Policy and Climate:
The State of Global Play

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CLIMATE POLICY INITIATIVE

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About Climate Policy Initiative

Finance and Investors

- Optimizing policy regimes for low cost financing
- Cataloguing investment risks, barriers and solutions
- Identifying new investment opportunities and potential catalysts
- Assessing investor response:
  - Institutional Investors
  - Banks
  - Corporate investors
  - Government Agencies

Climate Policy Initiative

Climate Policy Initiative (CPI) works with the public and private sector to decrease the cost – and increase the value – of low-carbon alternatives.

Our team of advisors and analysts has deep expertise in finance, strategy and policy for clean energy and infrastructure, and works with governments, utilities, companies, banks, investors, and foundations around the world to lower the cost of the transition to a low-carbon energy system.

Policymakers and regulators

- Identifying effective policy solutions including:
  - Market structure
  - Incentives
  - Regulation
  - Financing
- Articulating barriers to implementation
- Testing policy from real world examples and institutions

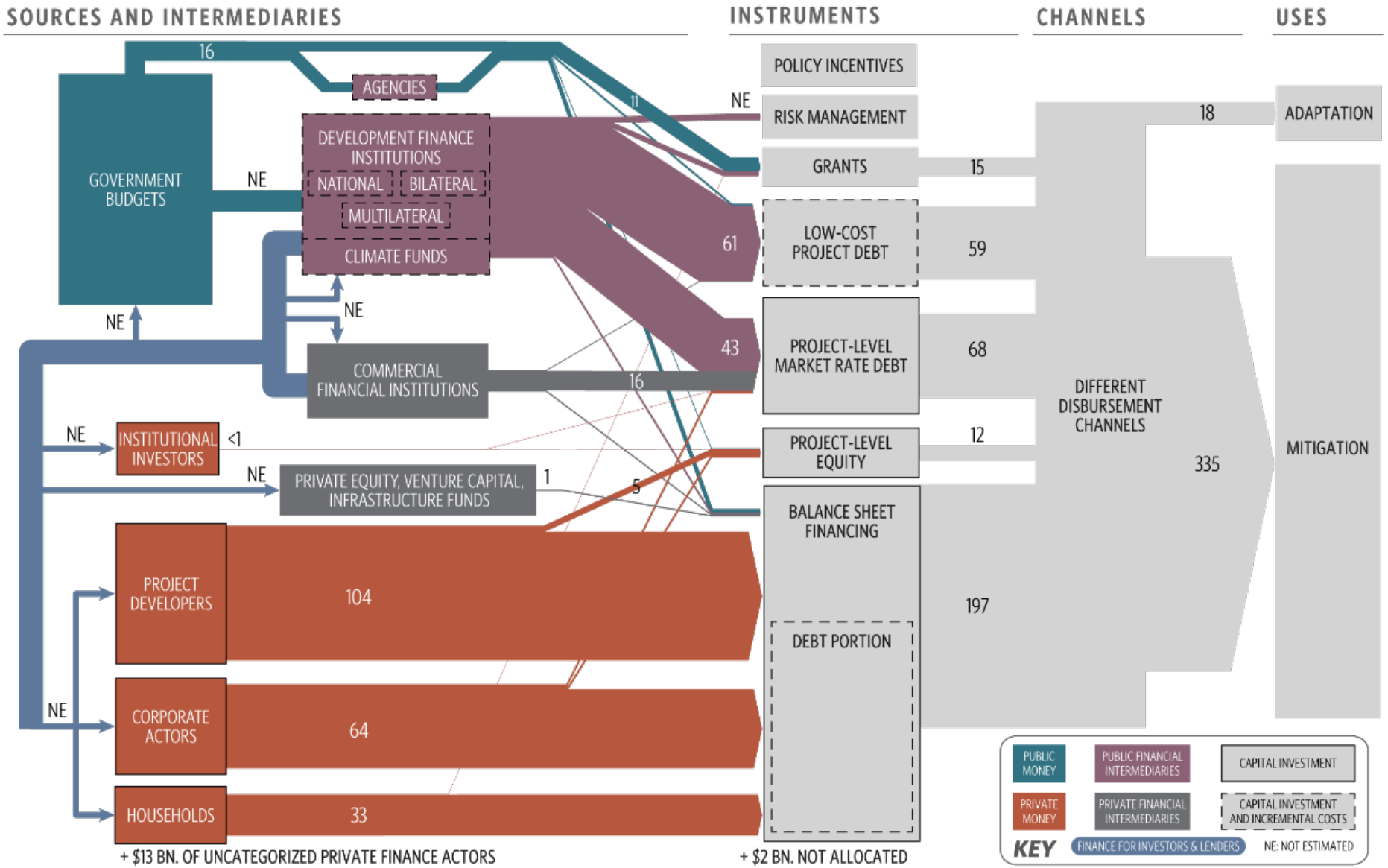
Corporations (including utilities)

- Crafting business models and regulatory regimes to enable access to new market opportunities
- Evaluating response to incentives and regulation
- Assessing financing costs
- Project structuring
- Regulatory Strategy

THE FLOWS OF CLIMATE FINANCE 2013

The Flow of Climate Finance 2013, also known as the 'spaghetti' diagram, illustrates the landscape of climate finance flows along their life cycle for the latest year available, mostly 2012.

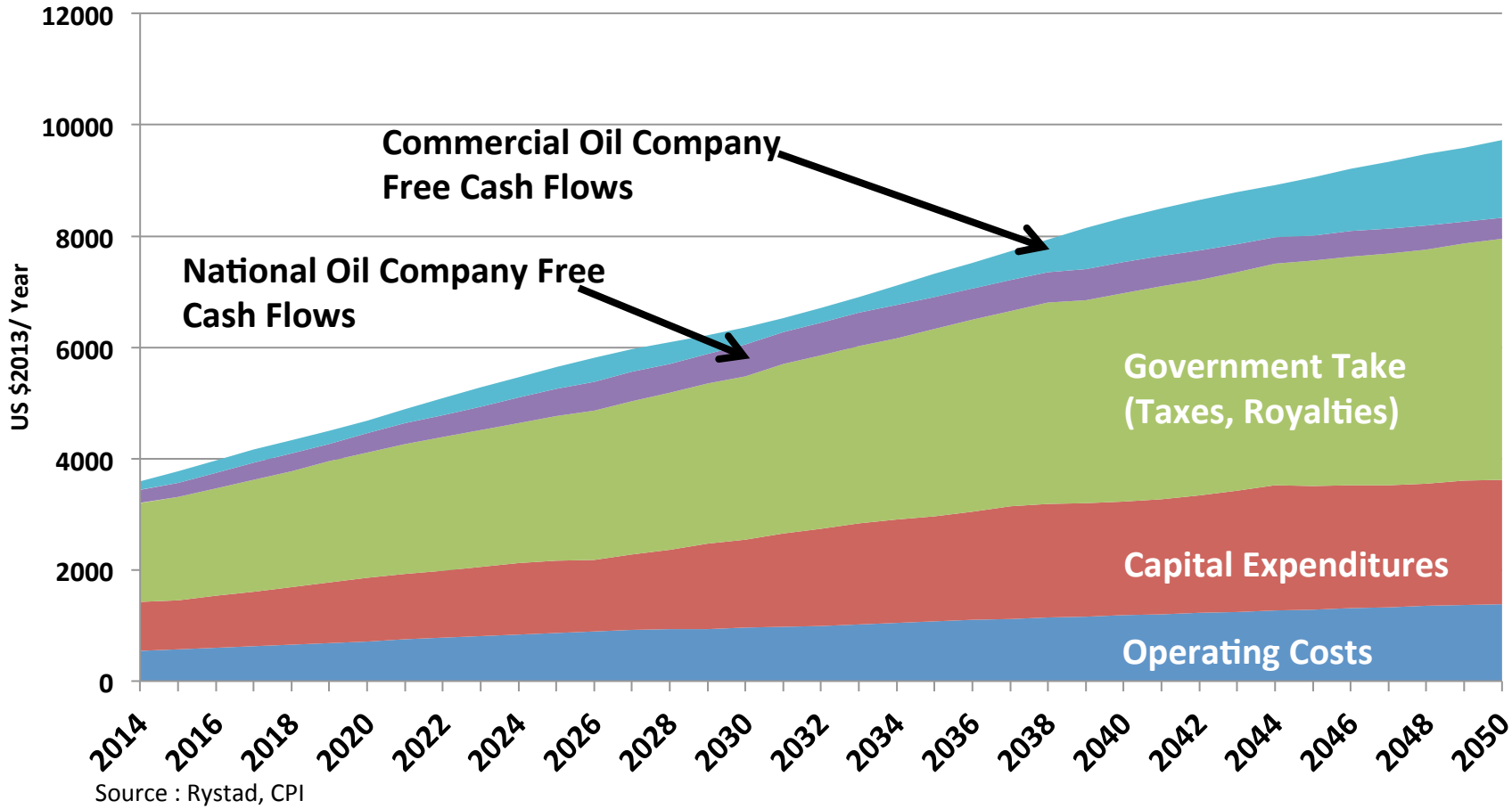
CLIMATE POLICY INITIATIVE



Notes: Figures are indicative estimates of annual flows for the latest year available, 2011 or 2012 (variable according to the data source). Flows are expressed in USD billions and rounded to produce whole numbers. Estimates spanning multiple years are adjusted to produce annual-equivalent estimates. Where ranges of estimates are available, the mid-point is presented. The diagram distinguishes between 'incremental costs,' that is, financial resources that cover the price difference between a cheaper, more polluting options and costlier climate-friendly ones and do not need to be paid back — and 'capital investment,' which are tangible investments in mitigation or adaptation projects that need to be paid back. Categories not representing capital investment, or a mix of capital investment and incremental costs, are incremental costs only. The group of National Finance Institutions includes Sub-regional entities. Most data presented relates to commitments in a given year due to limited availability of disbursement data.

Government budgets face the biggest potential change due to mitigation policies – Oil and Gas is a good example

Forecast Split of Oil and Gas Revenues between Costs, Government Take and Oil Companies (2014-2050) - Business As Usual Case

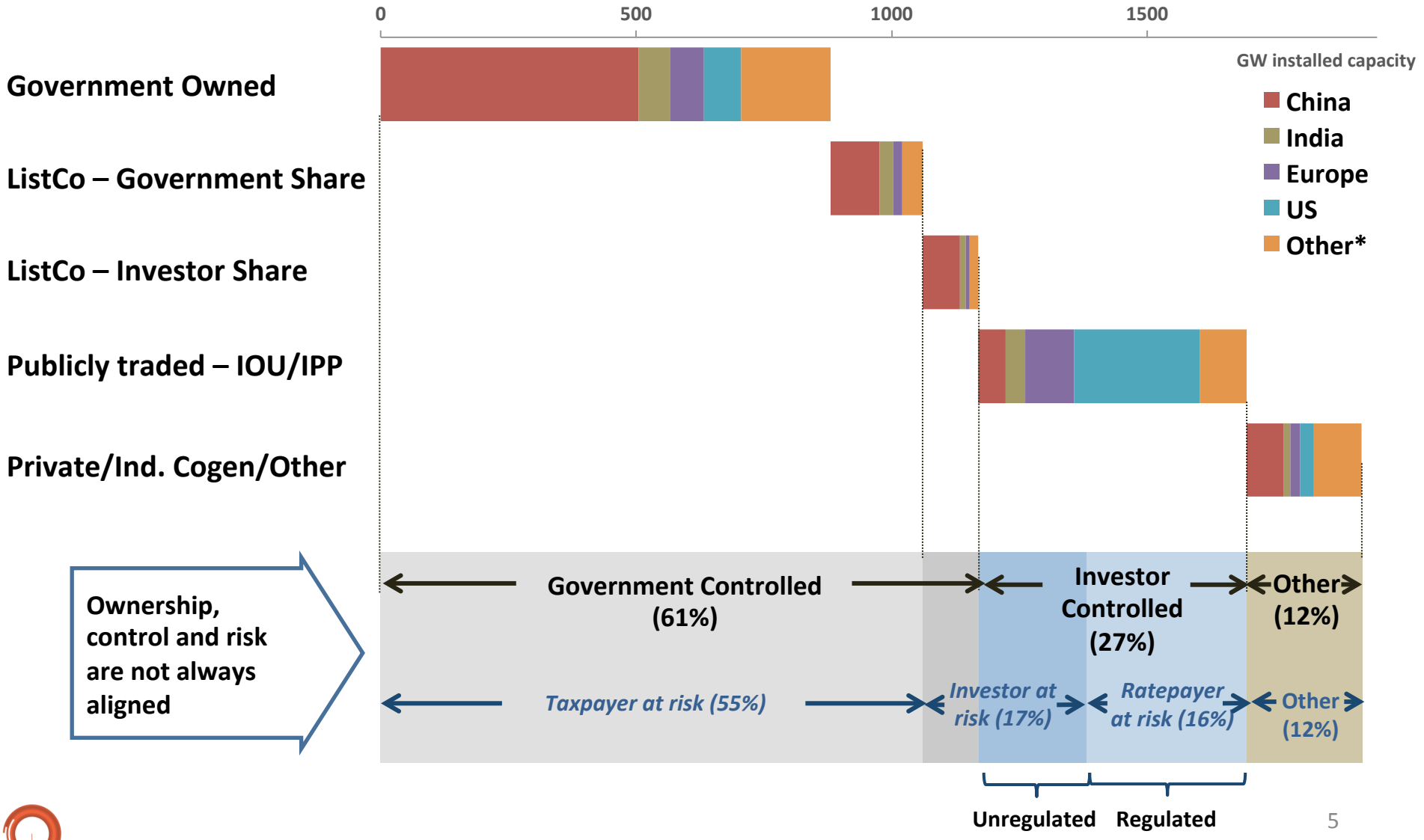


Source : Rystad, CPI

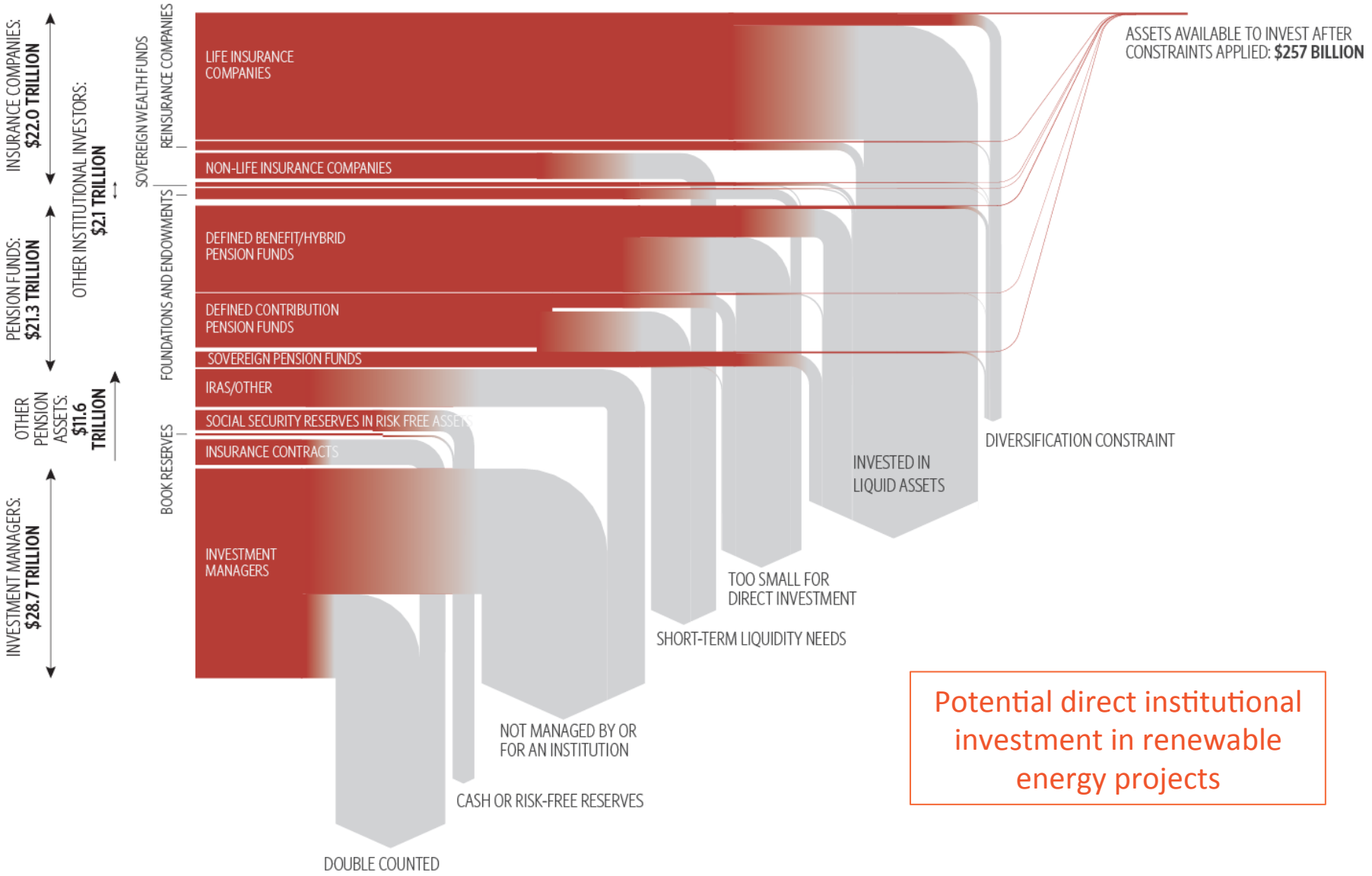
Governments and Government owned companies will receive close to 90% of the net present value of future oil production between now and 2050

Governments control the largest share of potentially stranded assets – Coal fired power plants is another example

Public Market Investors Own, Control and Suffer Climate Risk for only 11% of Coal Power Plants globally

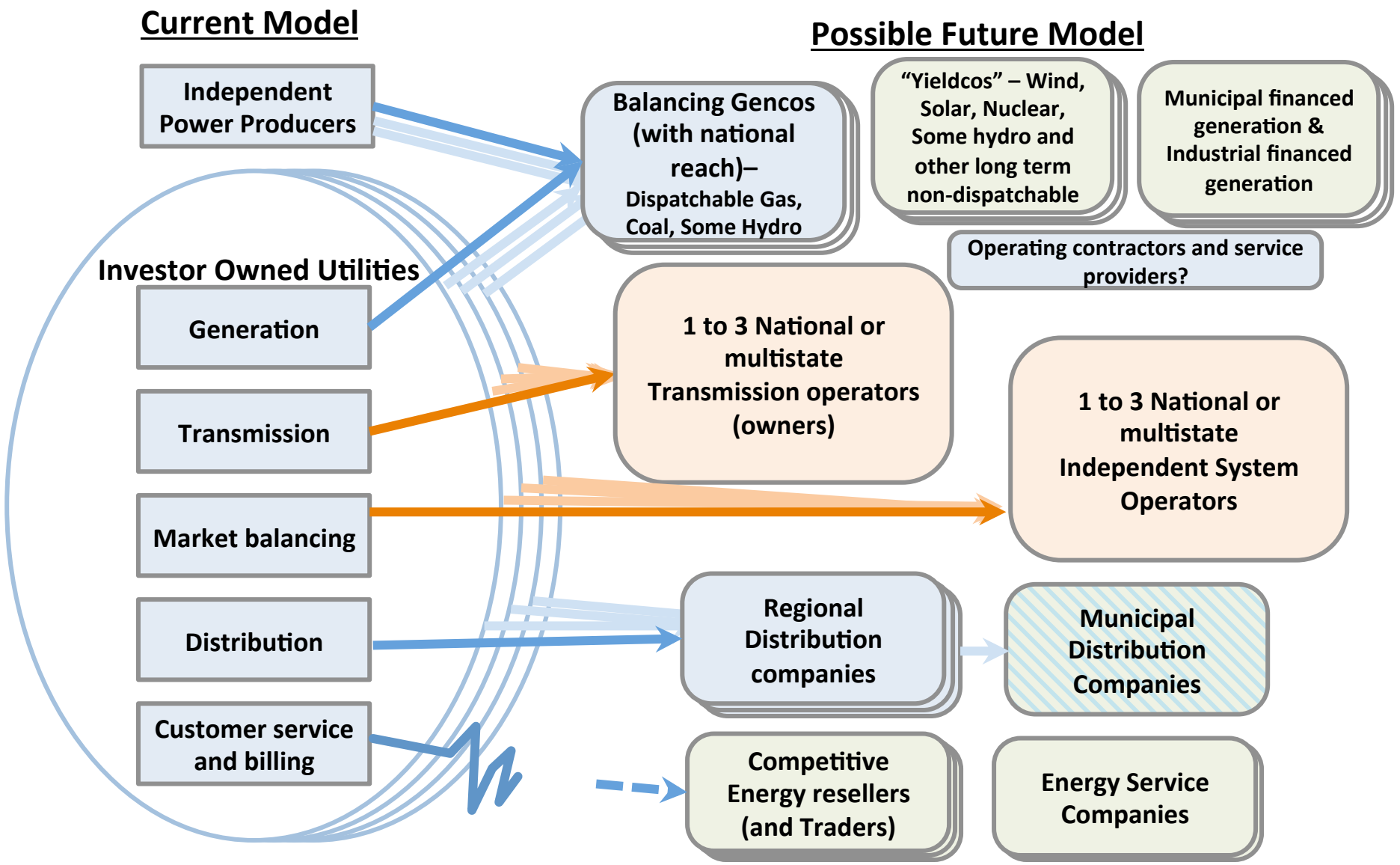


Institutional Investors are well positioned for renewable energy projects but illiquidity, project size constraints, and diversification requirements limit direct investment

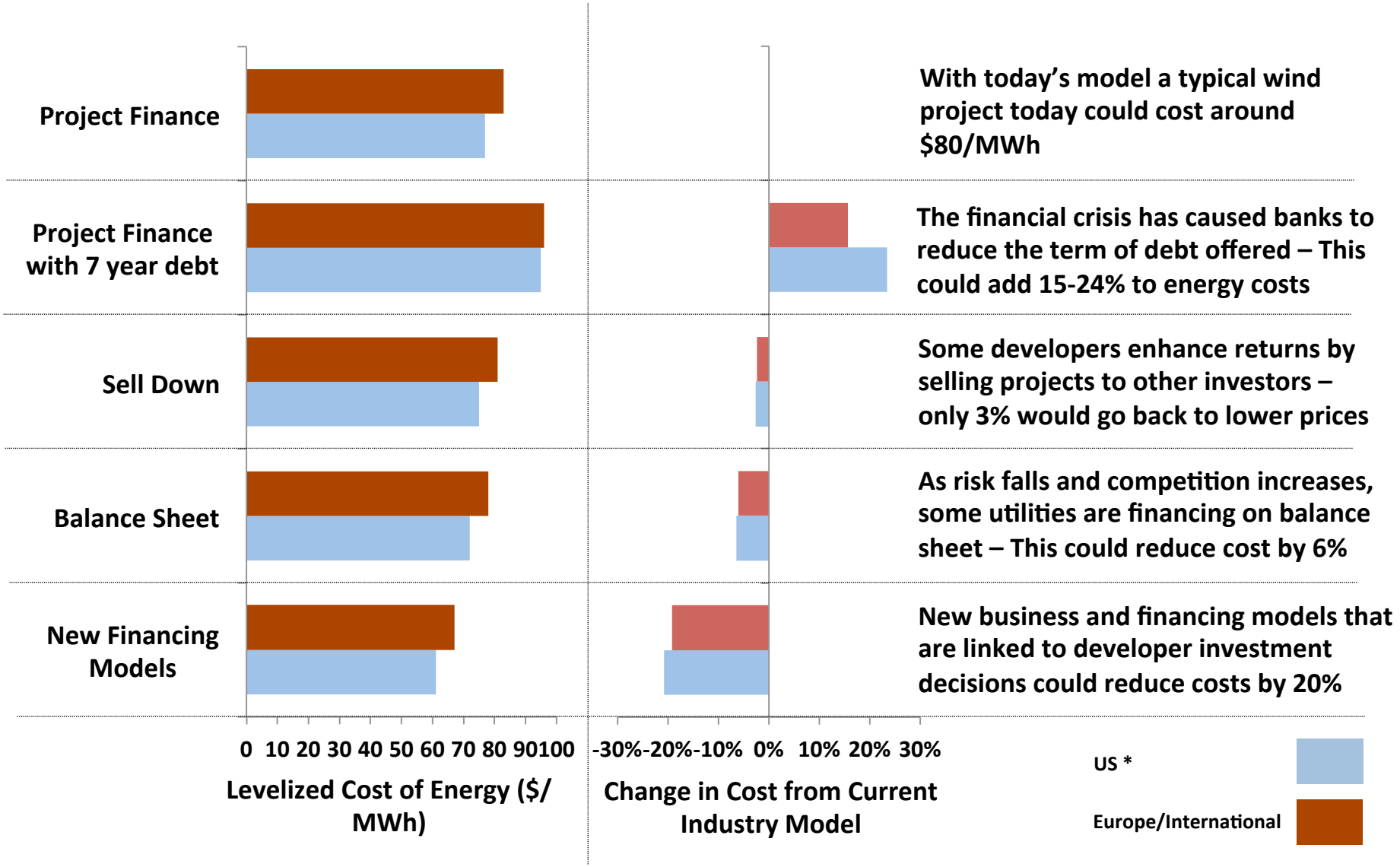


Potential direct institutional investment in renewable energy projects

Integrating the pieces into a new model presents the sixth challenge



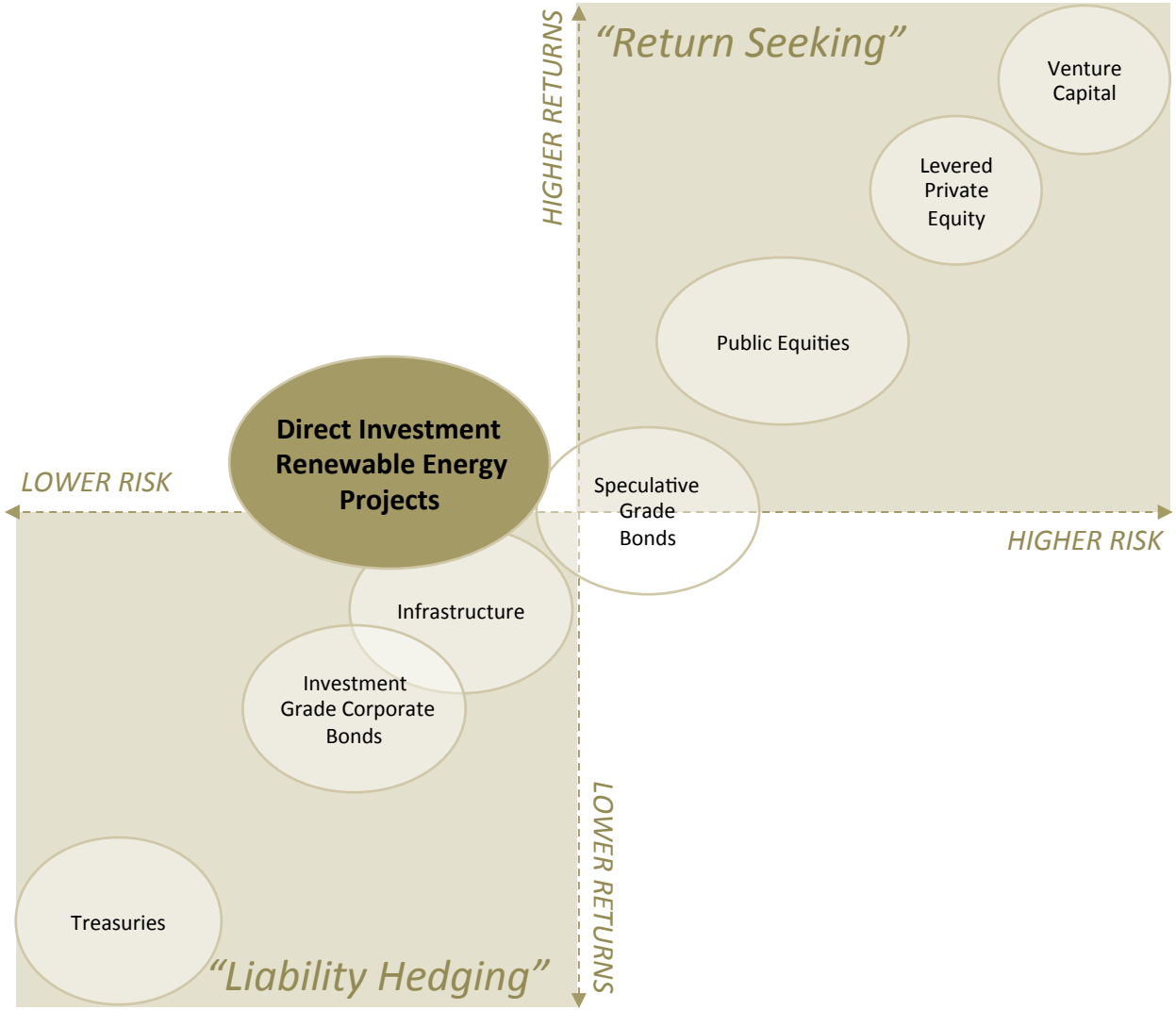
Employing these models in ways that link into developers' initial investment decisions could significantly reduce renewable energy costs



* This model assumes the developer can monetize excess accelerated depreciation benefits immediately; an in ability to do so increases the cost of renewable energy and the benefit of new business models

Renewable Energy and Clean Infrastructure could provide an excellent match for an institution's investment needs, if structured appropriately

Direct Investment in Renewable Energy projects offers liability hedging at higher returns:



Typical Renewable Energy characteristics versus liability hedging needs

Risk

With appropriate contracts and regulation can be very low with Beta approaching zero

Cash Flows

High initial investment followed by steady cash flows mimics fixed income, but with potentially lower default risk (depending on regulation and contract/tariff counterparty)

Returns

Similar to corporate bonds, but with a slight premium for similar risk categories

Duration

Very long durations potentially available

Growth and inflation hedge

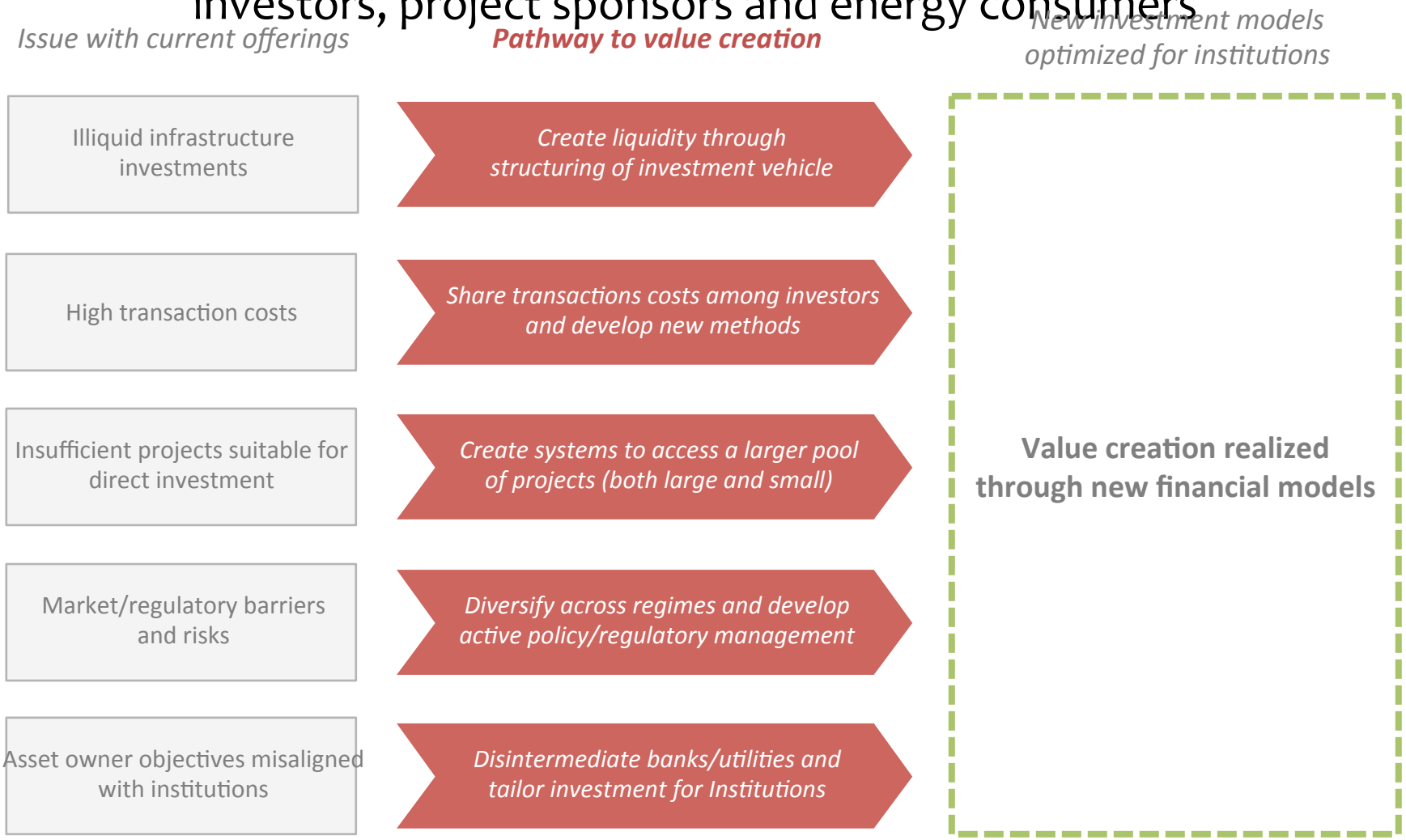
No growth, but cash flows available to re-invest; can provide energy price hedge

Several issues with current renewable energy offerings reduce the value of these investments to institutions

Issue with current offerings

Illiquid infrastructure investments	Direct investments in projects can be difficult to sell if unexpected cash needs arise. This illiquidity can discourage investors or limit its share in the portfolio. Illiquidity can also raise costs as investors may need to offset illiquid investments with very liquid, but lower return, assets elsewhere in the portfolio.
High transaction costs	Direct investment can be expensive as transactions take time and require highly skilled and expensive resources. The higher return of direct investment may only justify the cost for investors seeking to make multiple high value investments over which team costs can be spread.
Insufficient projects suitable for direct investment	Many projects seem too small to justify transactions costs (requiring aggregation and bundling) or may be too large for a single investor (requiring syndication or an intermediary). A shortage of projects in the "sweet spot" creates competition which pushes down returns.
Market/regulatory barriers and risks	Regulation can exclude or discourage investors that are not immersed in the industry, may induce risks or may require risk management techniques that favor incumbents. Policy support and analysis is often necessary to achieve optimum value.
Asset owner objectives misaligned with institutions	Most assets are currently owned or financed by incumbents or intermediaries (banks, utilities) with objectives that are not aligned with institutional or renewable energy needs. Asset managers/ infrastructure funds often ask for high fees that are justified through active management (buying and selling assets) that reduces the liability hedging value of renewable energy ownership.

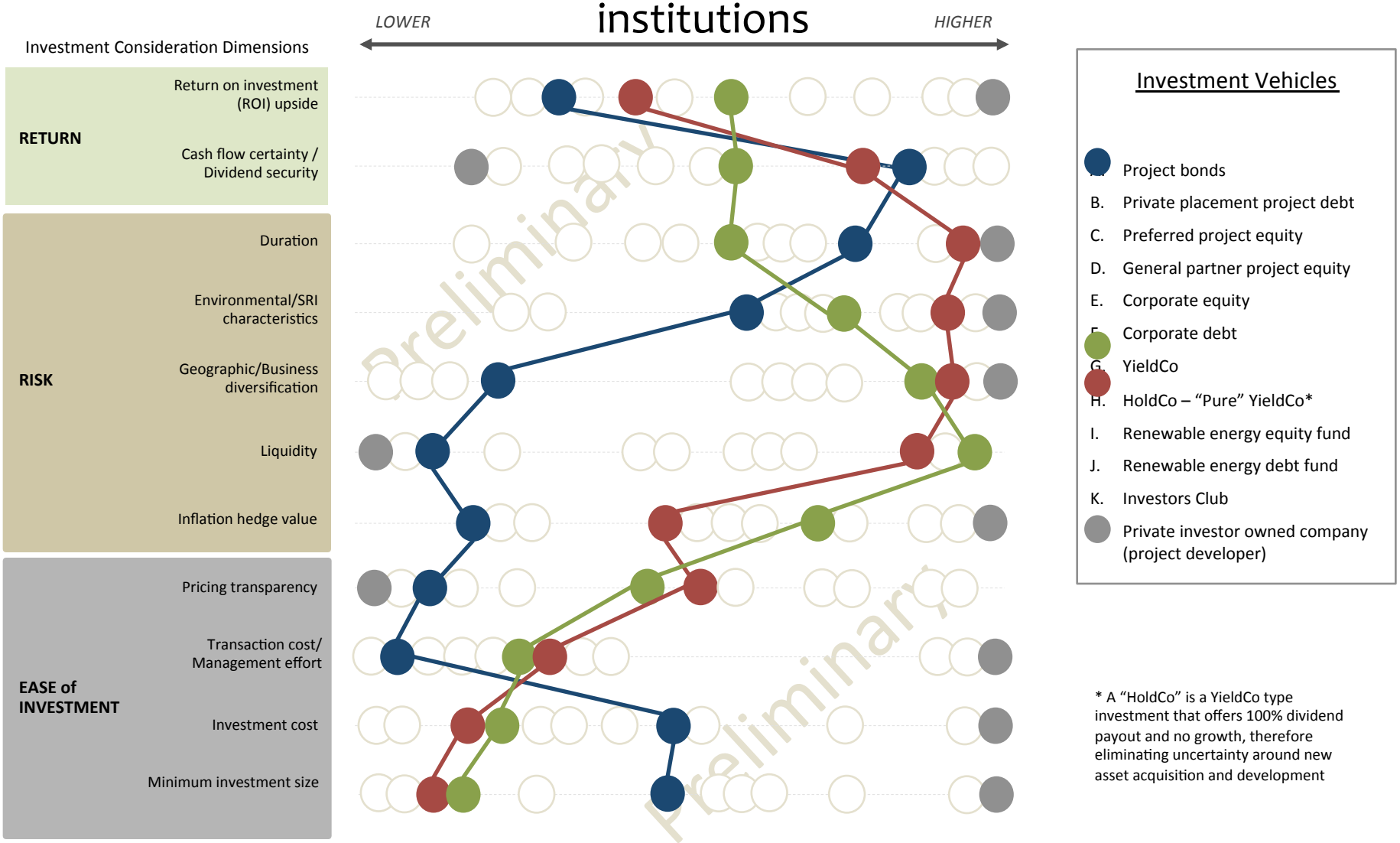
Properly addressing these issues could create value for institutional investors, project sponsors and energy consumers



The key is to begin from the institutional investor perspective and develop new investment models optimized for their needs

Issue with current offerings	*Pathway to value creation*	***New investment models optimized for institutions***
Illiquid infrastructure investments	*Create liquidity through structuring of investment vehicle*	Develop new listed vehicles or create liquid market (e.g. YieldCos, Investment Trusts)
High transaction costs	*Share transactions costs among investors and develop new methods*	An investment club could share costs to benefit members
Insufficient projects suitable for direct investment	*Create systems to access a larger pool of projects (both large and small)*	Large projects can be split among investors, while a consortium could aggregate small projects
Market/regulatory barriers and risks	*Diversify across regimes and develop active policy/regulatory management*	Investors working together could invest in a larger, more diverse set of projects
Asset owner objectives misaligned with institutions	*Disintermediate banks/utilities and tailor investment for Institutions*	Investors structure investment vehicles with developers to meet their own investment needs

This group will evaluate the importance of various issues, investment characteristics and barriers for the investment case for institutions



* A "HoldCo" is a YieldCo type investment that offers 100% dividend payout and no growth, therefore eliminating uncertainty around new asset acquisition and development

Summary

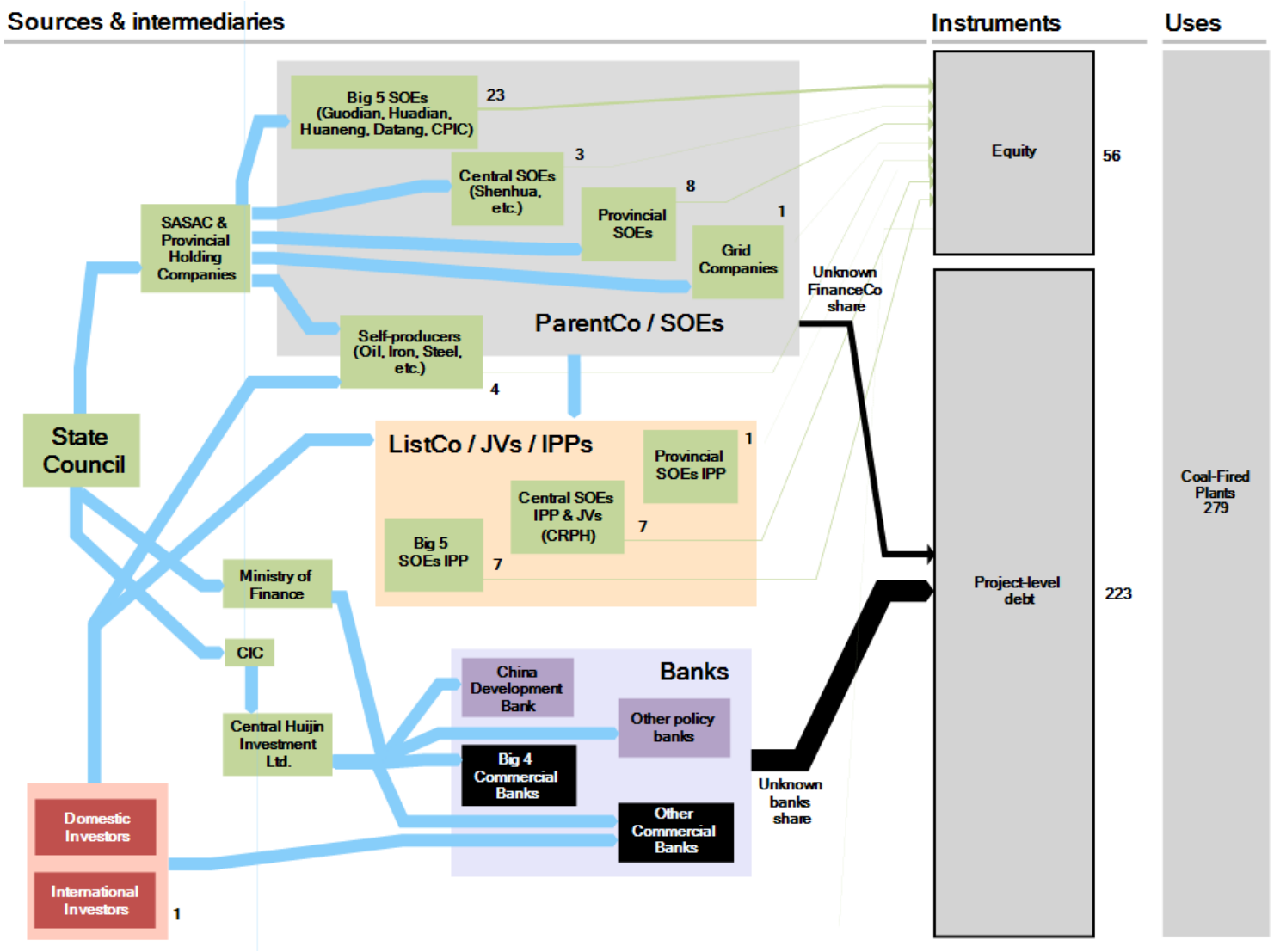
Direct investment in renewable energy can provide attractive risk/ return for institutional investors; particularly for liability hedging

However, current financing options reduce the value and decrease the attractiveness of these investments to institutional investors

CPI is looking to coordinate a small set of large institutions seeking to design new types of financing options that will overcome these barriers

A roundtable to be held in June 2015 will be one important first step in this process

China Domestic Coal-Fired Power Investment

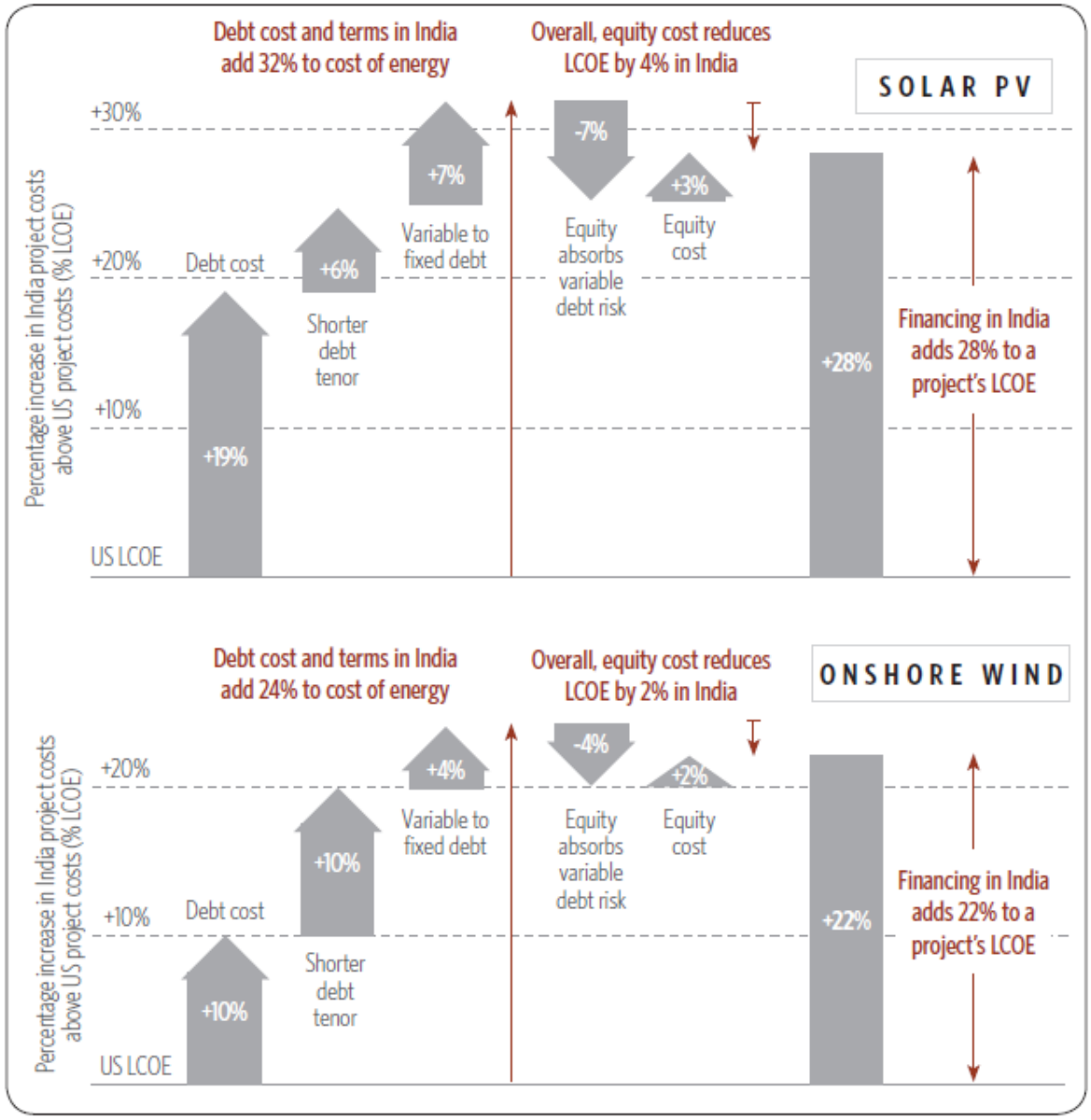


Total 2012 Estimated Investment: **c. USD 40-50 bn.**

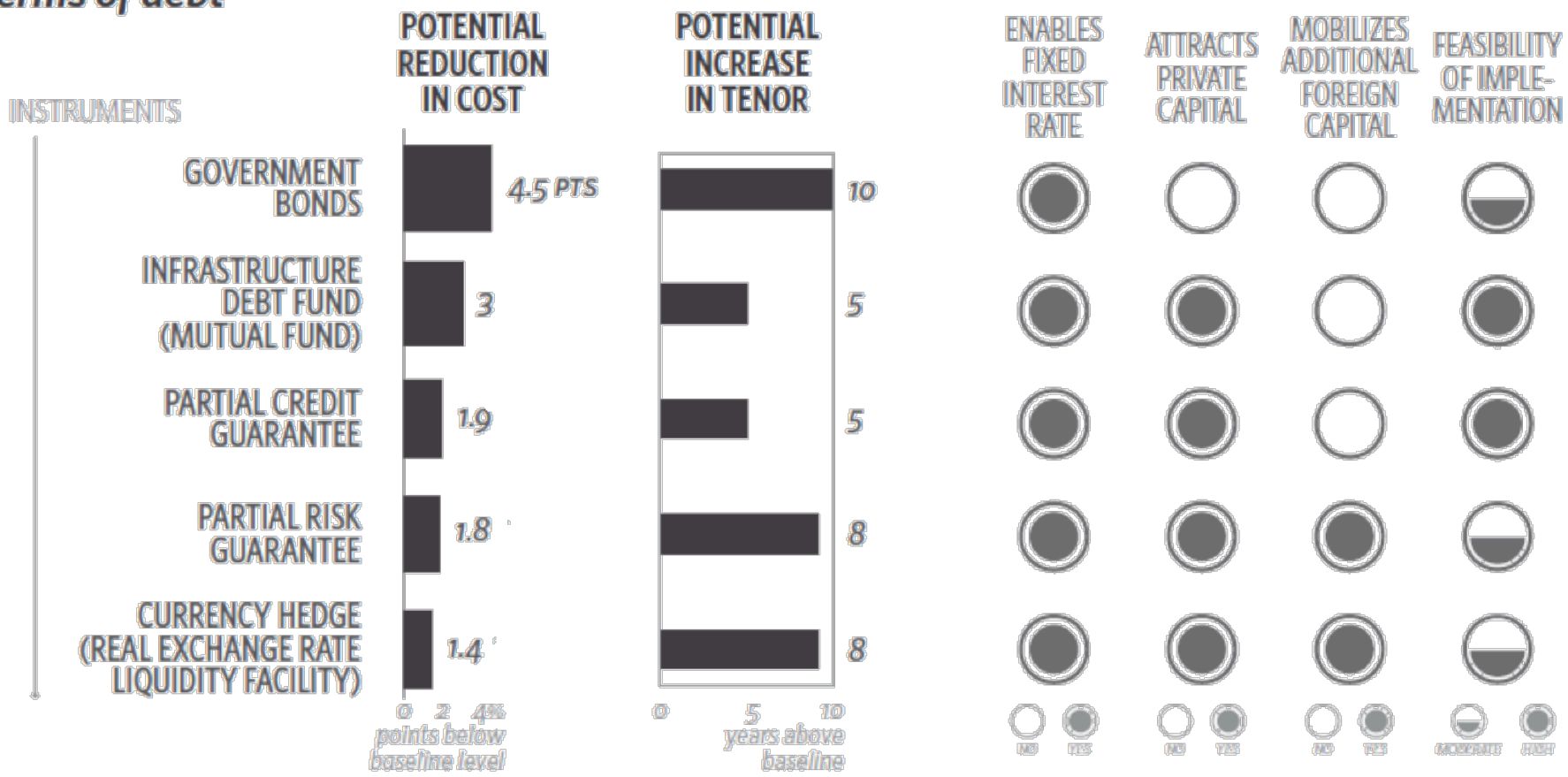
- India aims to more than **double existing renewable energy capacity** by 2022.
- Renewable energy is **expensive** compared to conventional power, and requires **policy support**.
- In our previous work, we found that high (and variable) interest rate and short tenor of debt add **~30% to the cost** of renewable energy.
- Question: **What federal policies would be the most cost-effective?**

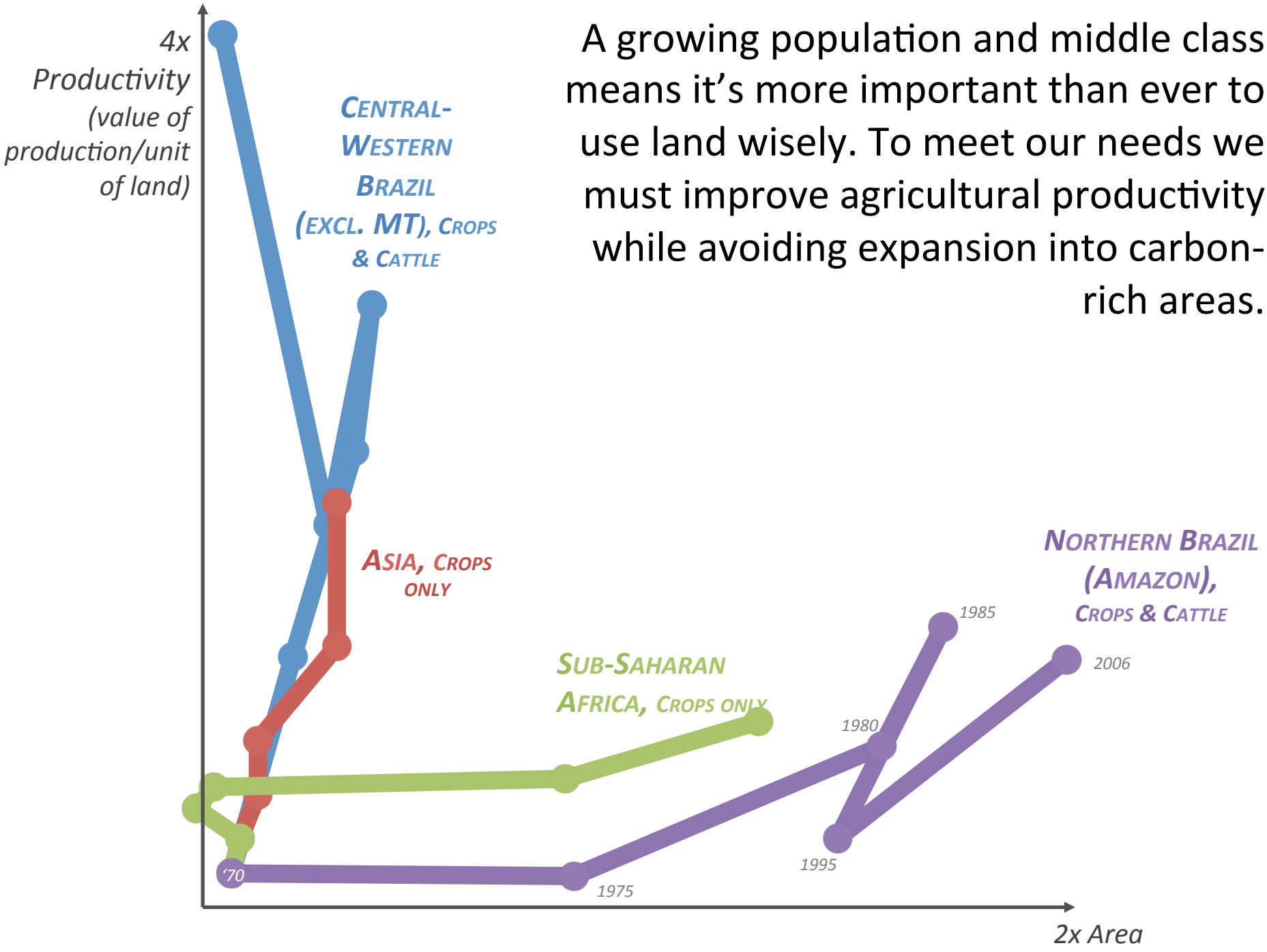
Source: Meeting India's Renewable Energy Targets: The Financing Challenge (2012), CPI

Impact of debt and equity costs and terms in India on overall financing costs compared to a US baseline



Potential impact of financing instruments on the terms of debt





A growing population and middle class means it's more important than ever to use land wisely. To meet our needs we must improve agricultural productivity while avoiding expansion into carbon-rich areas.