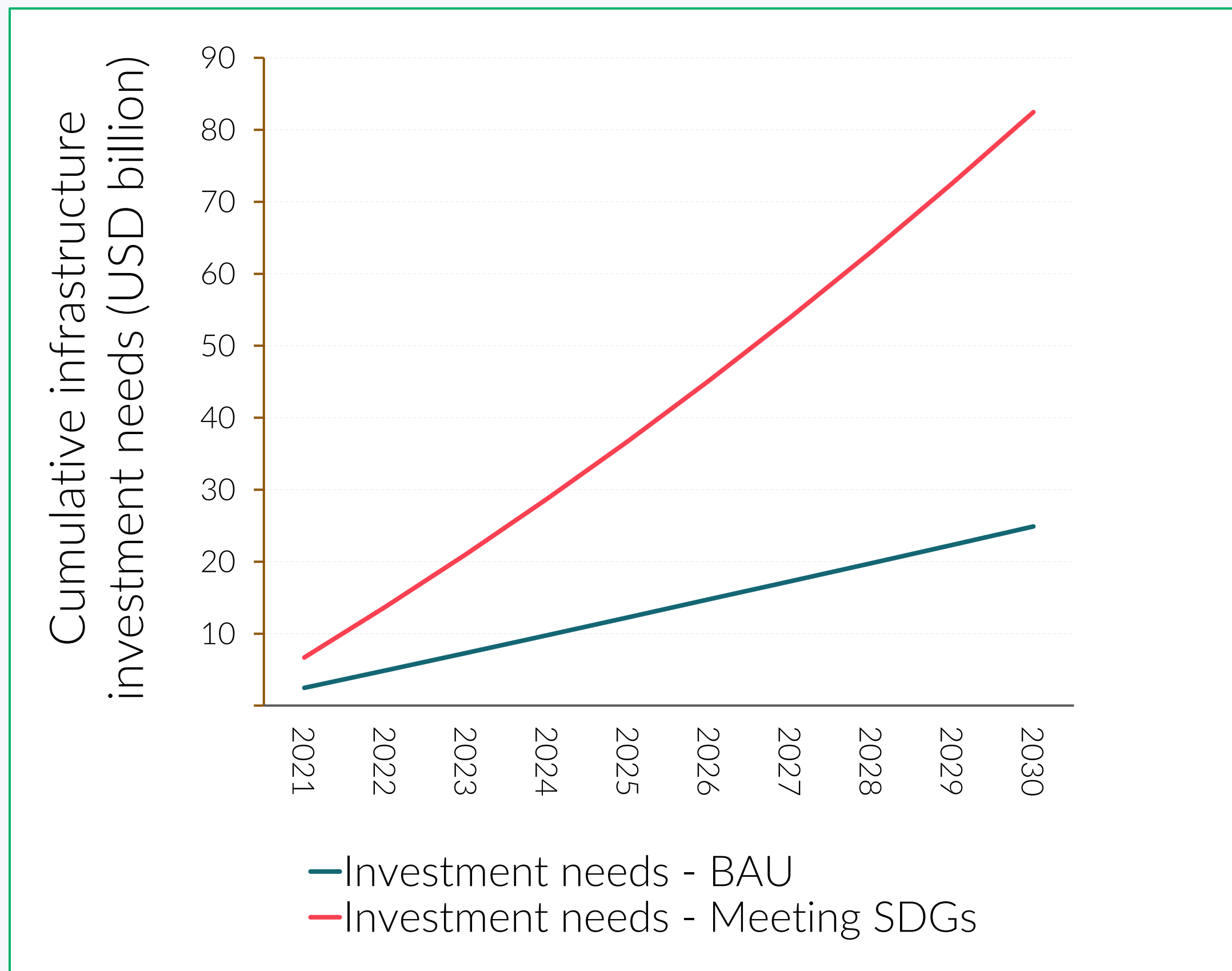
15%+ GDP per annum to achieve SDGs

- This is higher than the average of 12% calculated by the GIH. This is not surprising in the sense that international organisations often understate the costs required for infrastructure development.

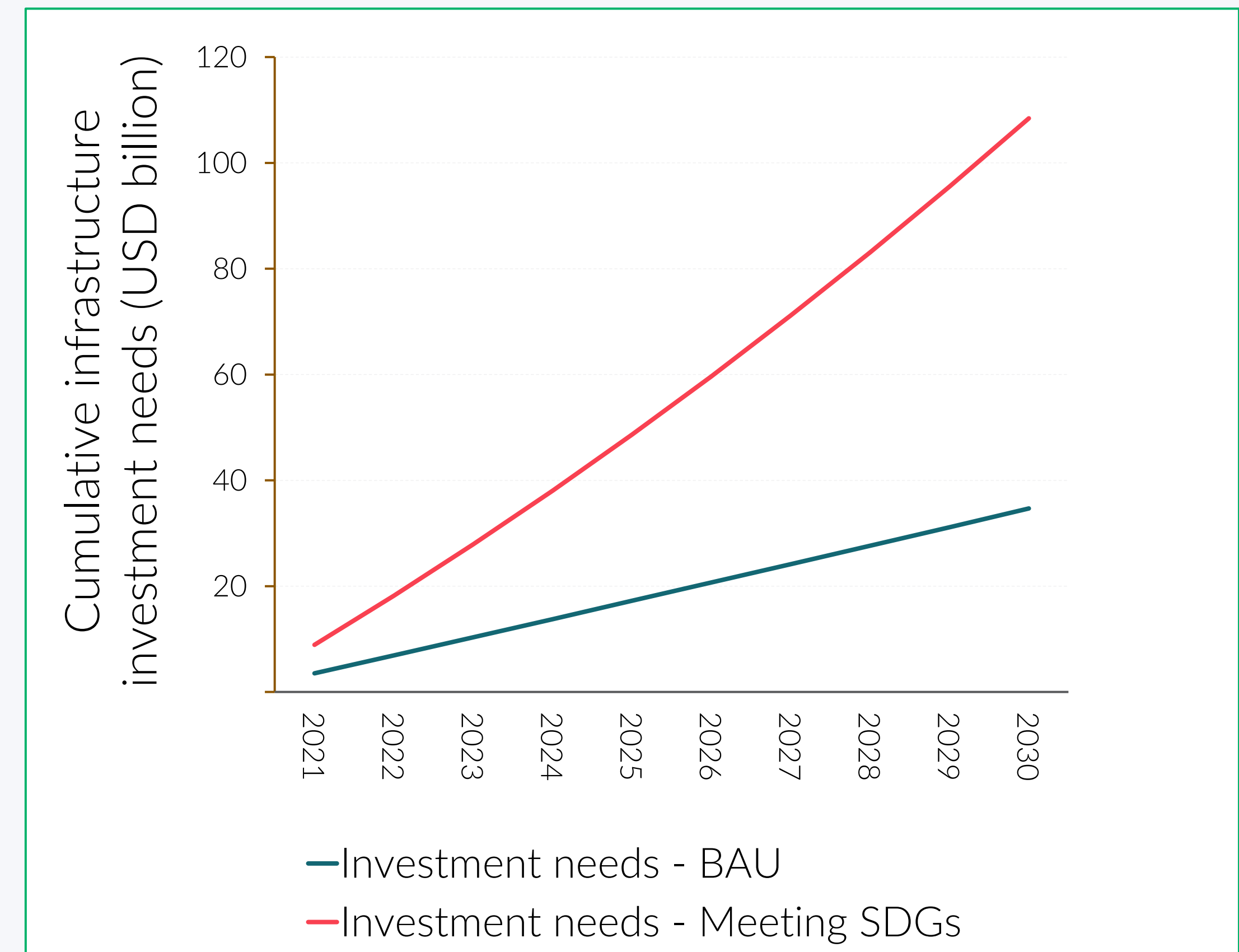


Côte d'Ivoire: Comparison Between Cumulative Infrastructure Investment Needs in Scenarios 1 and 2

Low Unit Costs



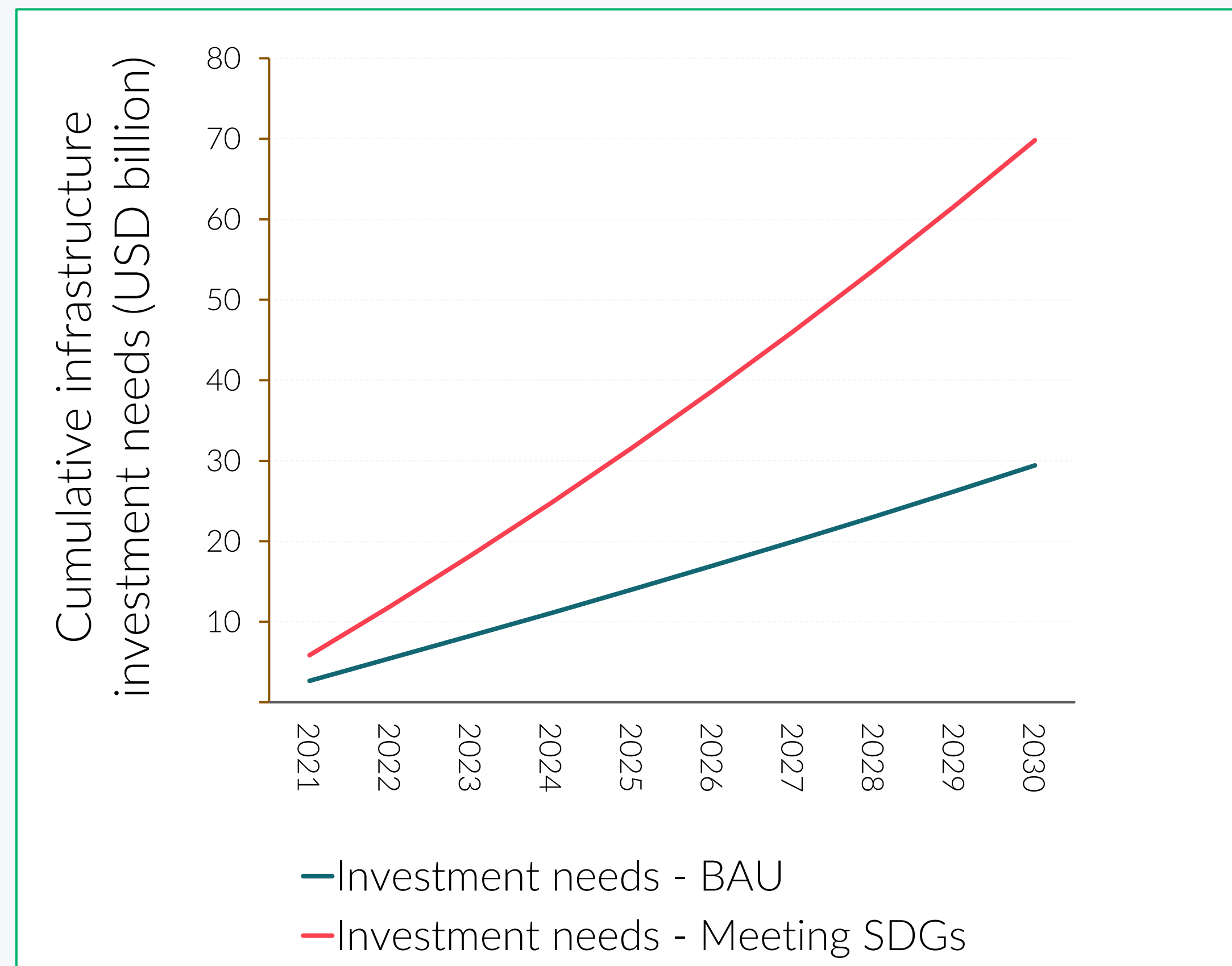
High Unit Costs



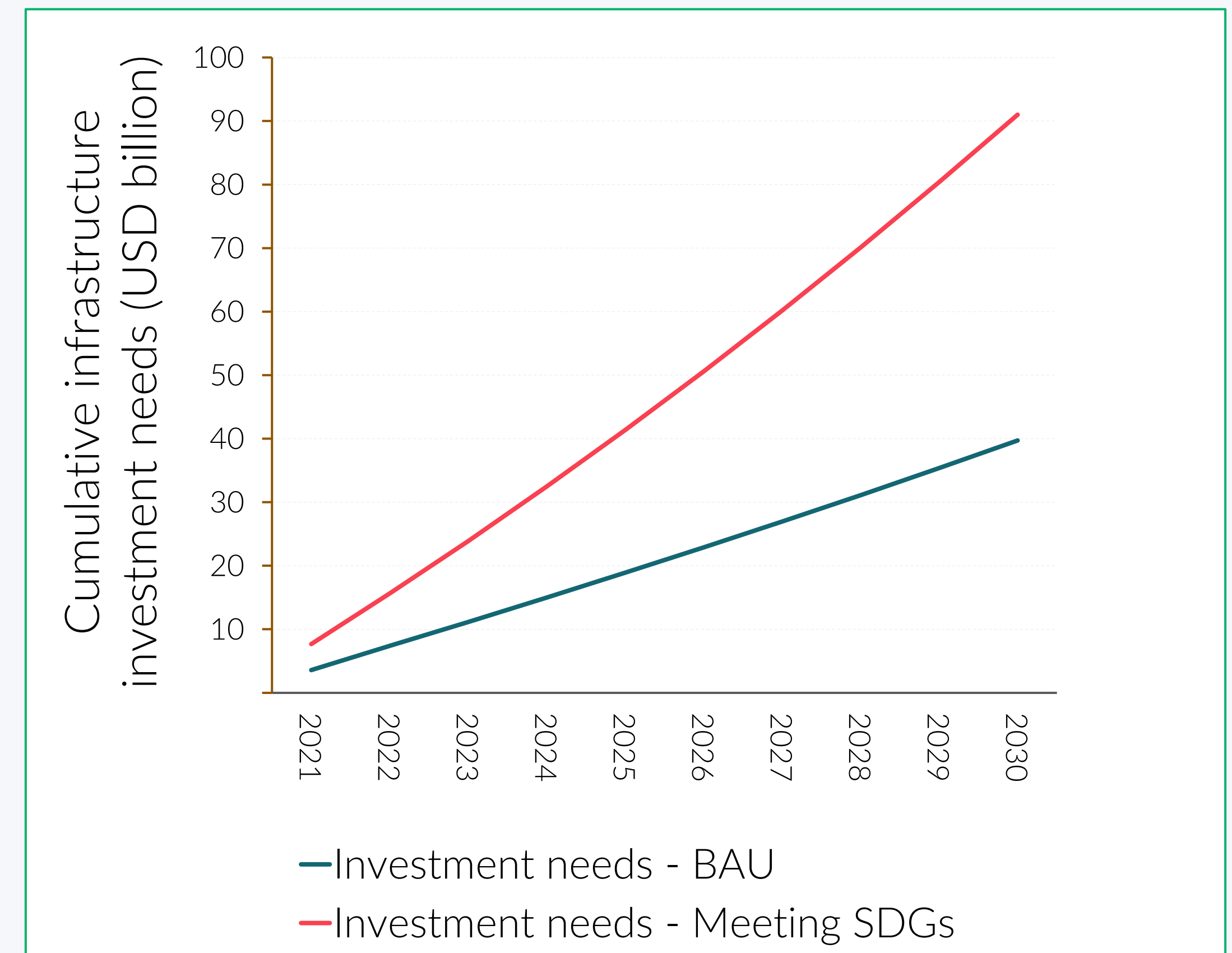


Ghana: Comparison Between The Cumulative Infrastructure Investment Needs in Scenarios 1 and 2

Low Unit Costs



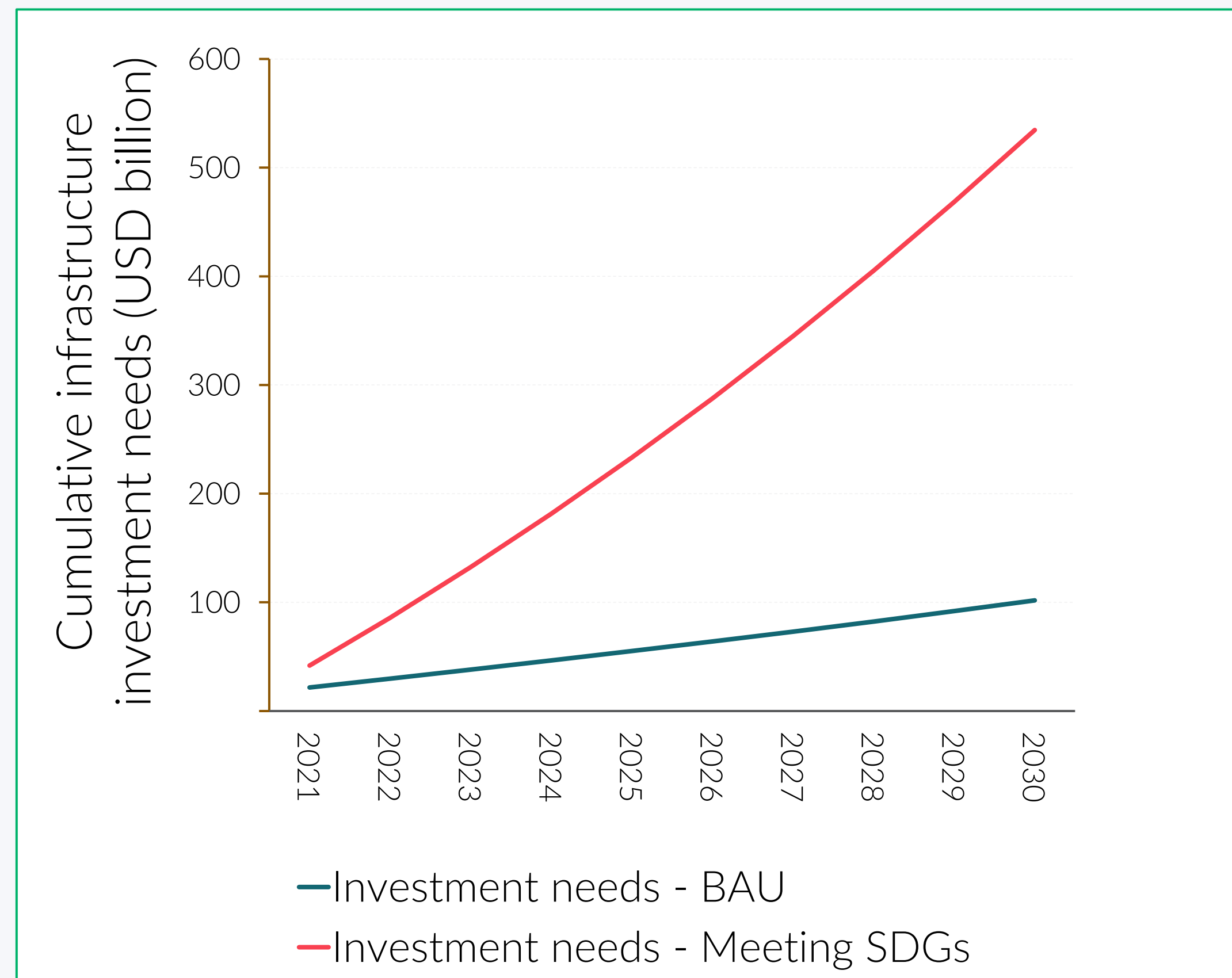
High Unit Costs



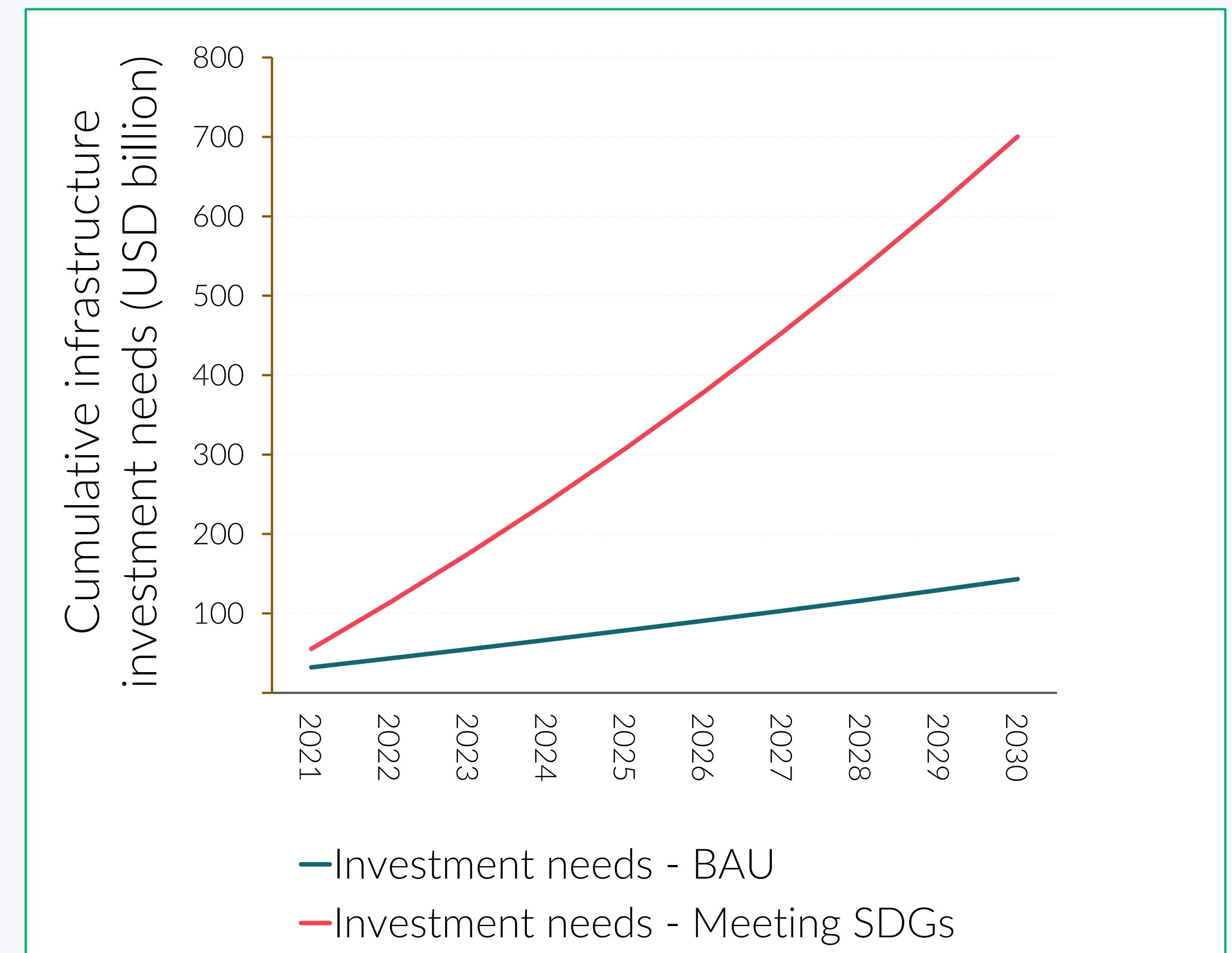


Nigeria: Comparison Between The Cumulative Infrastructure Investment Needs in Scenarios 1 and 2

Low Unit Costs



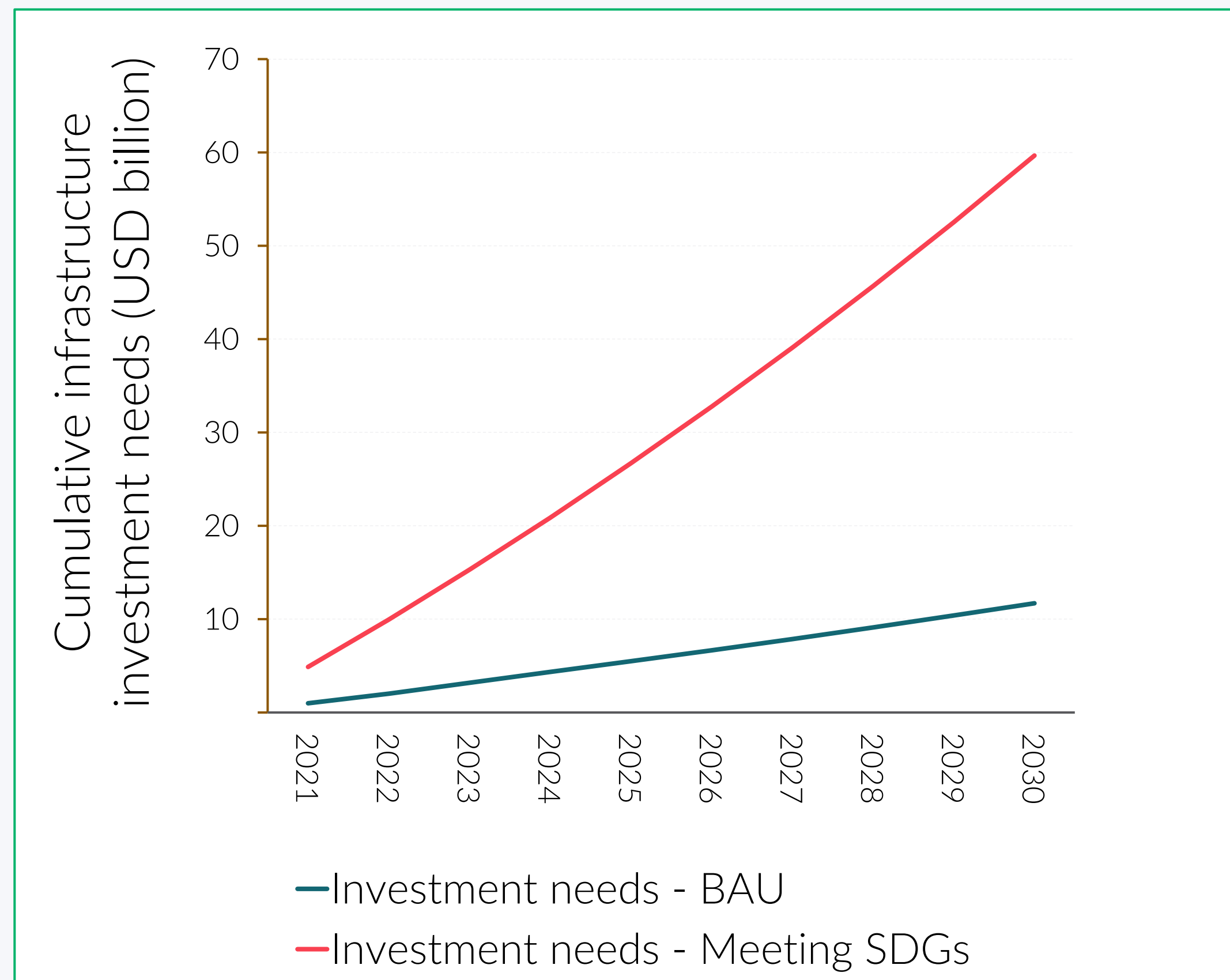
High Unit Costs



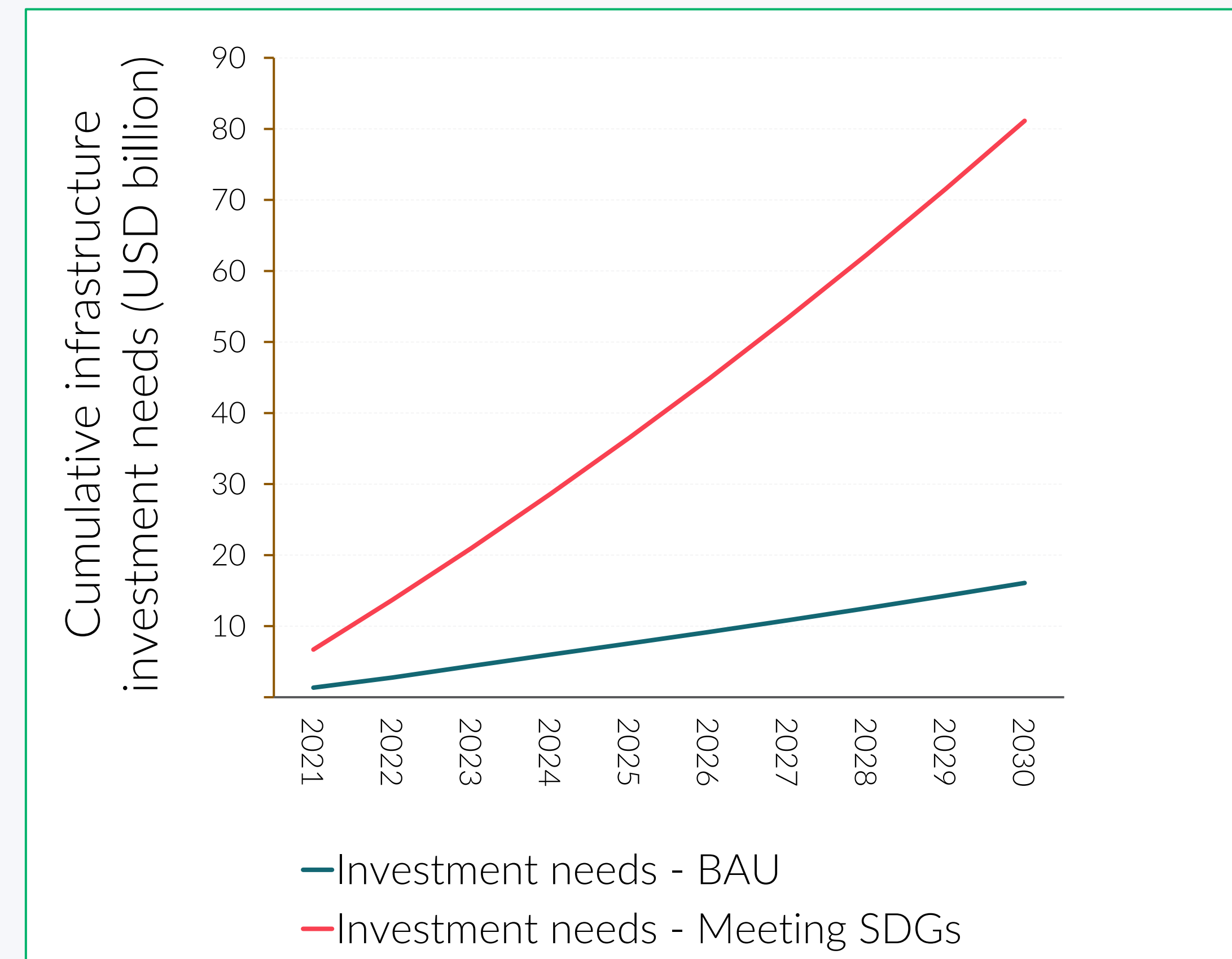


Senegal: Comparison Between The Cumulative Infrastructure Investment Needs in Scenarios 1 and 2

Low Unit Costs



High Unit Costs





03. INFRASTRUCTURE INVESTMENT GAP



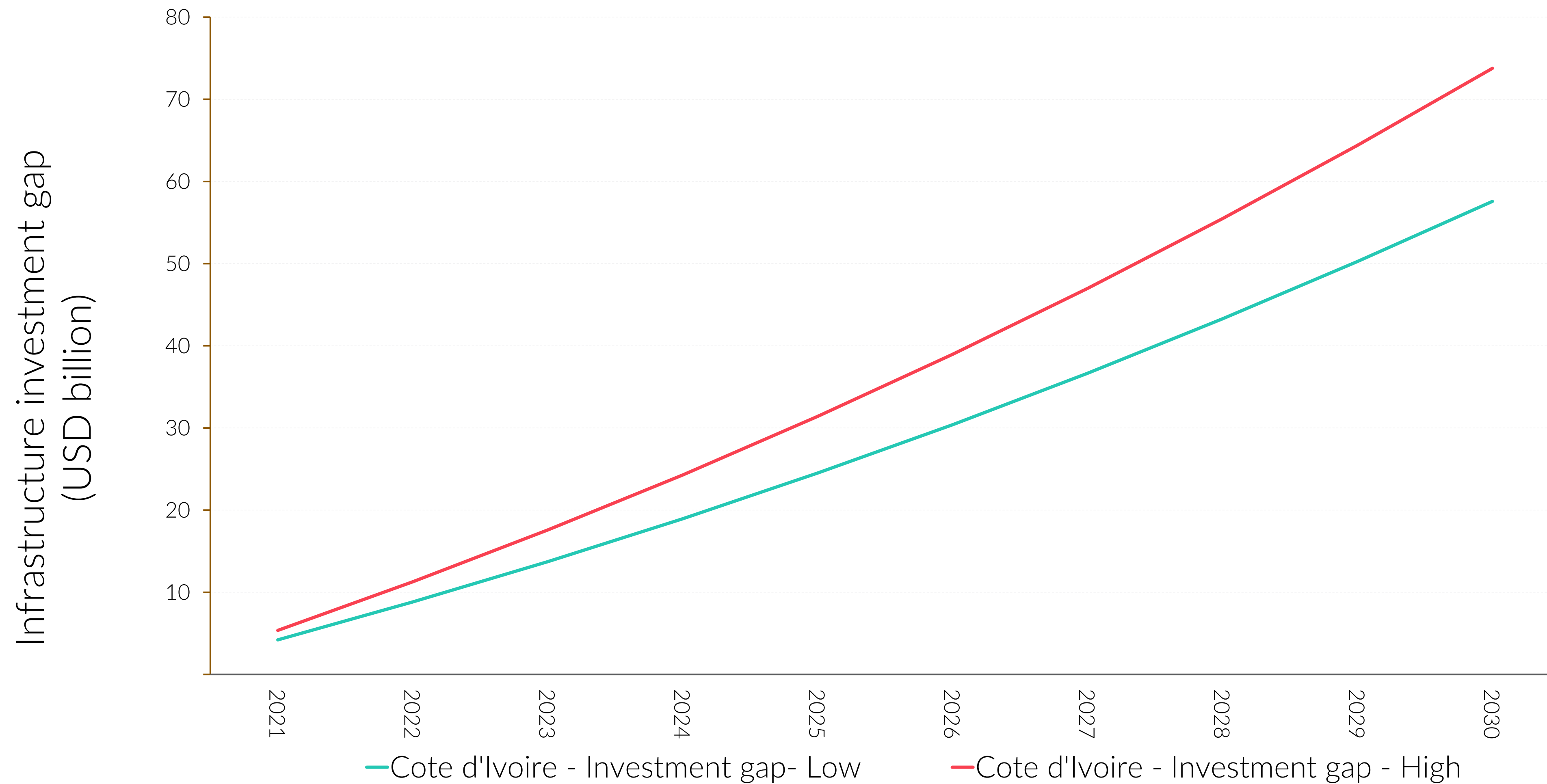
RESULTS – INFRASTRUCTURE INVESTMENT GAP

The total cumulative infrastructure gap range is as follows:

Country	Low End Unit Costs (USD)	High End Unit Costs (USD)
Côte d'Ivoire	57.6 billion	73.8 billion
Ghana	40.4 billion	51.3 billion
Nigeria	432.8 billion	557.3 billion
Senegal	48.0 billion	65.1 billion

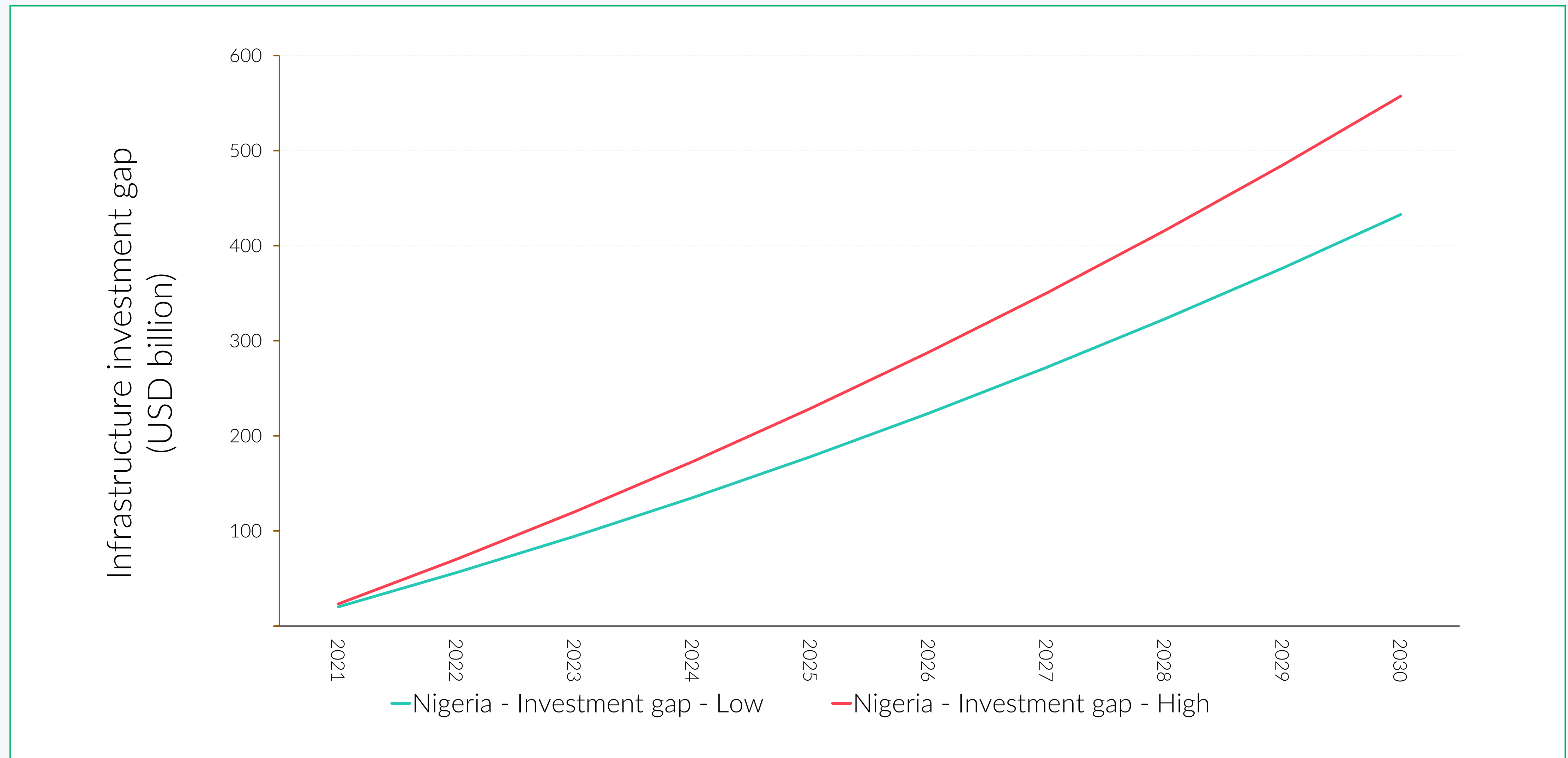


Côte d'Ivoire Cumulative Infrastructure Investment Gap: From USD 57.6 (low end of unit costs) to 73.8 billion (high end of unit costs)



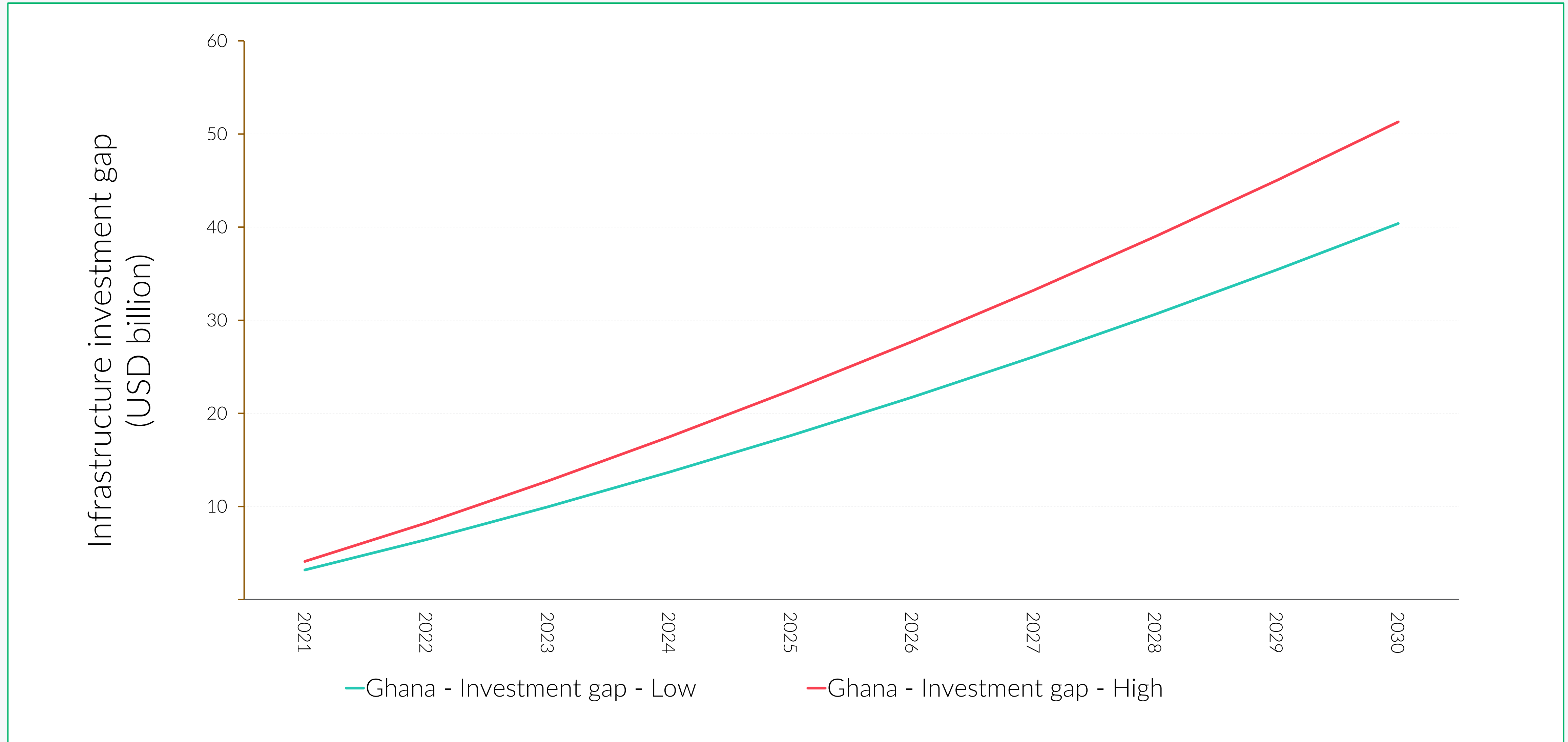


Nigeria Cumulative Infrastructure Investment Gap: The cumulative infrastructure investment gap ranges from USD 432.8 to 557.3 billion



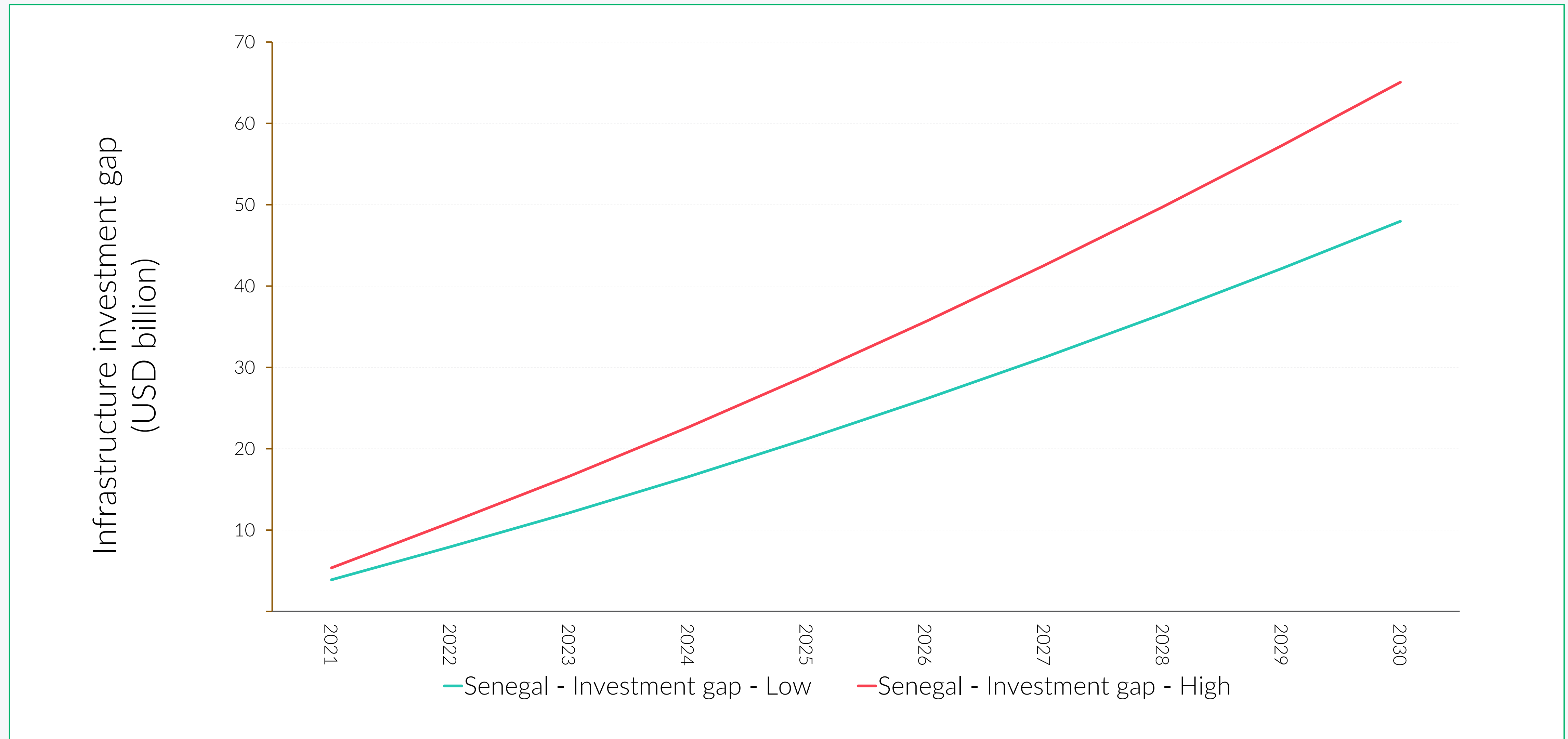


Ghana Cumulative Infrastructure Investment Gap: The cumulative infrastructure investment gap ranges from USD 40.4 to 51.3 billion





Senegal Cumulative Infrastructure Investment Gap:
The cumulative infrastructure investment gap ranges from USD 48.0 to 65.1 billion.





RESULTS – INFRASTRUCTURE INVESTMENT GAP



Figure: **Côte d'Ivoire** – Cumulative Infrastructure Investment Gap

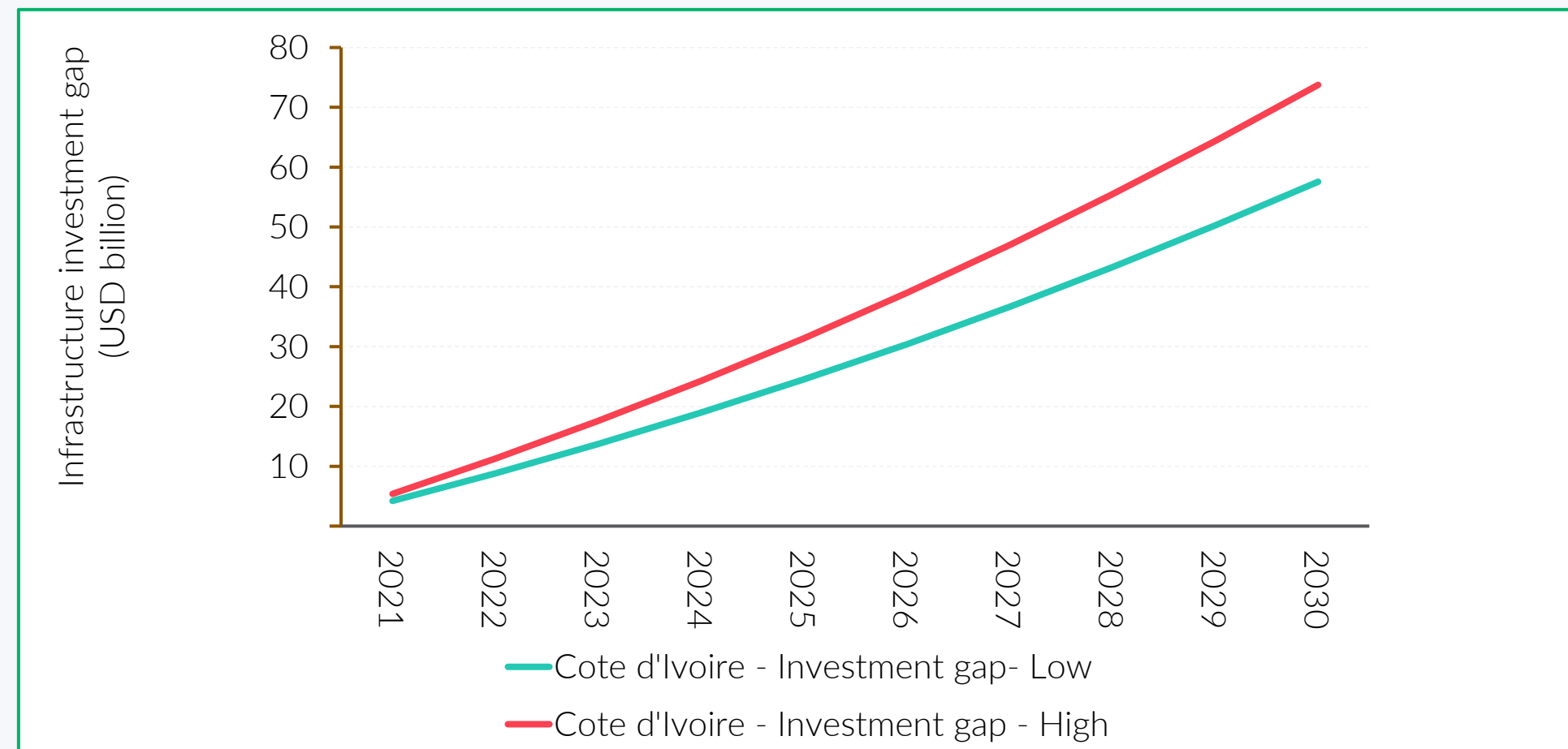


Figure: **Nigeria** – Cumulative Infrastructure Investment Gap

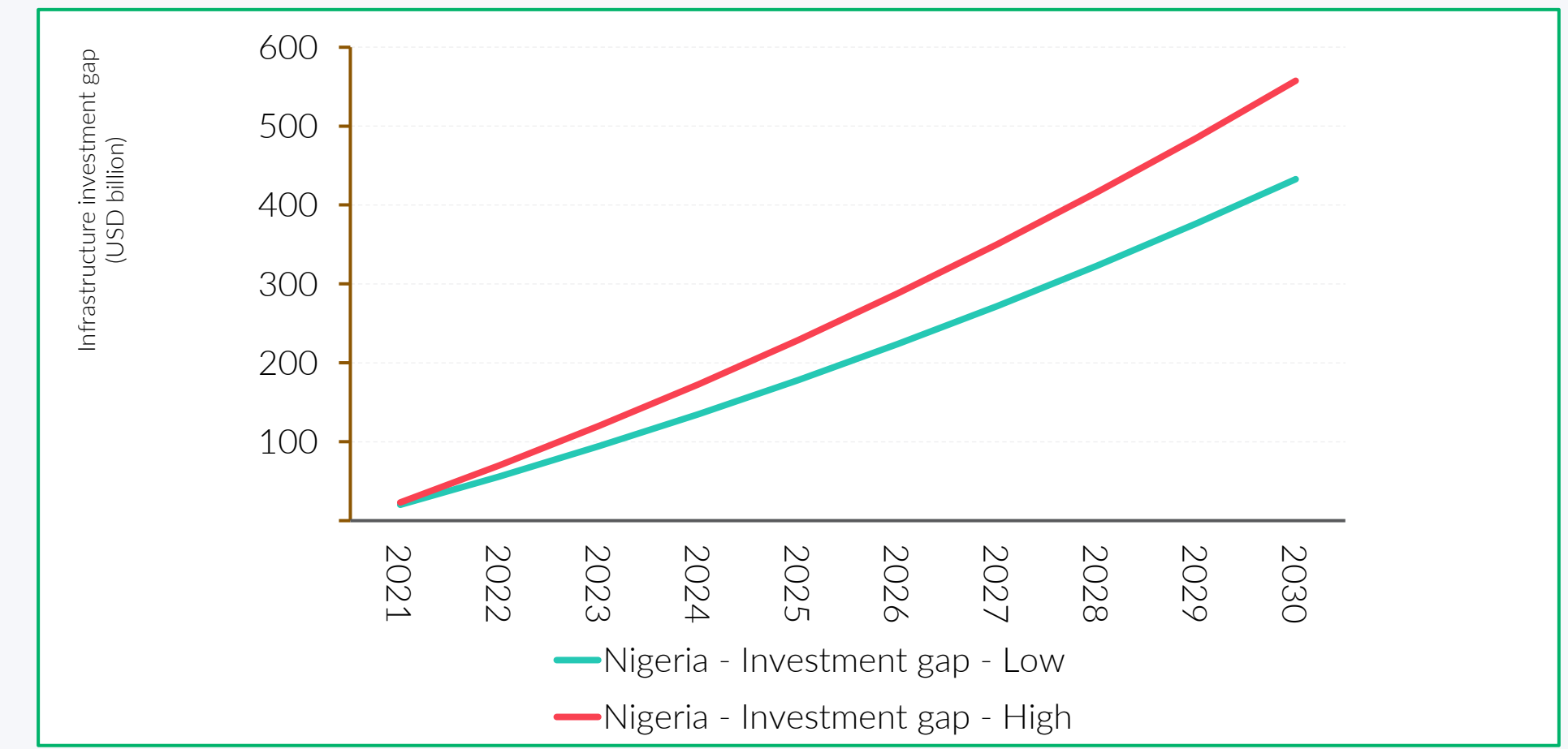


Figure: **Ghana** – Cumulative Infrastructure Investment Gap

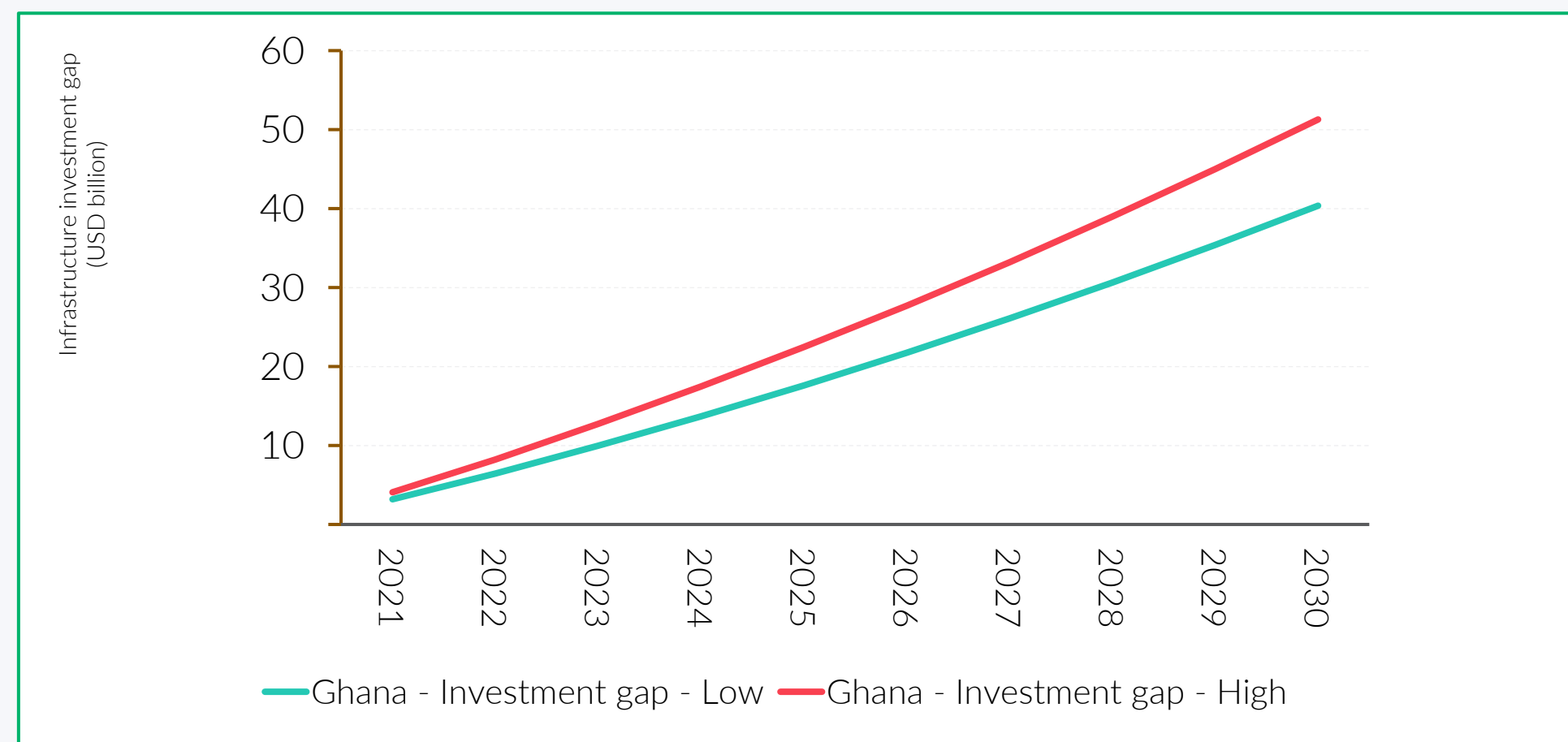
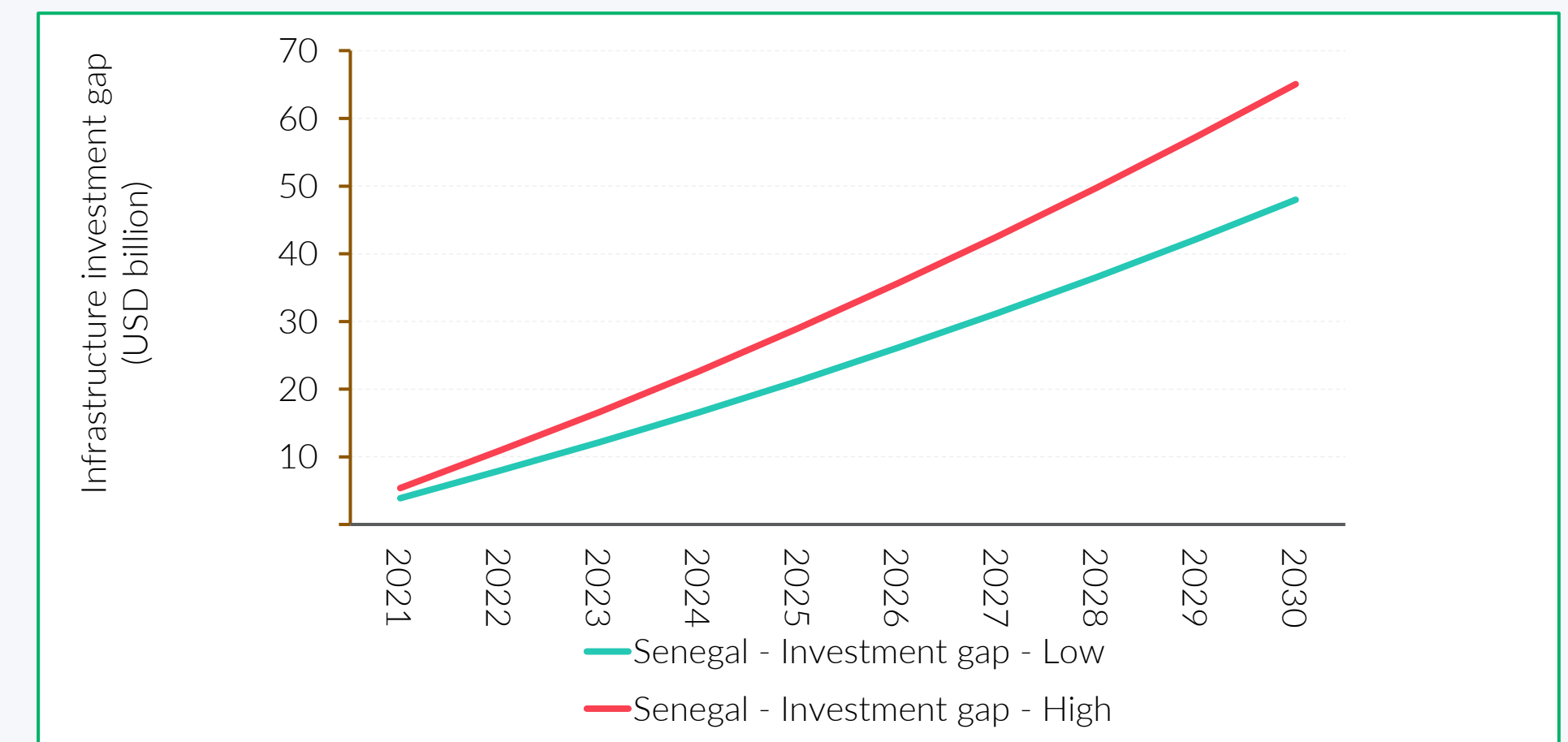


Figure: **Senegal** – Cumulative Infrastructure Investment Gap





RESULTS – INFRASTRUCTURE INVESTMENT GAP

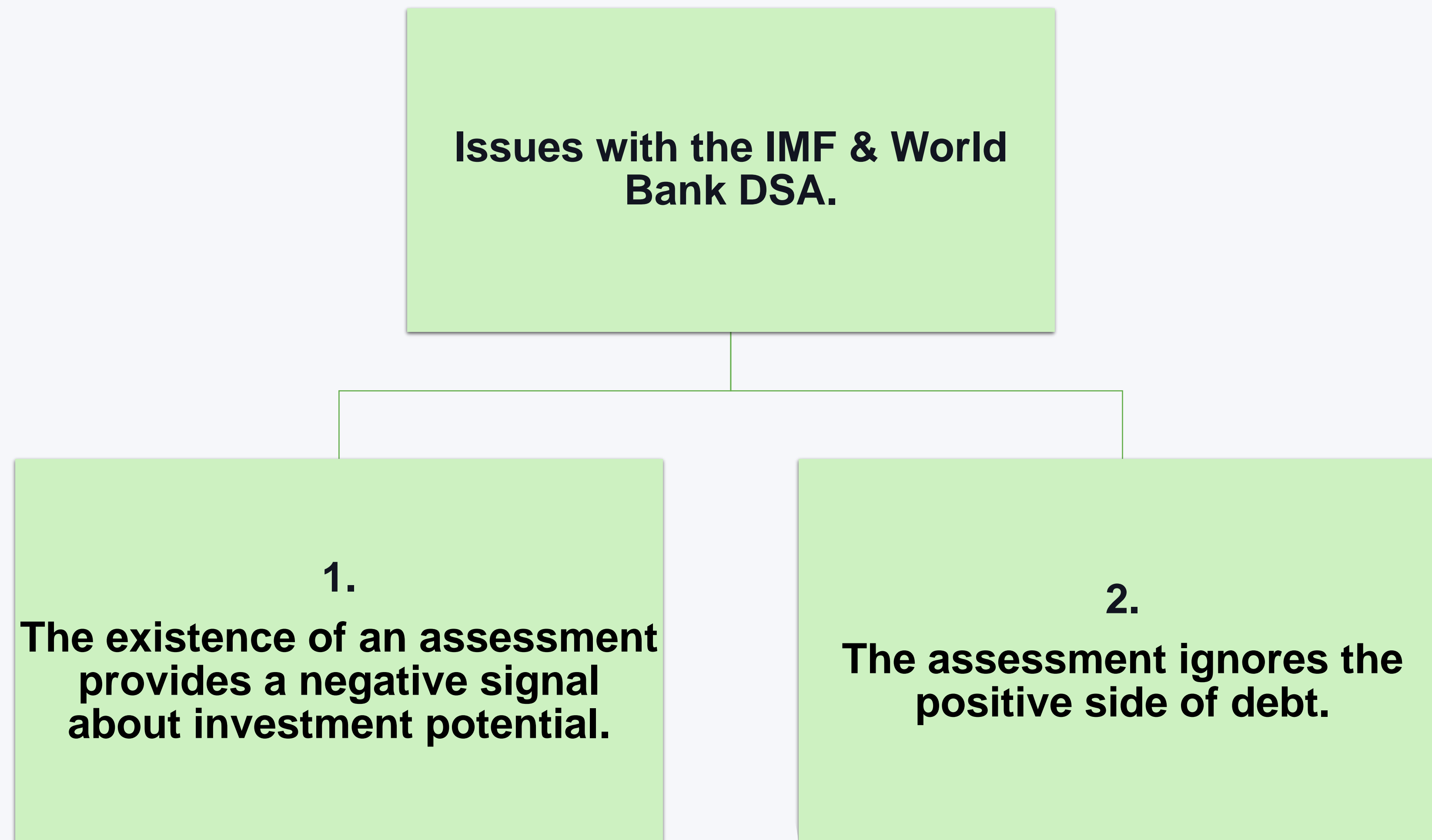
Average annual infrastructure financing gap in the countries under consideration.

Country	Infrastructure financing gap (USD billion)
Côte d'Ivoire	5.8 - 7.4
Ghana	4.0 - 5.1
Nigeria	43.3 - 55.7
Senegal	4.8 - 6.5

04. CONCLUDING REMARKS



- Closing this infrastructure gap requires a huge amount of capital. Yet, this process is hindered by the Debt Sustainability Analysis (DSA) by the IMF and World Bank, which is problematic for two reasons:





Country	IMF/World Bank DSA Classification	Cumulative Infrastructure Gap (USD Billions)	Annual Infrastructure Gap (USD Billions)
Côte d'Ivoire	Moderate Risk	57.6 – 73.8	5.8 - 7.4
Ghana	High Risk	40.4 – 51.3	4.0 - 5.1
Nigeria	N/A	432.8 – 557.3	43.3 - 55.7
Senegal	Moderate Risk	48.0 – 65.1	4.8 - 6.5



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Acknowledgments: Development Reimagined would like to give special thanks to Dibekulu Mulu, Orestis Kotronis, Sophia Kladaki and David Tinashe Nyagweta for diligently conducting the extensive research and forecasting analysis as well as Hannah Ryder for her overall stewardship.