

DEPLOYING LOW CARBON TECHNOLOGIES: PRIVATE SECTOR READINESS COSTS

For:

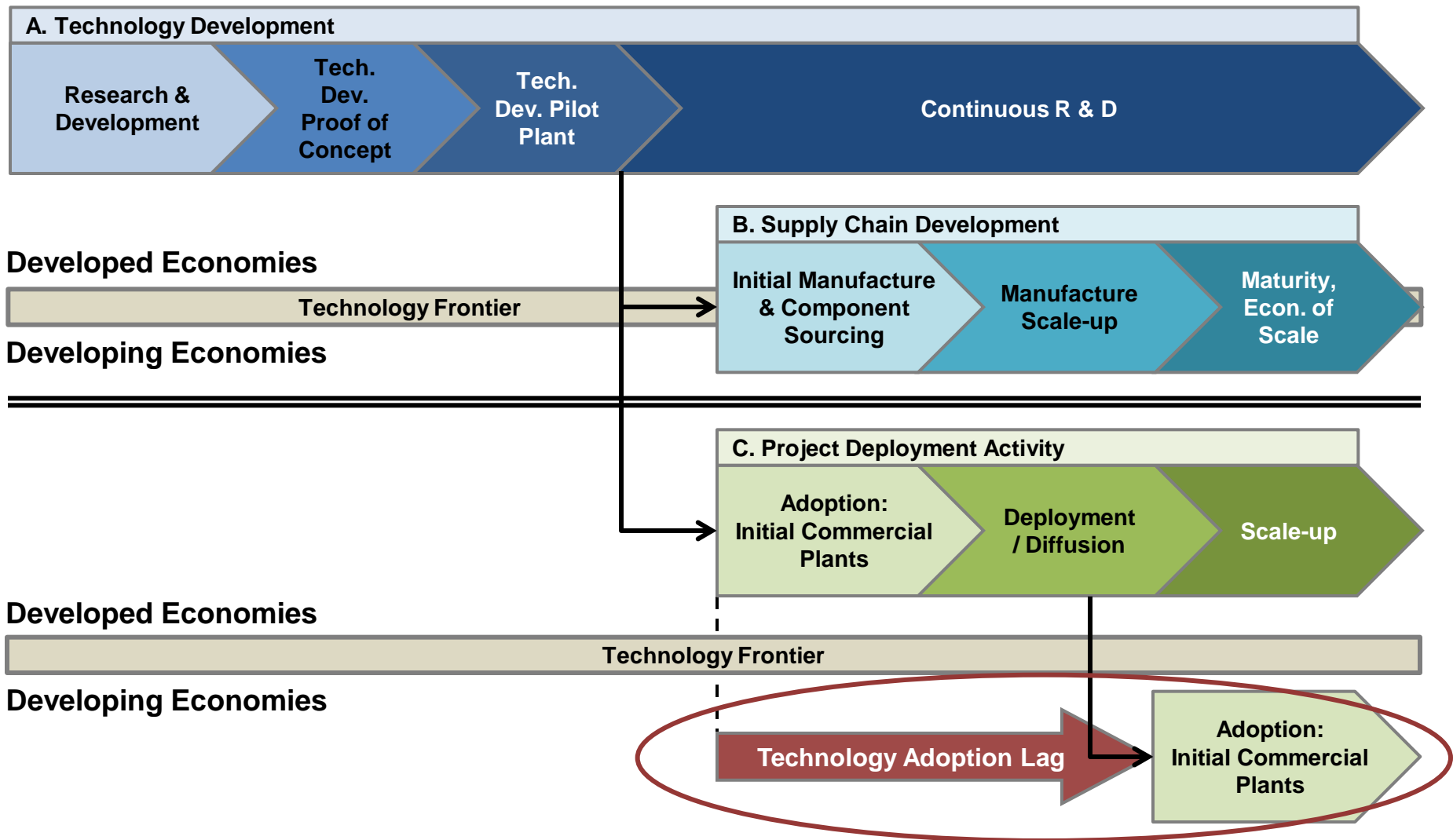
United Nations Environment Programme

Presentation to:

Power-Gen Asia 2010

3 November 2010

Technology Development, Adoption & Deployment



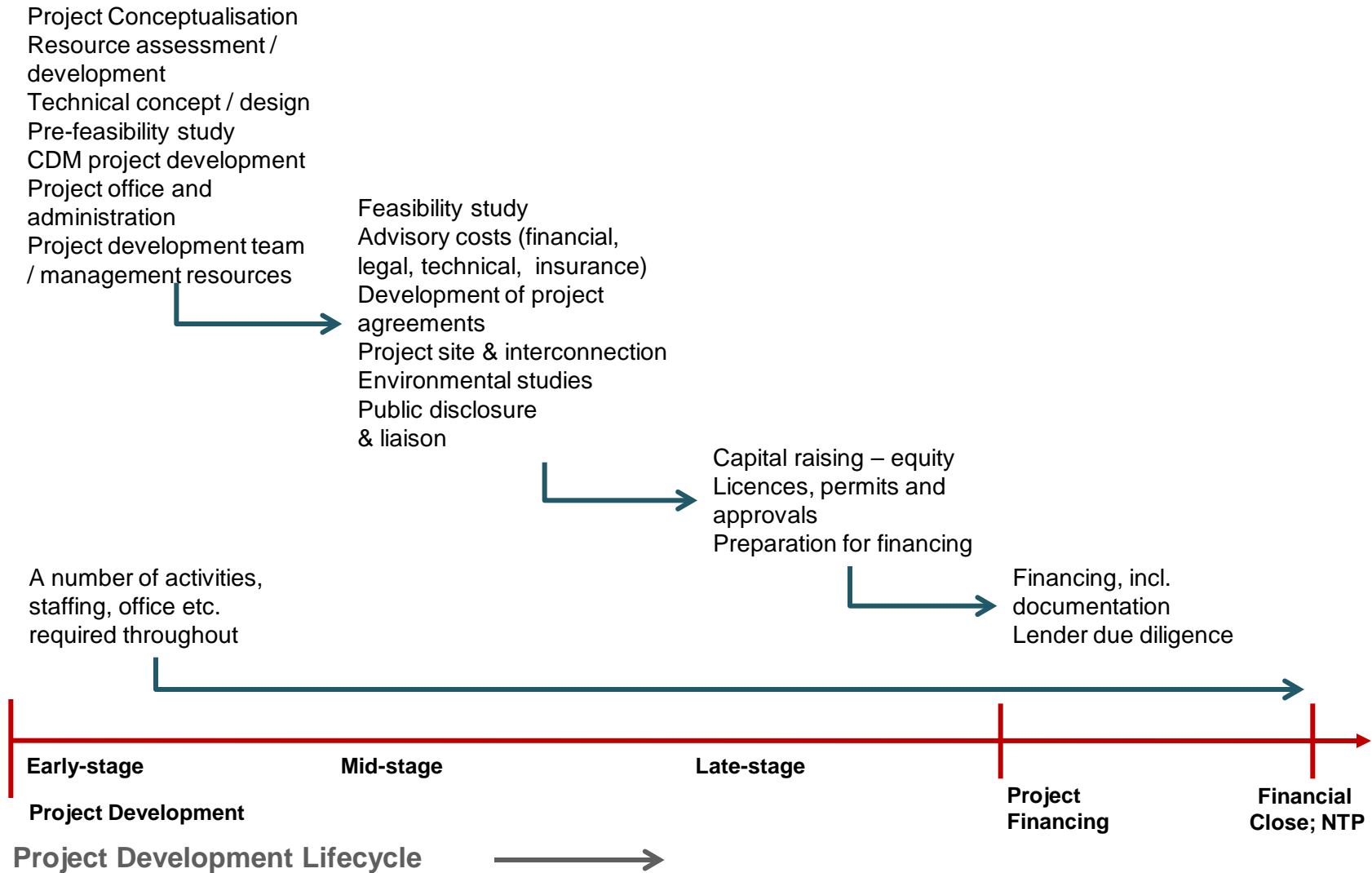
Project Development Activity

- 🔥 Project development is essentially a venture activity**
- 🔥 Project Developers play a key role in climate / clean energy projects**
 - ⇒ Act as ‘pathfinders’, especially in developing markets
 - ⇒ Catalyse policy development
 - ⇒ Lead larger ‘late stage’ private sector actors into markets
 - ⇒ Create readiness for expansion of market

Climate / Clean Energy Projects

- ❏ Typically smaller transaction size
- ❏ Heavy reliance on policy / regulatory framework
- ❏ Non-traditional private sector actors (developers)
- ❏ Resource assessment, availability and location are critical
- ❏ (Some) Reliance on new technologies

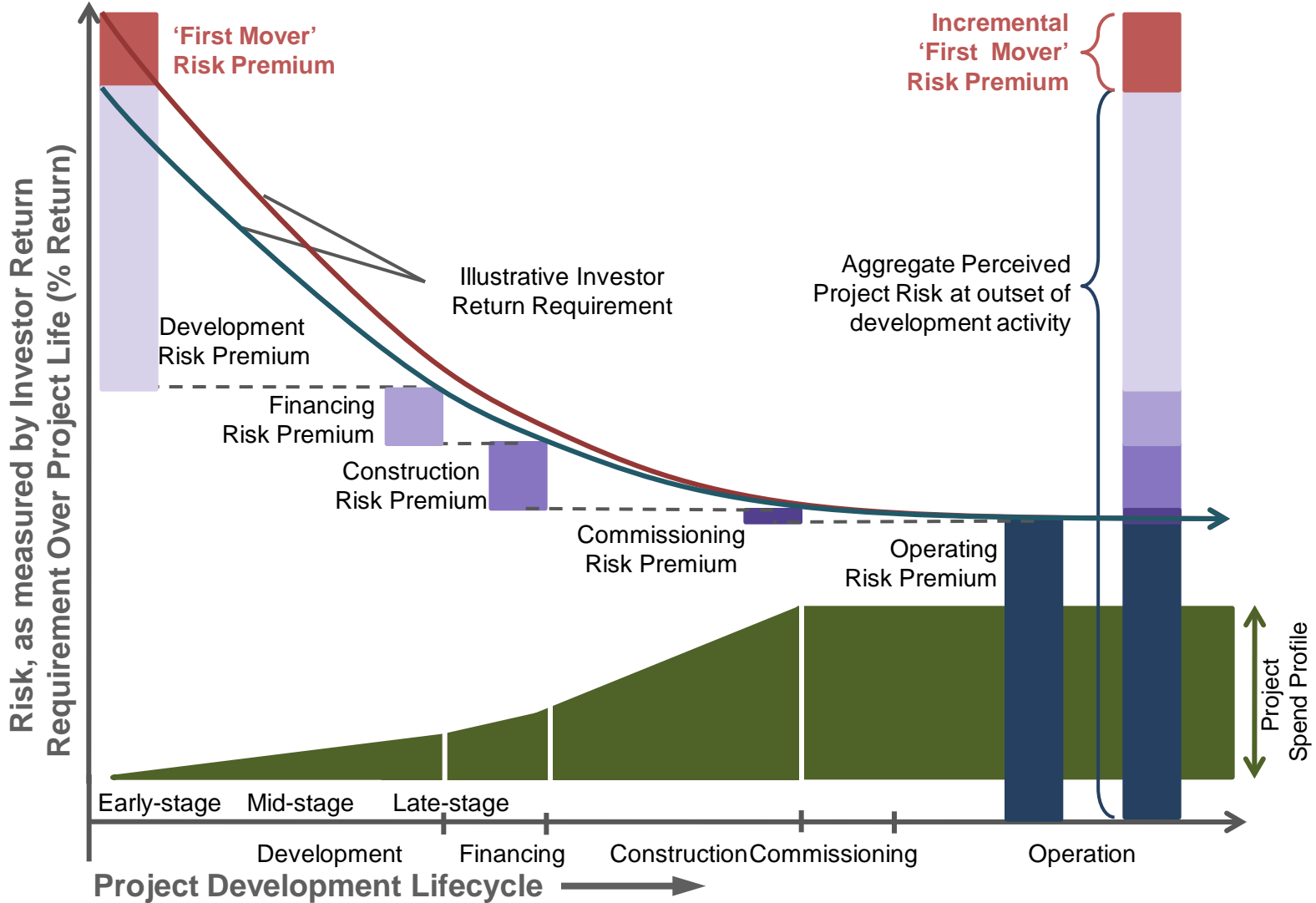
Project Development Cycle & Activity



Source: UNEP, Aequero



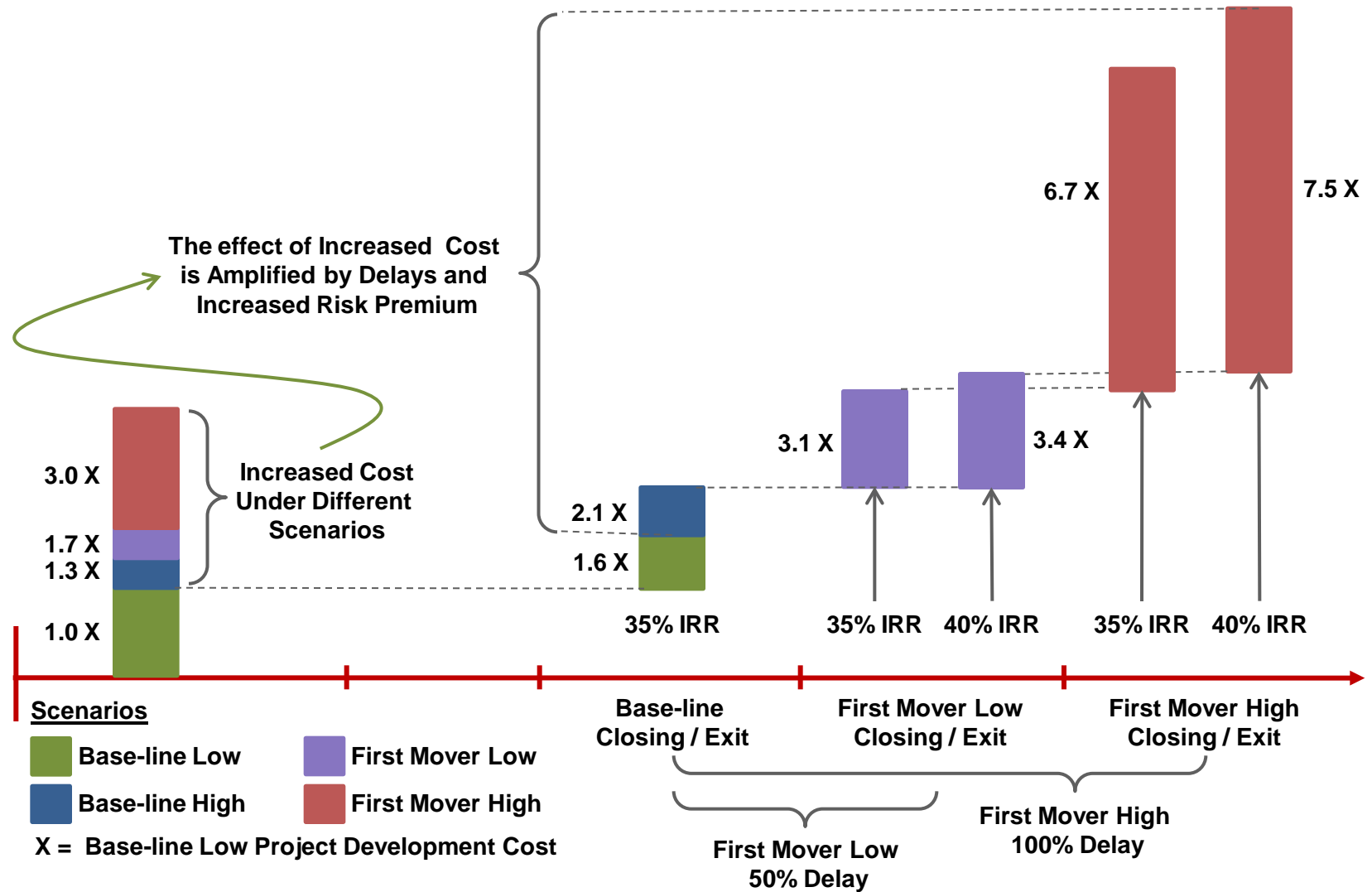
Project Development Cycle Risk-Return Profile



Source: UNEP, Aequero

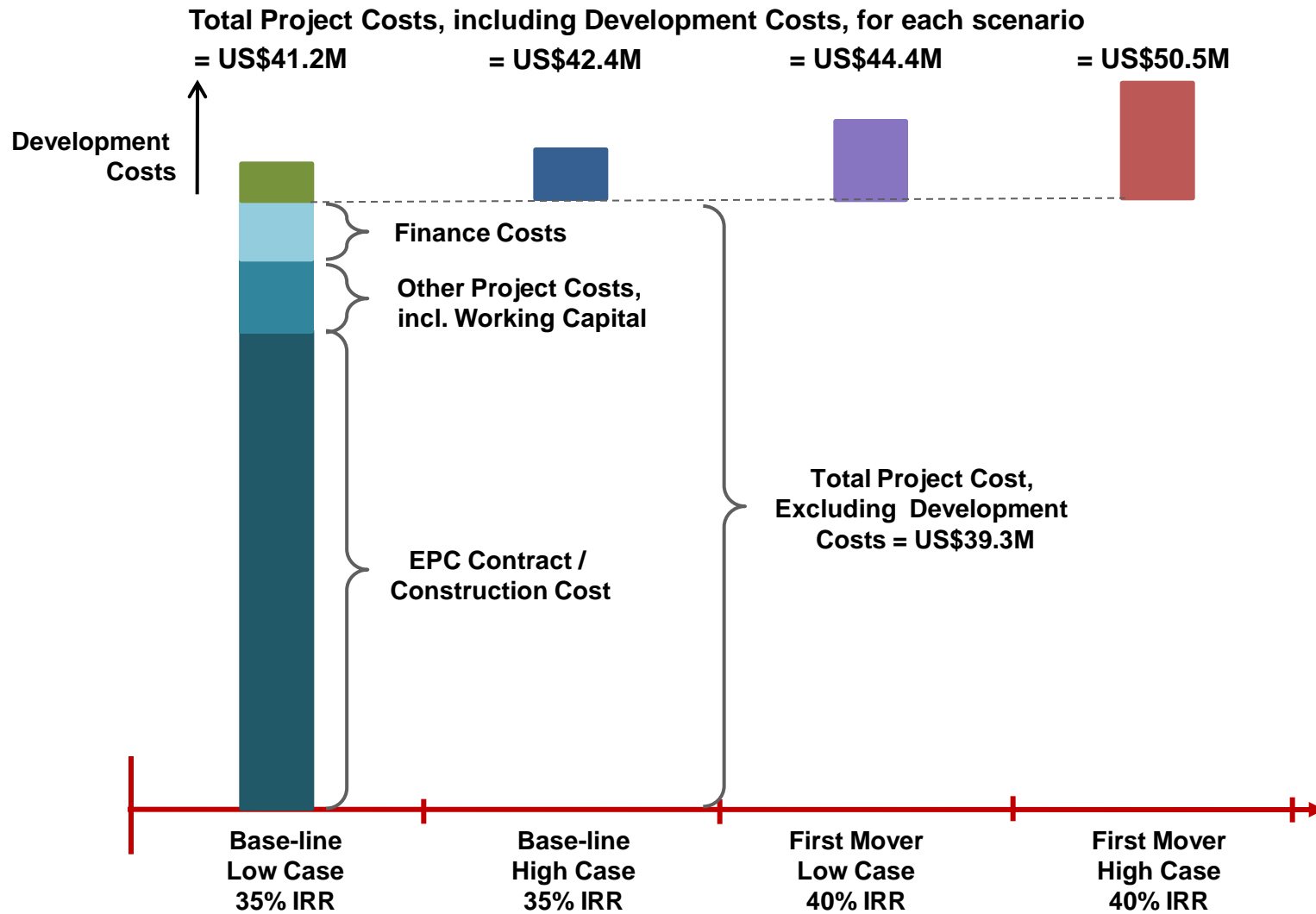


Dev. Costs Amplified by Time & Cost of Capital



Source: UNEP, Aequero

Amplified Costs Directly Increase Project Costs

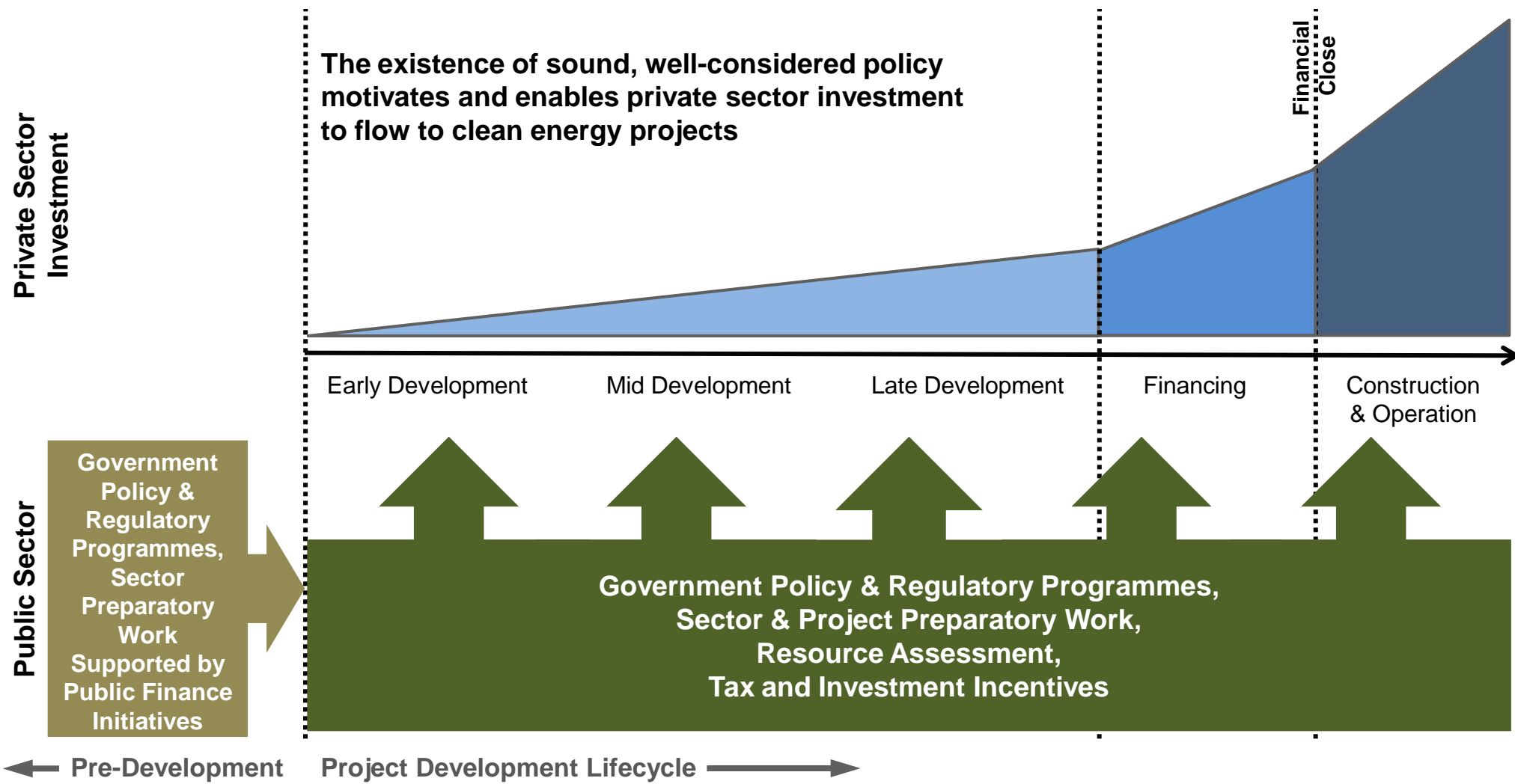


Source: UNEP, Aequero

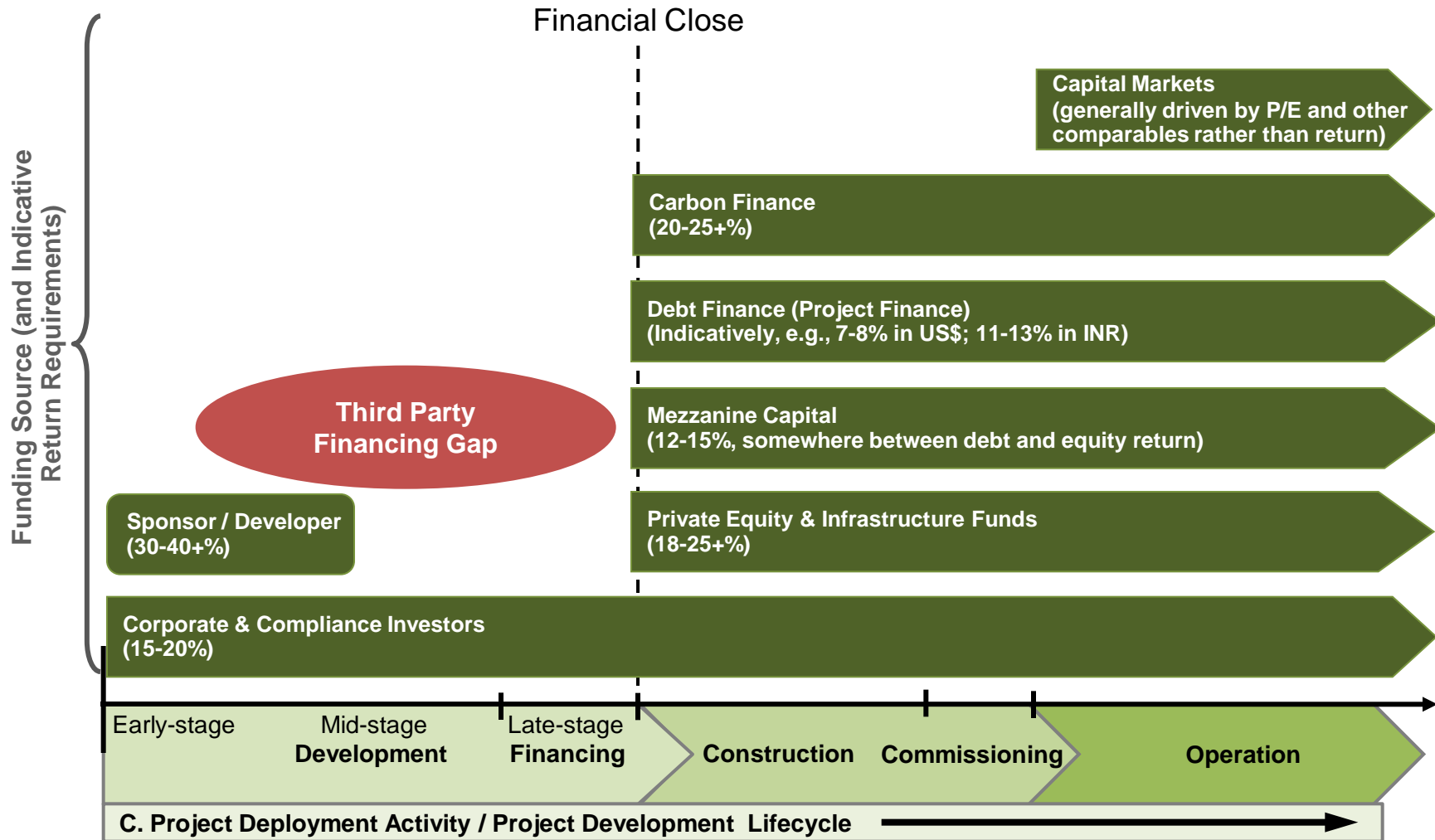
Key Findings

- 🔺 **Three areas where CC Projects experience incremental readiness (transaction) costs**
 - ⇒ Proportionately higher readiness costs due to smaller transaction size
 - ⇒ Incremental costs for 'first mover' transactions
 - ⇒ Higher cost of capital
- 🔺 **'First mover' projects take longer to realise – approx. 2-3 times longer**
- 🔺 **Higher cost of capital + longer development timeframes amplify costs of readiness**
 - ⇒ Est. 8-23% increase in total project cost

Underpinning Private Sector Investment with Sound Policy

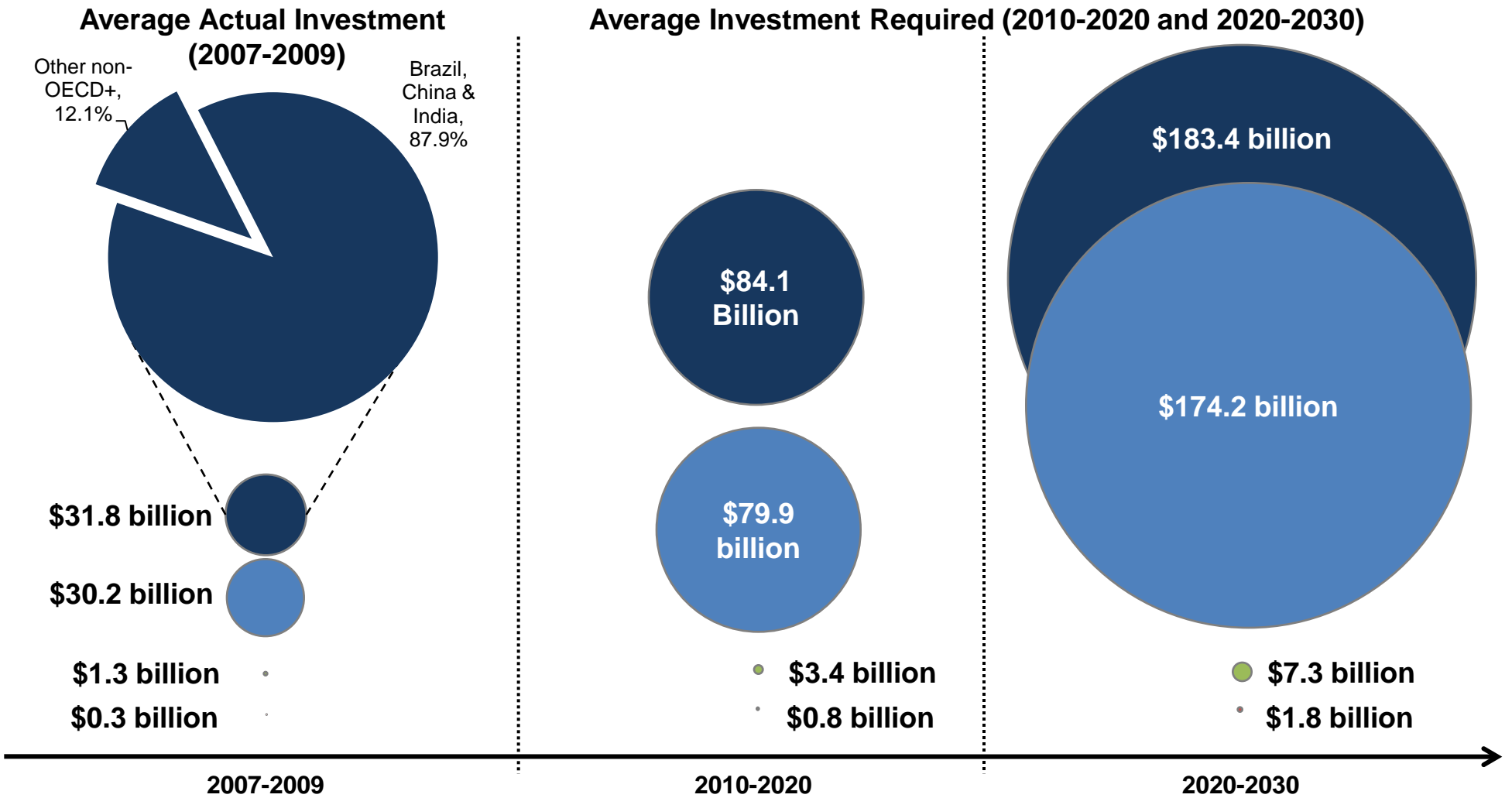


Financing Sources Available to Project Deployment Activity

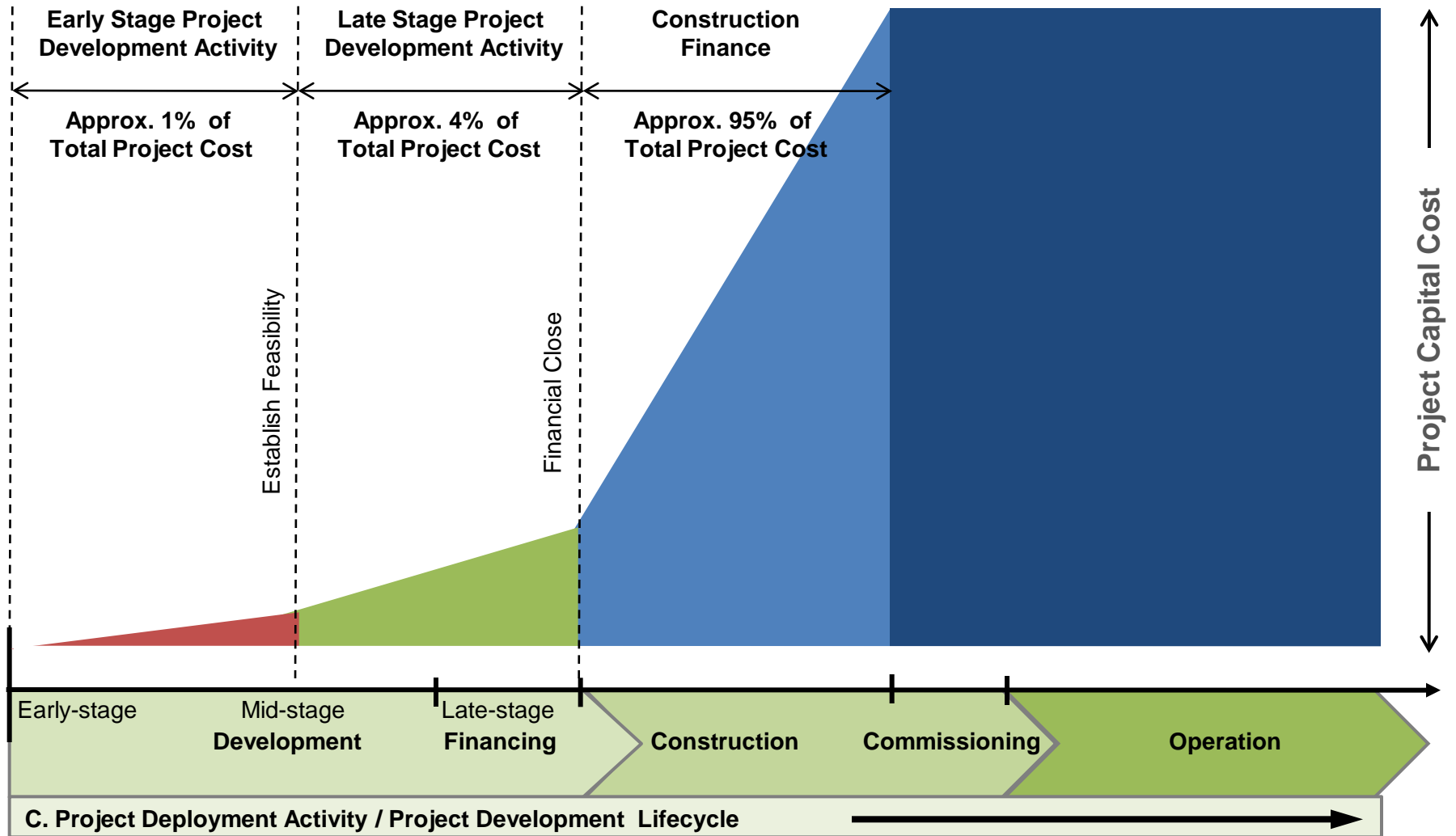


Source: UNEP, Aequero

Non-OECD+ Country Investment in Renewables – Actual vs. IEA Forecast Requirement



Project Development Spend Profile



Non-OECD+ Country Investment in Renewables – Actual vs. Forecast Development Capital Requirement

Average Actual Investment
(2007-2009)

Average Investment Required (2010-2020 and 2020-2030)

= Approx. 6 times present
Investment level

= Approx. 3 times present
investment level

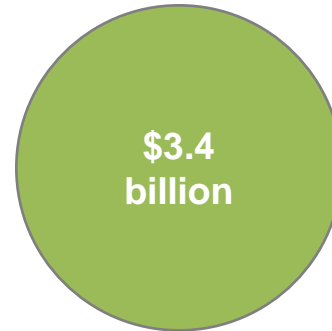
\$1.3 billion



\$0.3 billion



2007-2009

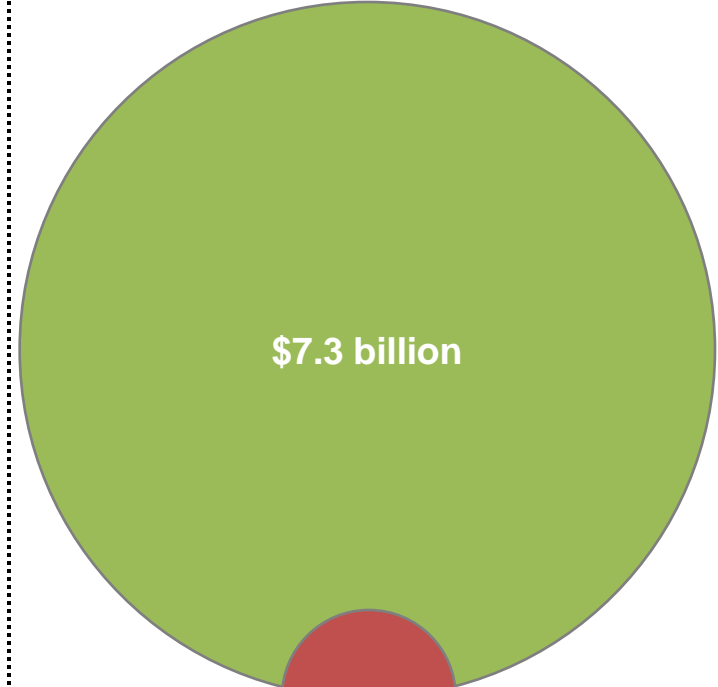


\$3.4
billion

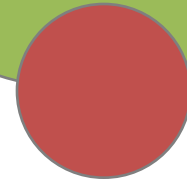


\$0.8 billion

2010-2020




\$7.3 billion



\$1.8 billion

2020-2030

 Early Stage Development Finance
(~1% of project cost)

 Late Stage Development Finance
(~4% of project cost)

Public vs. Private Share of Financing (2007-2009)

Construction Financing (Post-Financial Close) ≈ US\$30.2 Billion



Late Stage Development Finance (Post-FS, Pre-Financial Close) ≈ US\$1.3 Billion



Early Stage Development Finance (Pre-FS) ≈ US\$300 Million



 **Public Finance (includes IFIs, ECAs, State-owned Financial Institutions)**

 **Private Finance**