

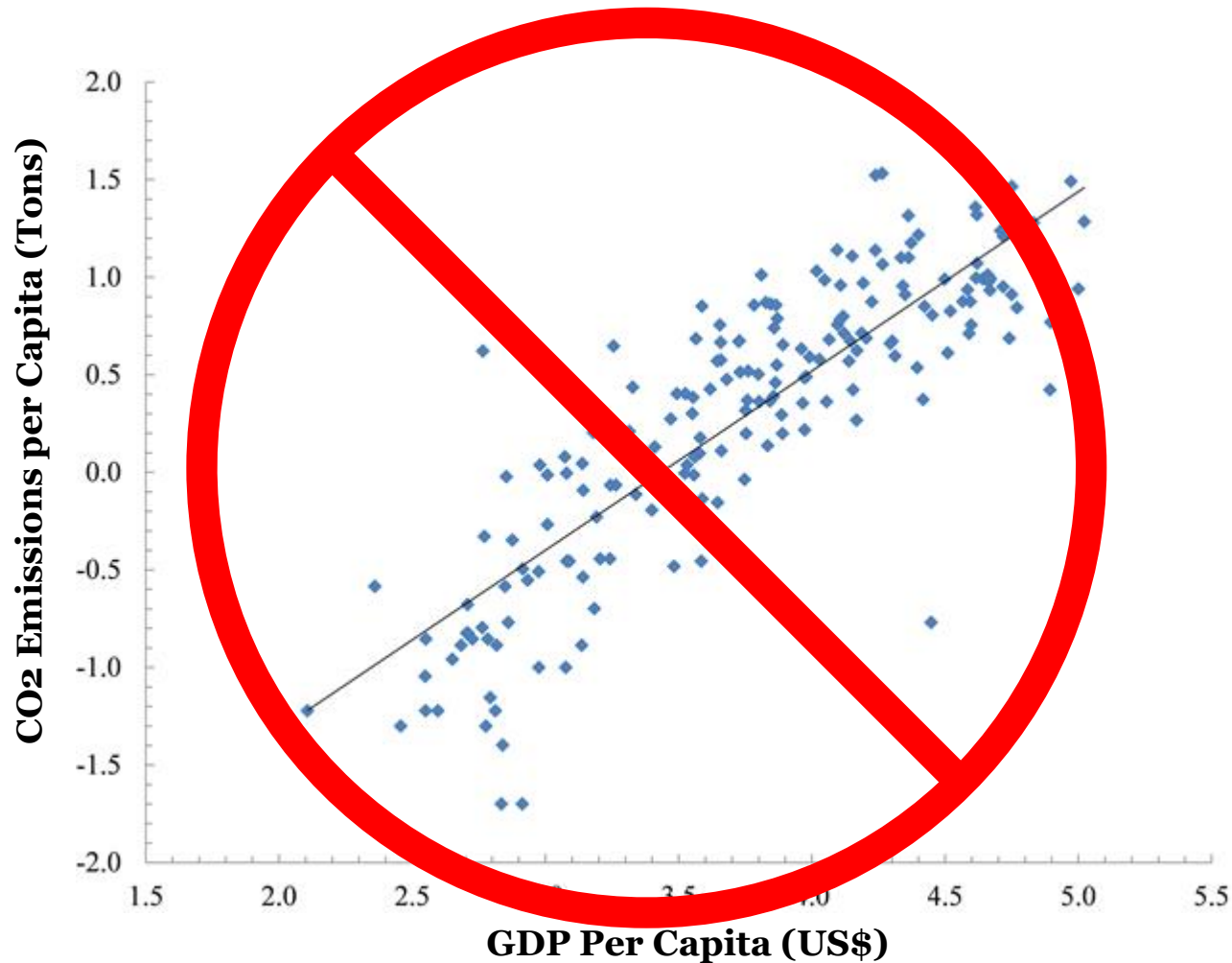


coalition for green capital

Accelerating Clean Energy Investment in India Through Innovative Green Bank Finance

*Jeffrey Schub, Executive Director
Coalition for Green Capital*

No country should have to choose between standard of living and ending the age of carbon



India's core power needs point to huge need for clean energy investment

Power Should Be:

Cheap

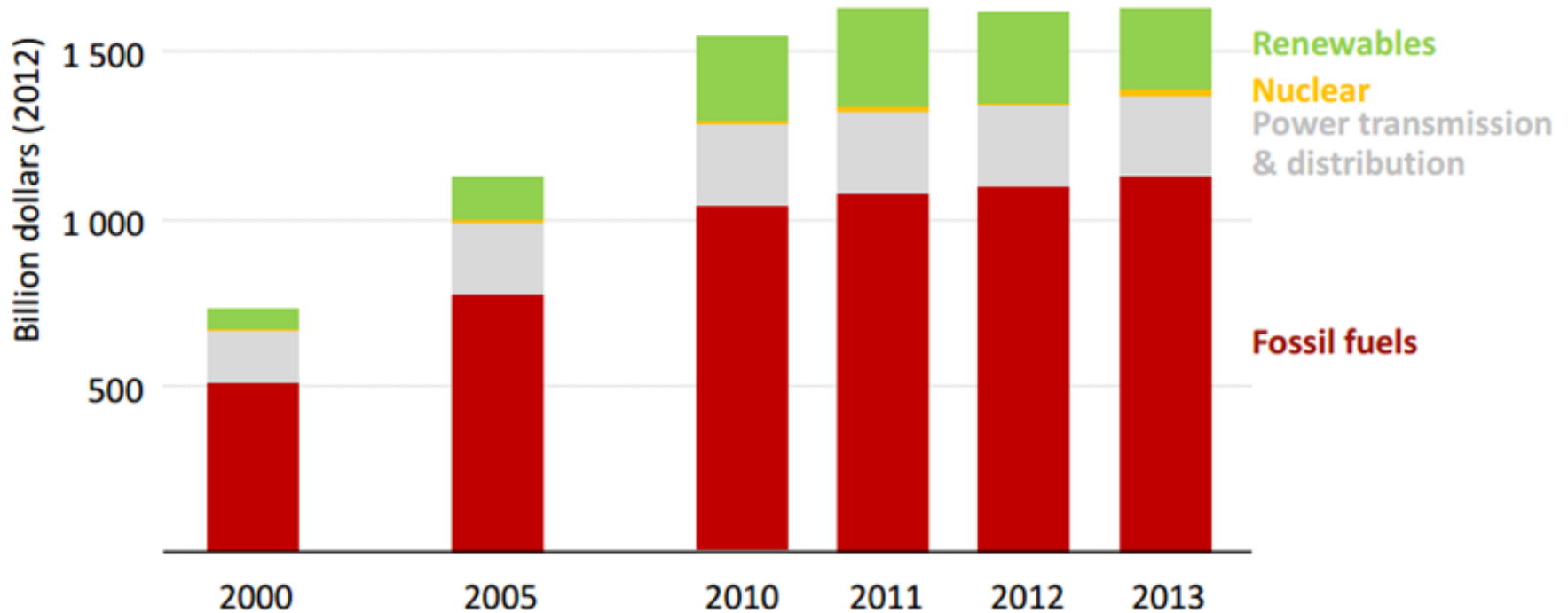
Clean

Plentiful

Reliable

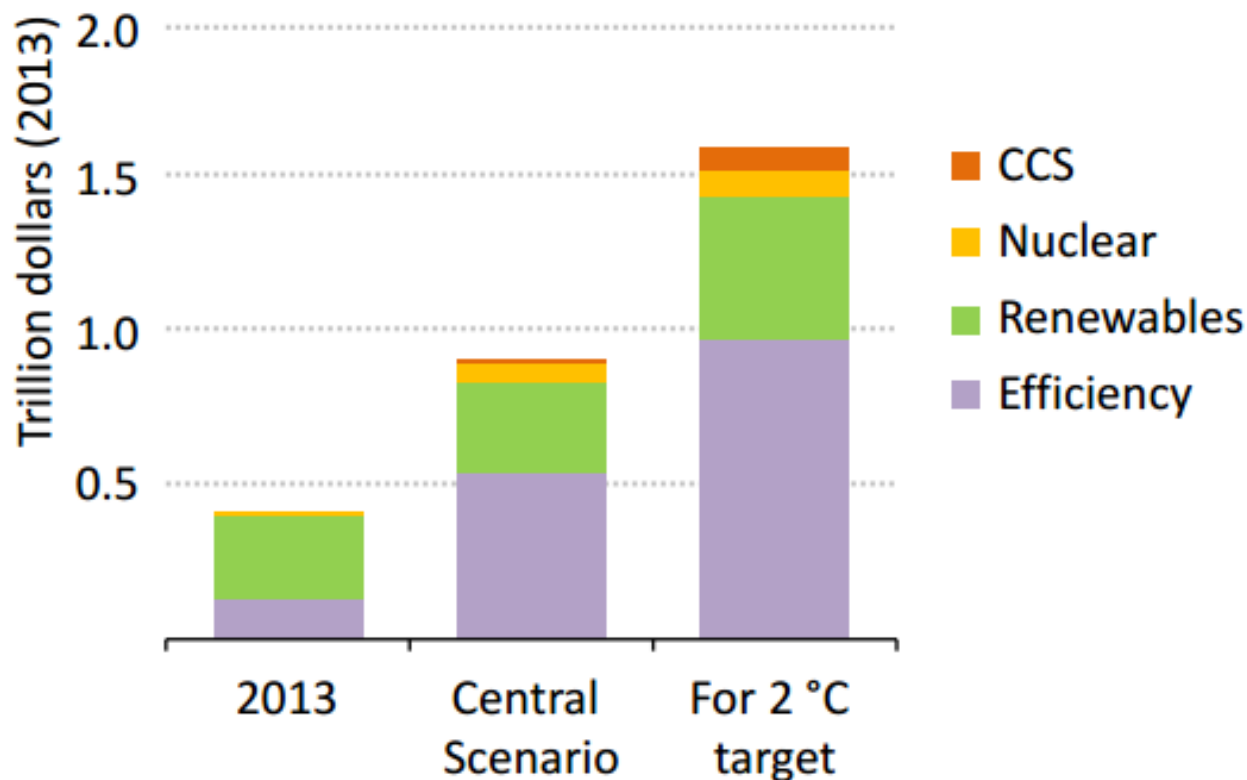
\$1 trillion of annual investment flows into fossil fuels, plus an additional half a trillion dollars in subsidies

Annual energy supply investment

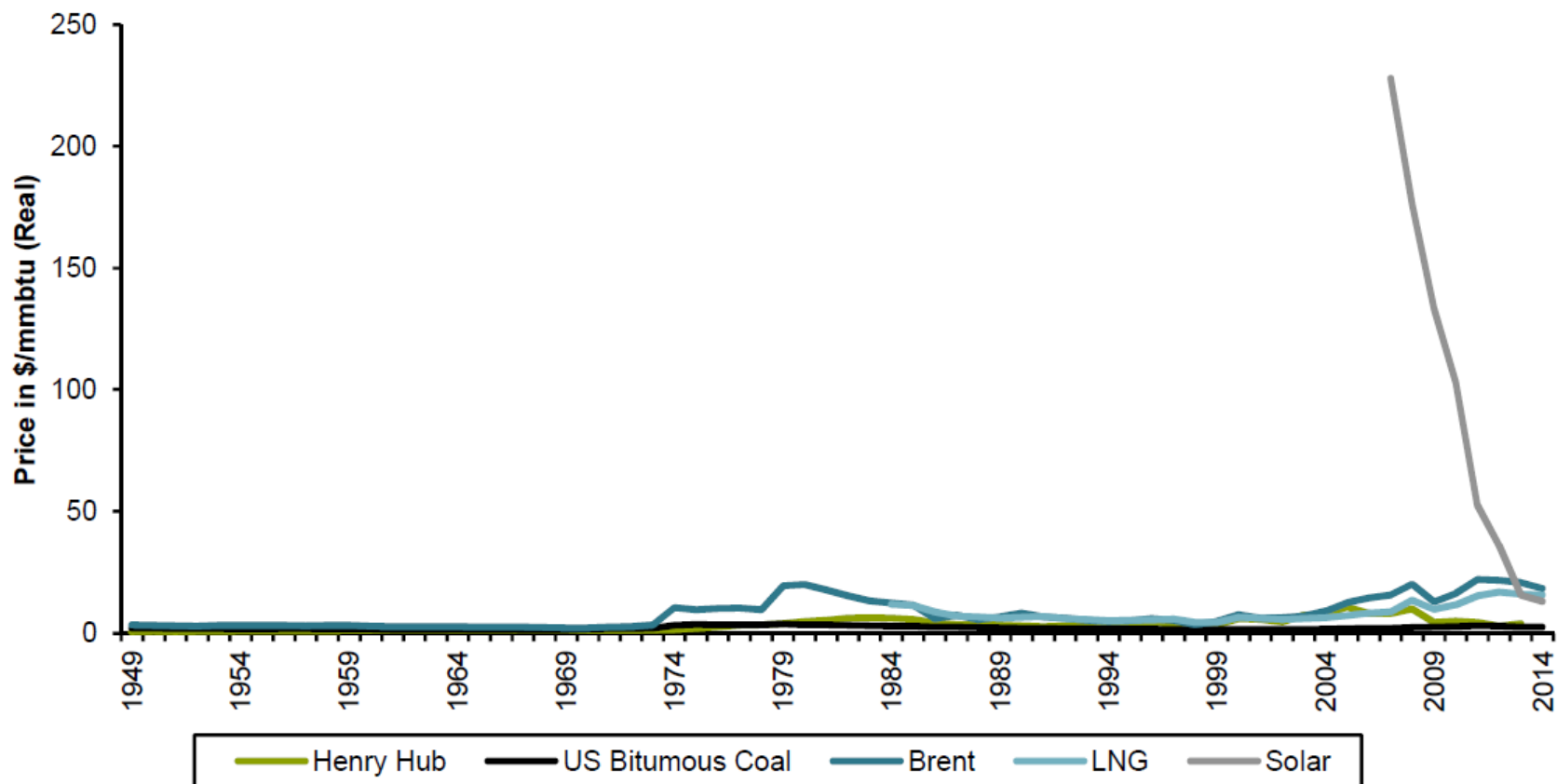


Instead, that same \$1.5 trillion in total must be spent on renewables and clean energy every year

Average annual low-carbon investment, 2014-2040



With technological development, this is now a political and business problem, not a technology problem



Mobile communications was able to grow rapidly through political support and business change



Zero

~15 Years

1 Billion
Mobile Subscribers in India



Just like mobile, renewables can be local and distributed.

India poised to become global model for sustainable growth & development



- *175 GW of renewable capacity installed by 2022*



- *100 GW of solar installed capacity by 2022*



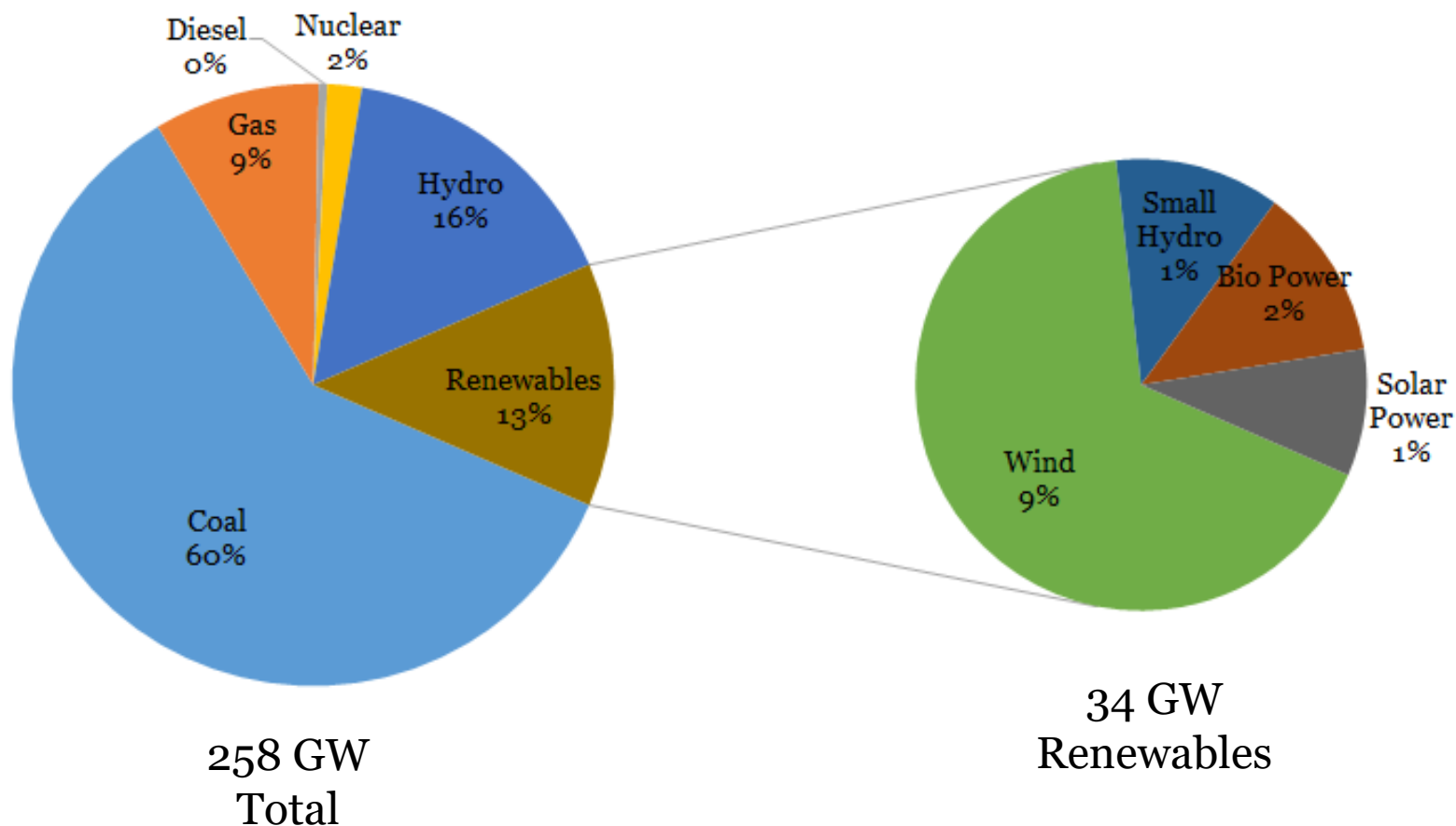
- *Reduce emissions intensity by 33-35% by 2030 from 2005 levels*



- *40% installed generation capacity from non-fossil fuel based energy sources by 2030*

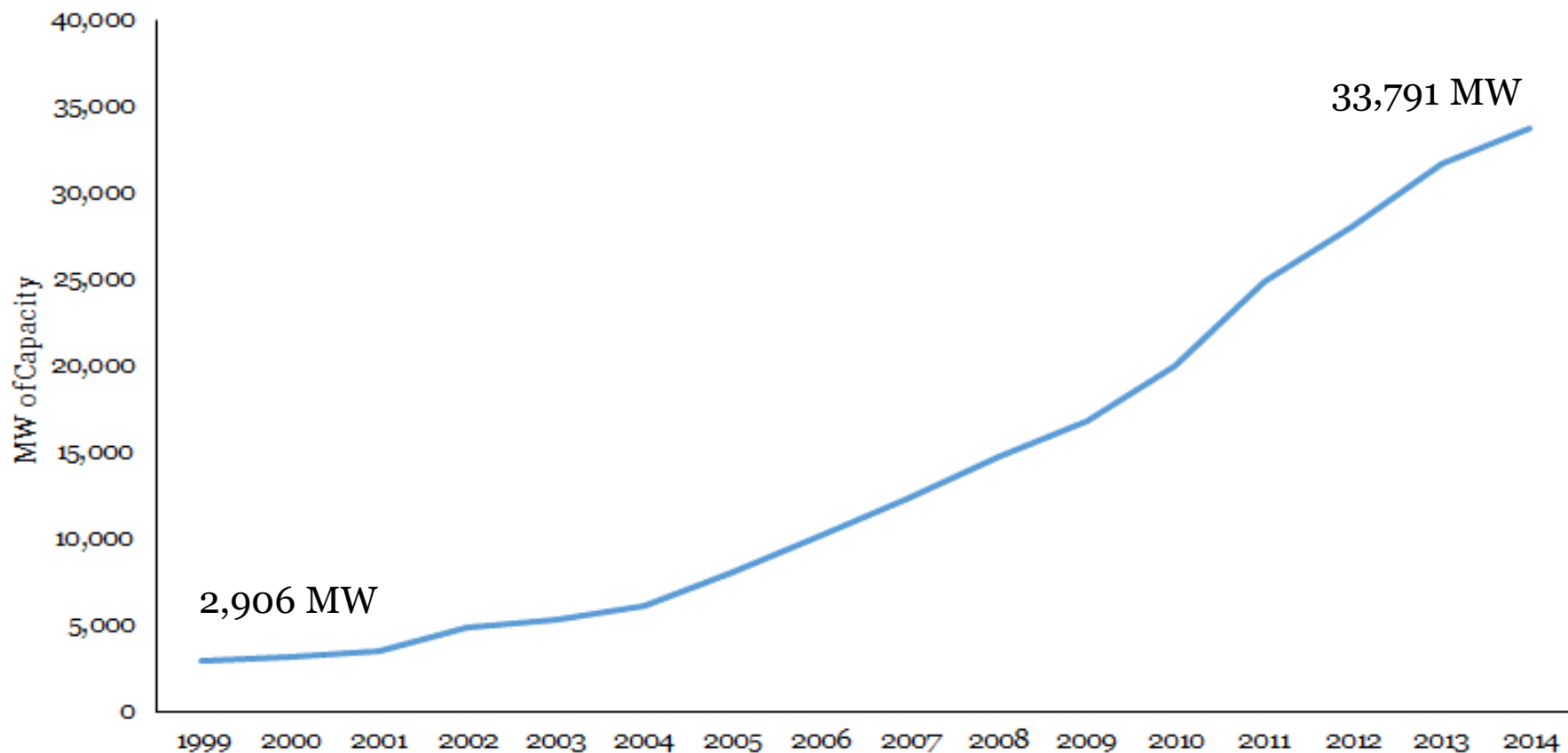
69% of electric generating capacity in India is from fossil fuels, mostly coal

India Total Installed Power Capacity (MW) in 2014



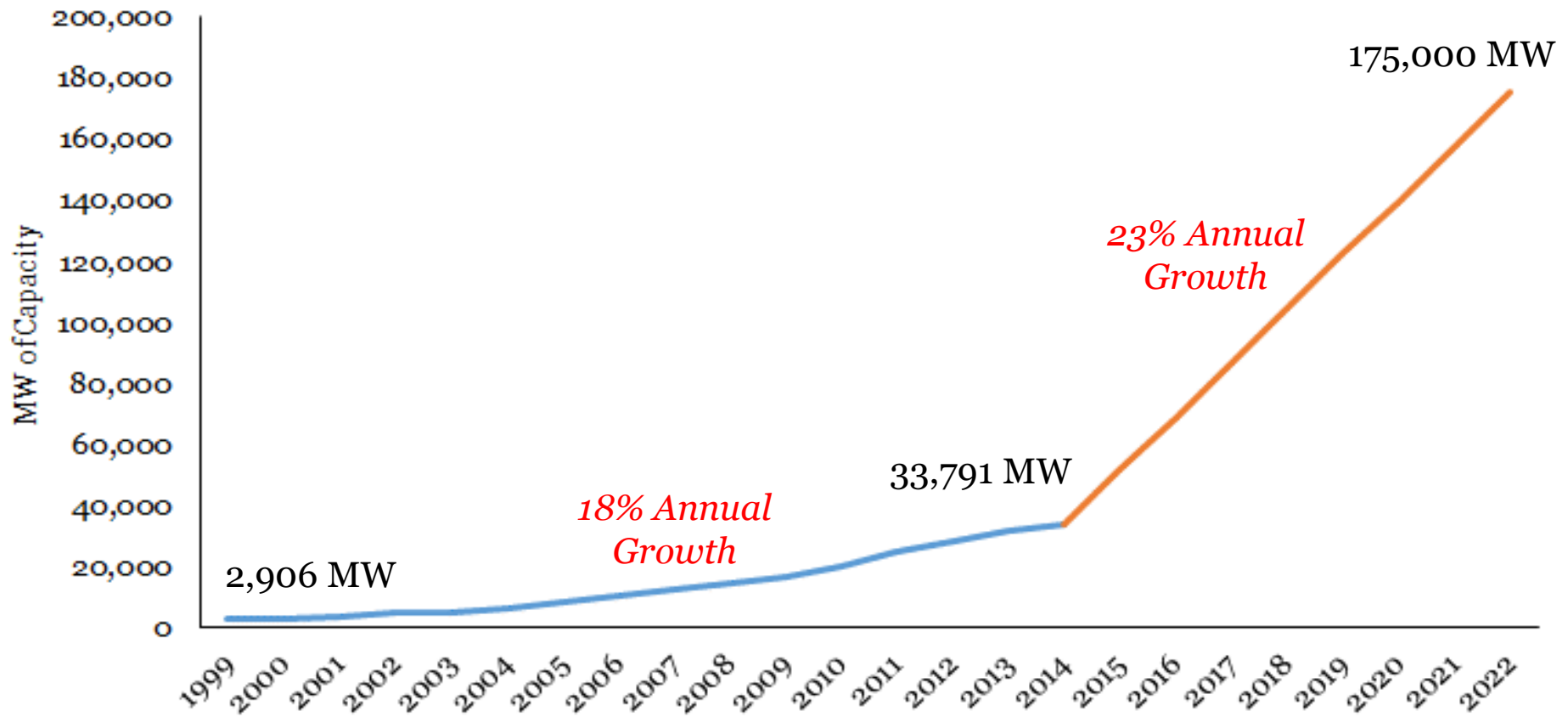
Installed renewable capacity growing at 18% per year for last 15 years

Renewable Generation Installed Capacity (MW)



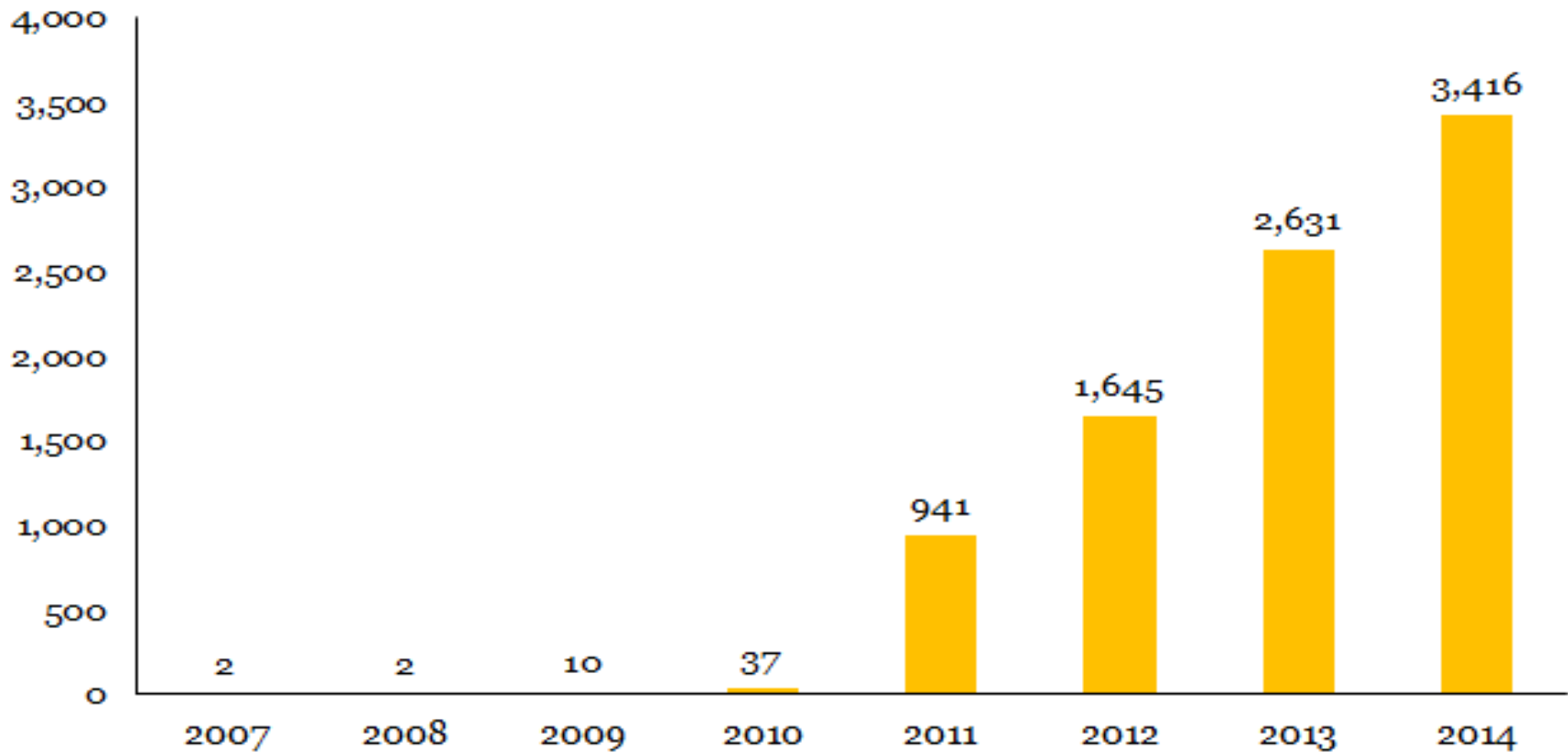
Recent rapid growth will have to accelerate to reach 175 GW of installed renewables by 2022

Required Growth in Renewable Capacity to Hit 2022 Target



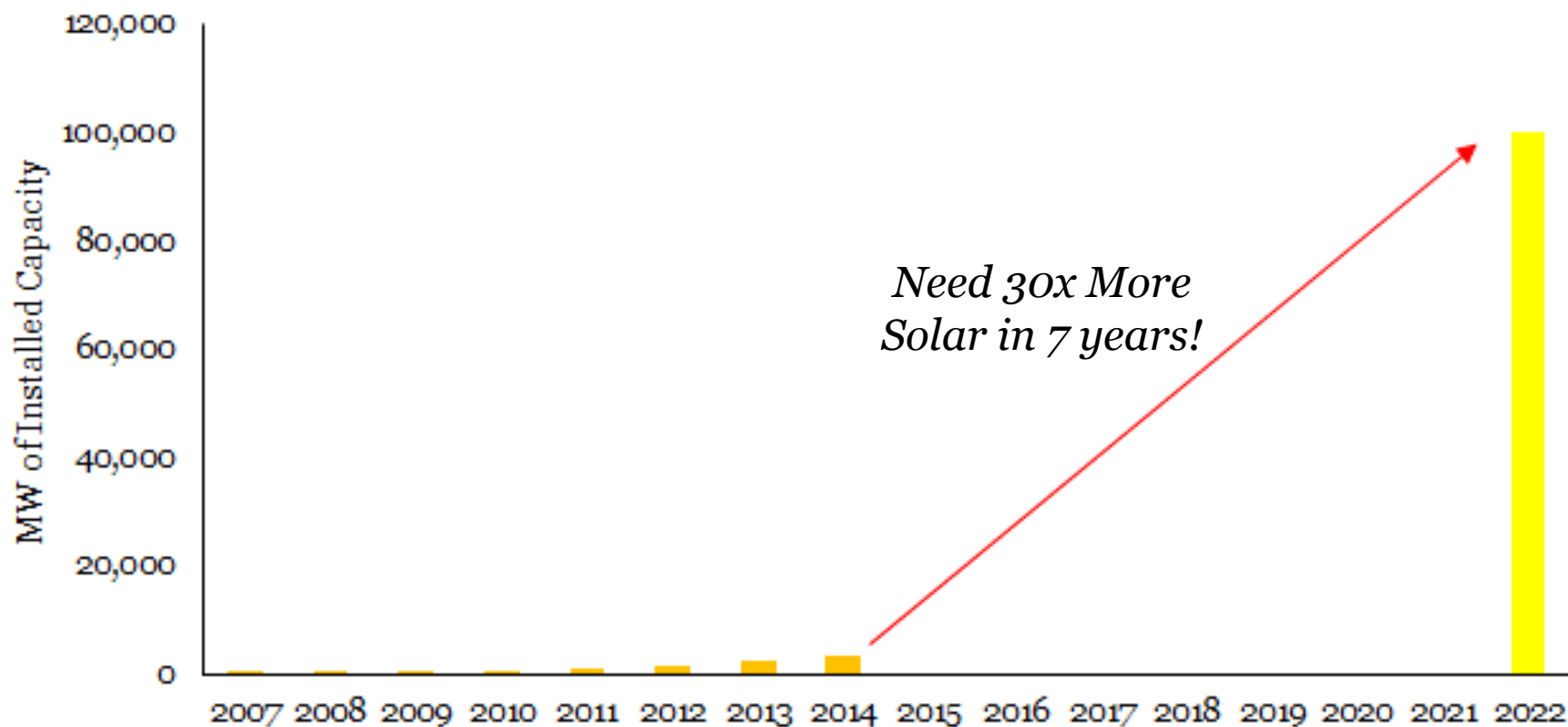
Solar installed capacity growing 221% per year

Grid Connected Solar Installed Capacity - Cumulative



Like renewables over all, solar growth will have to rapidly accelerate to hit 100 GW target

Required Growth in Solar Capacity to Hit 2022 Target



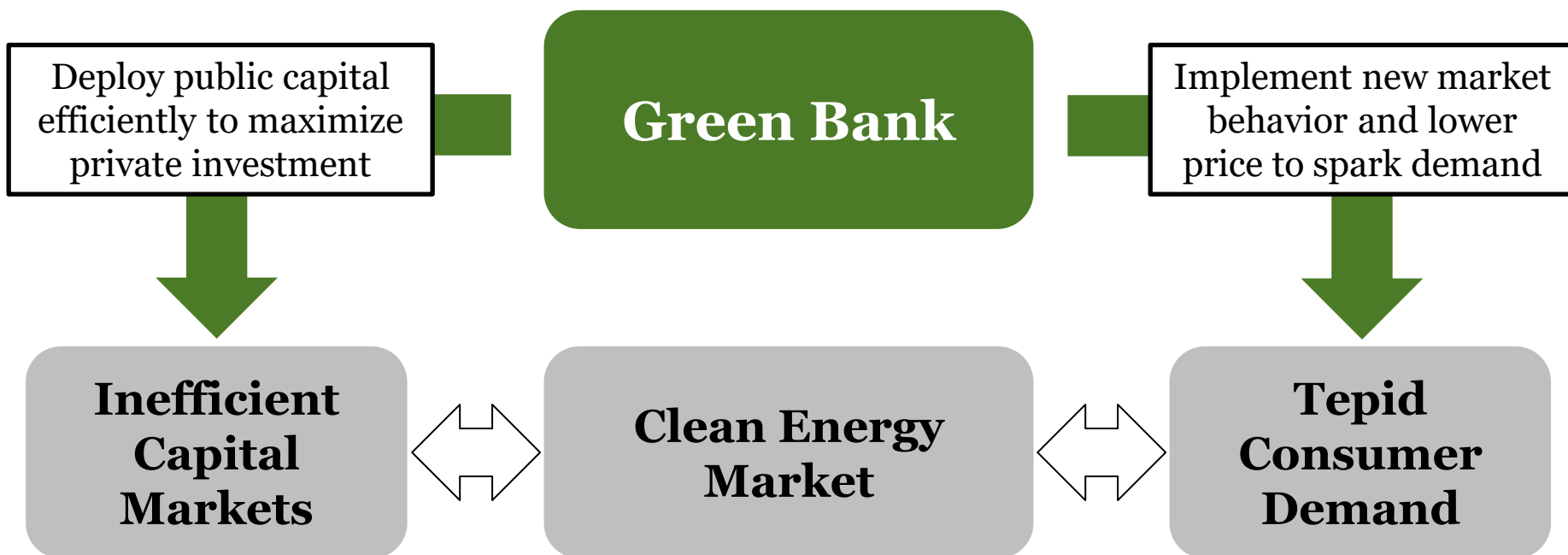
Successful Indian policies to date will need to be supplemented to reach investment targets

**\$200 Billion by 2022
For Renewable Target**

**\$1,450 - \$2,200 Billion
by 2040
For Renewables & Efficiency**

Green Bank institutions attract and deploy capital and lower the price of clean energy

A green bank is a public financing authority that leverages private capital with limited public dollars to accelerate the growth of clean energy markets



Dedicated institution, or set of institutions, needed to attract & deploy this capital, overcome barriers

Overcome barriers and attract public and private capital

- Institutional investors
- Development finance institutions
- Green Climate Fund
- Foreign governments
- Green bonds

Deploy capital through innovative public-private structures

- Lower price of clean energy
- Enable demand for clean energy
- Reduce risk with mitigation tools
- Leverage public capital (10 to 1 ratio and more)
- Increase energy access

Green banks use multiple structures to draw in more investment capital at better financing terms

Credit Support



Co-Investment



Warehousing



Why care about energy finance?

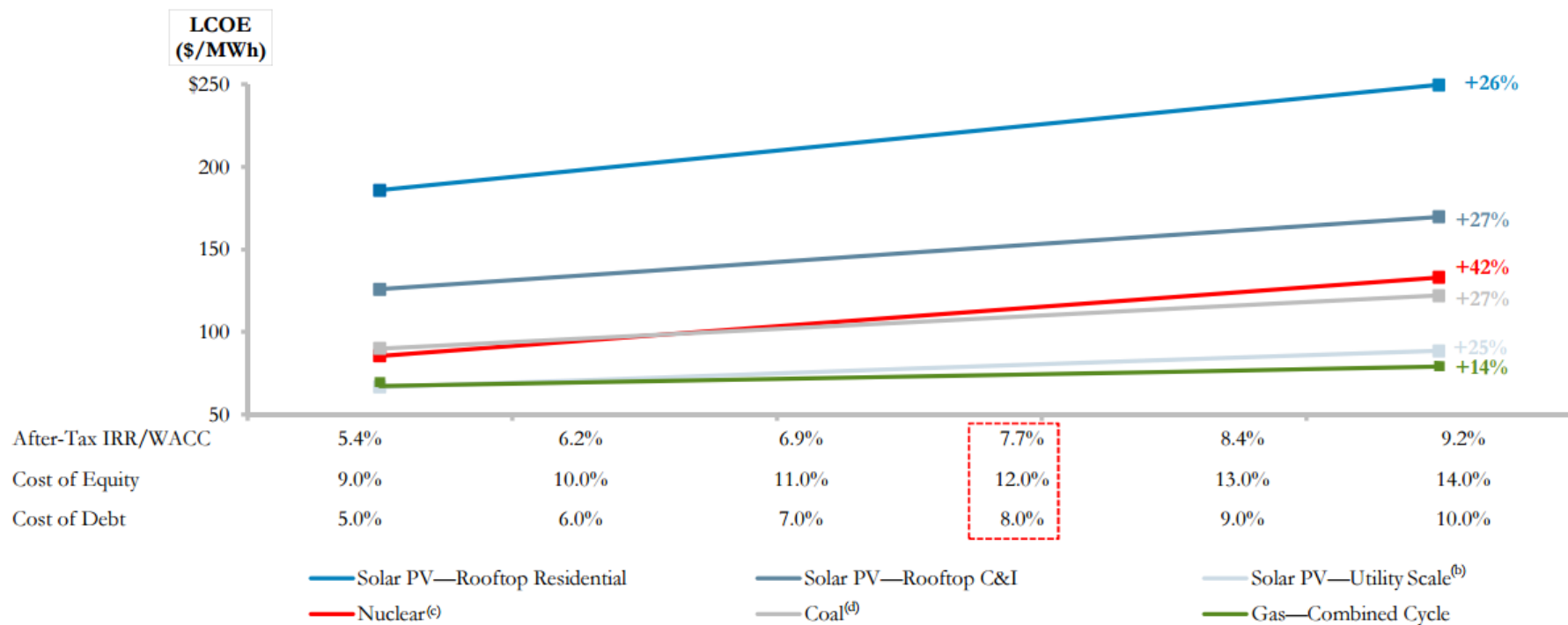
Electricity
Price



Finance
Repayment

CHEAPER FINANCING MEANS
CHEAPER ELECTRICITY

Green Banks lower the cost of financing, make renewable electricity cheaper, more competitive



Green Bank capital in action!

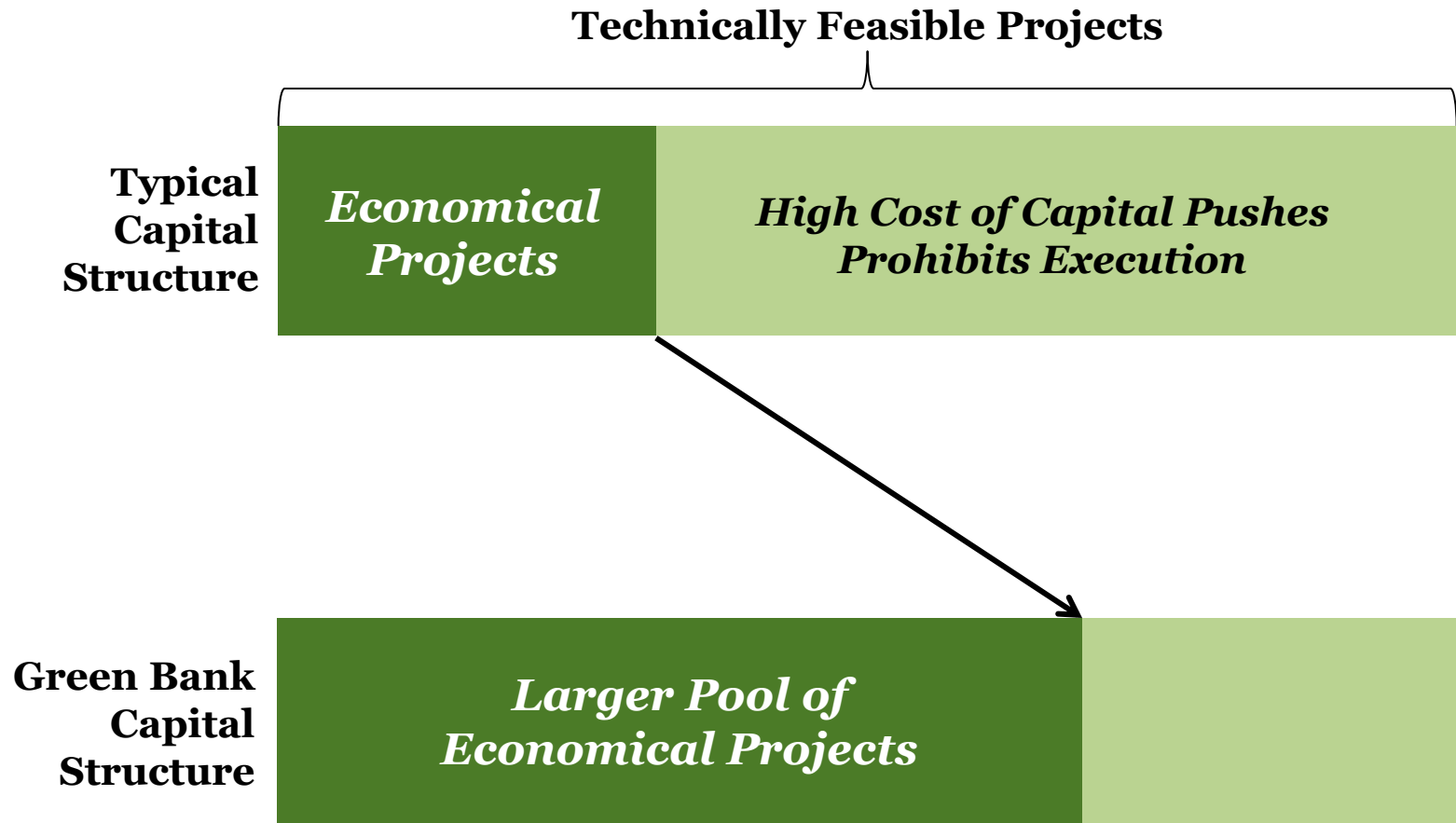
Price of Solar (cents/kwh) with Increasing Green Bank Capital

% of Green Bank Capital in Structure

Solar Install Cost (\$/Watt)	0%	10%	20%	30%	40%
\$4.50	21.0	18.7	16.3	14.0	11.7
\$4.00	17.4	15.4	13.3	11.2	NA
\$3.50	13.9	12.1	10.3	8.5	NA
\$3.00	10.3	8.8	7.2	5.7	NA

Green Bank Lowers Price!

Green Banks expand pool of viable projects with lower price and risk mitigation



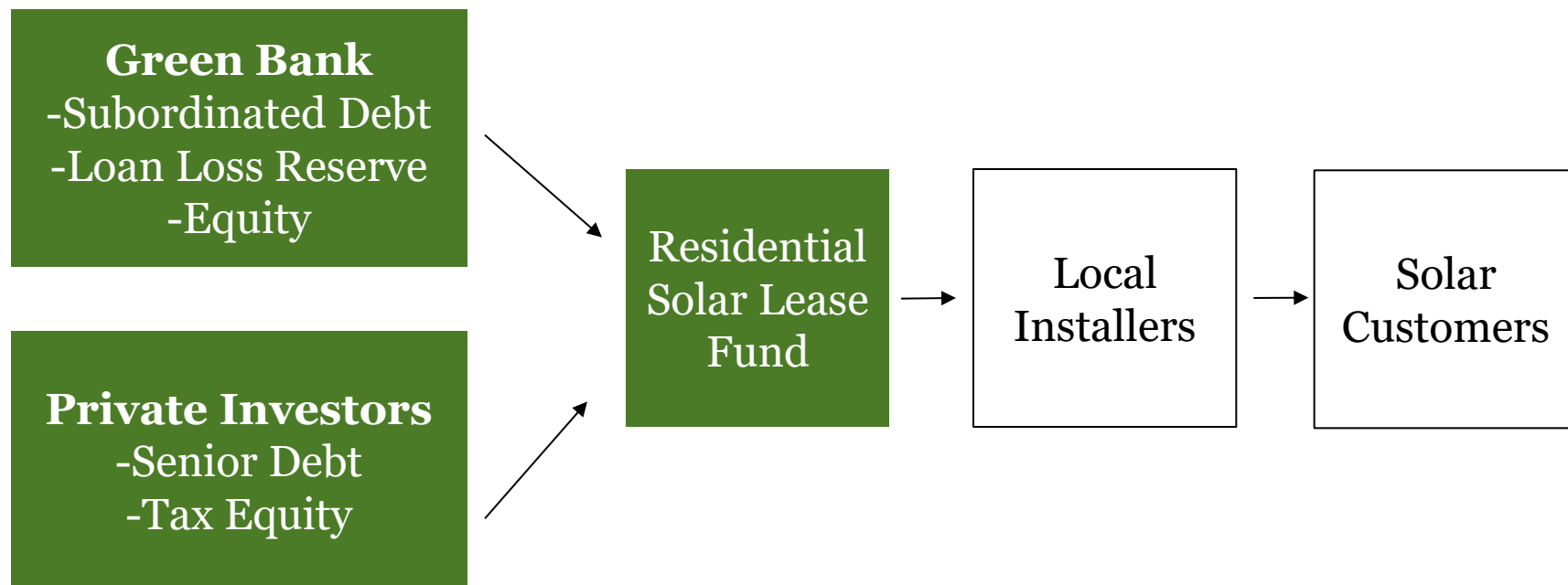
~20% lack electricity; 33% lack clean cooking – need capital, new business models for distributed energy



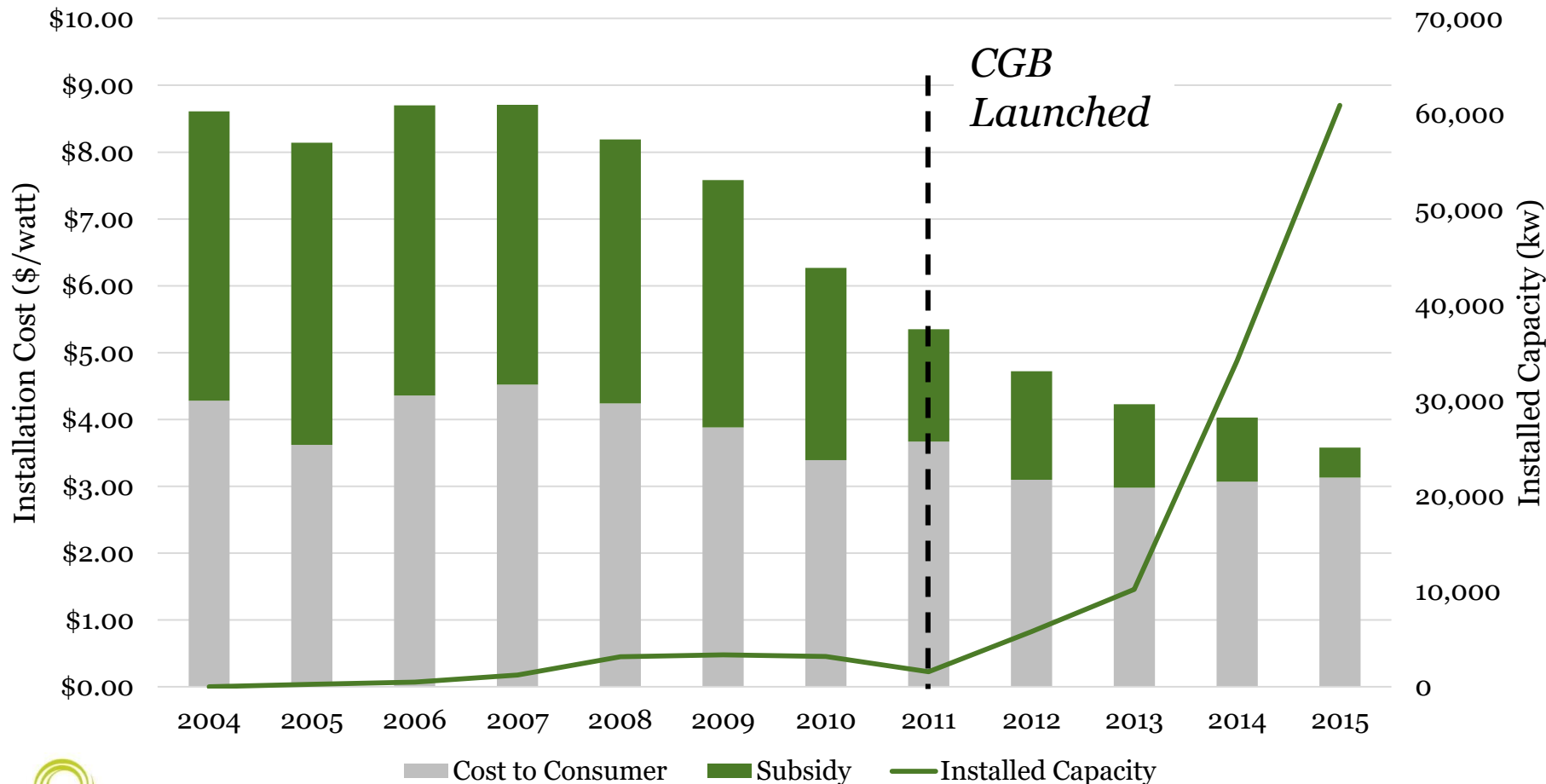
Green Banks use novel approaches, coordinate market actors to deploy distributed solutions

Example: CGB's Residential Solar Tax Equity Fund expands customer access to rooftop solar

- CGB created unique public-private financing platform
- Product enables local developers to offer financing to customers who otherwise would have to pay all upfront

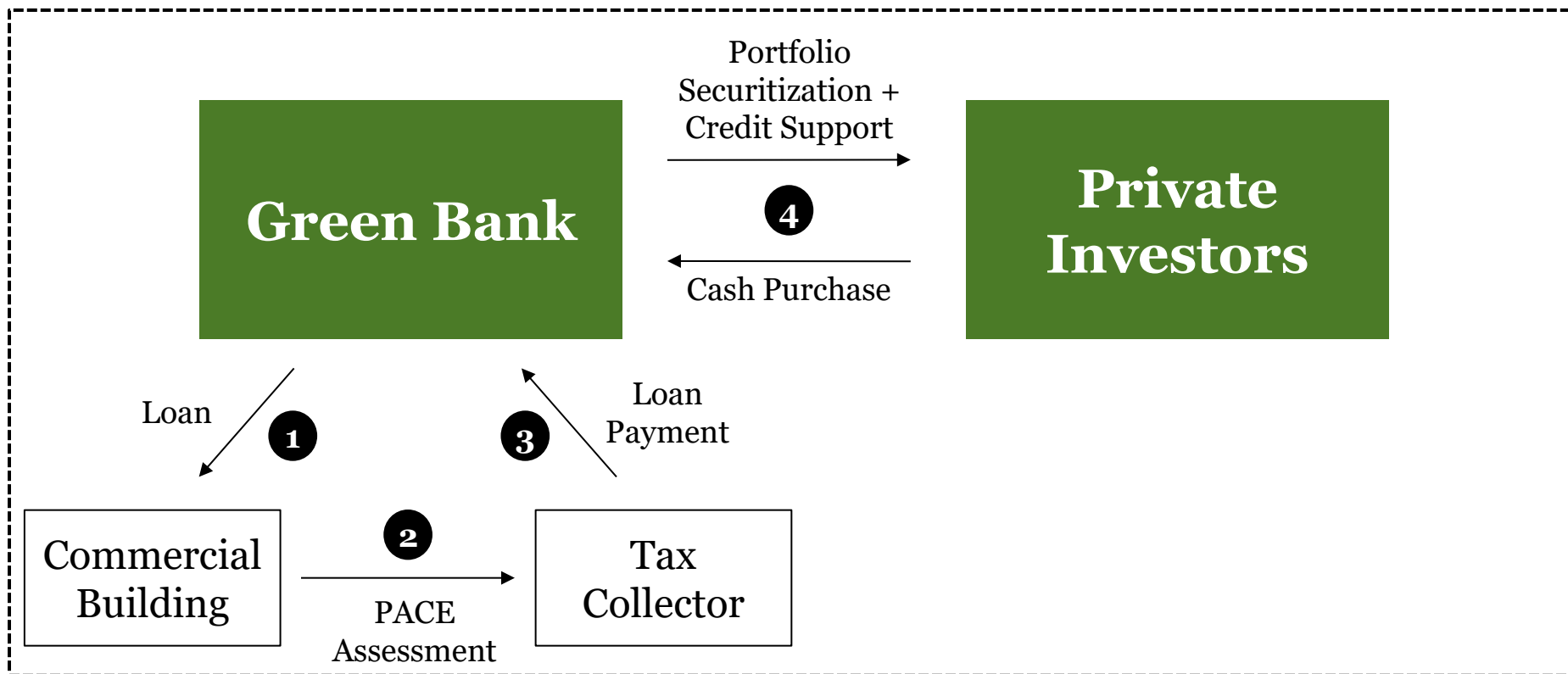


Example: Connecticut Green Bank grows distributed solar market with new financing solutions



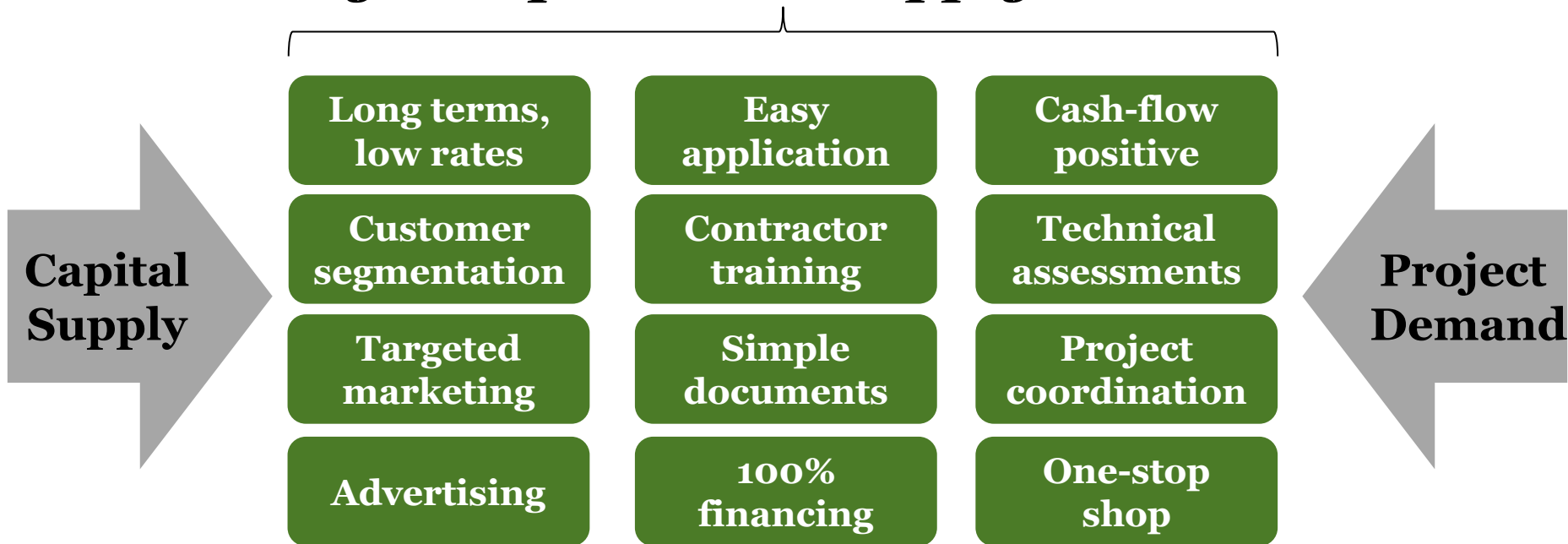
Example: CGB's C-PACE enables secure efficiency investment at scale

Centralized State-wide Green Bank Administration



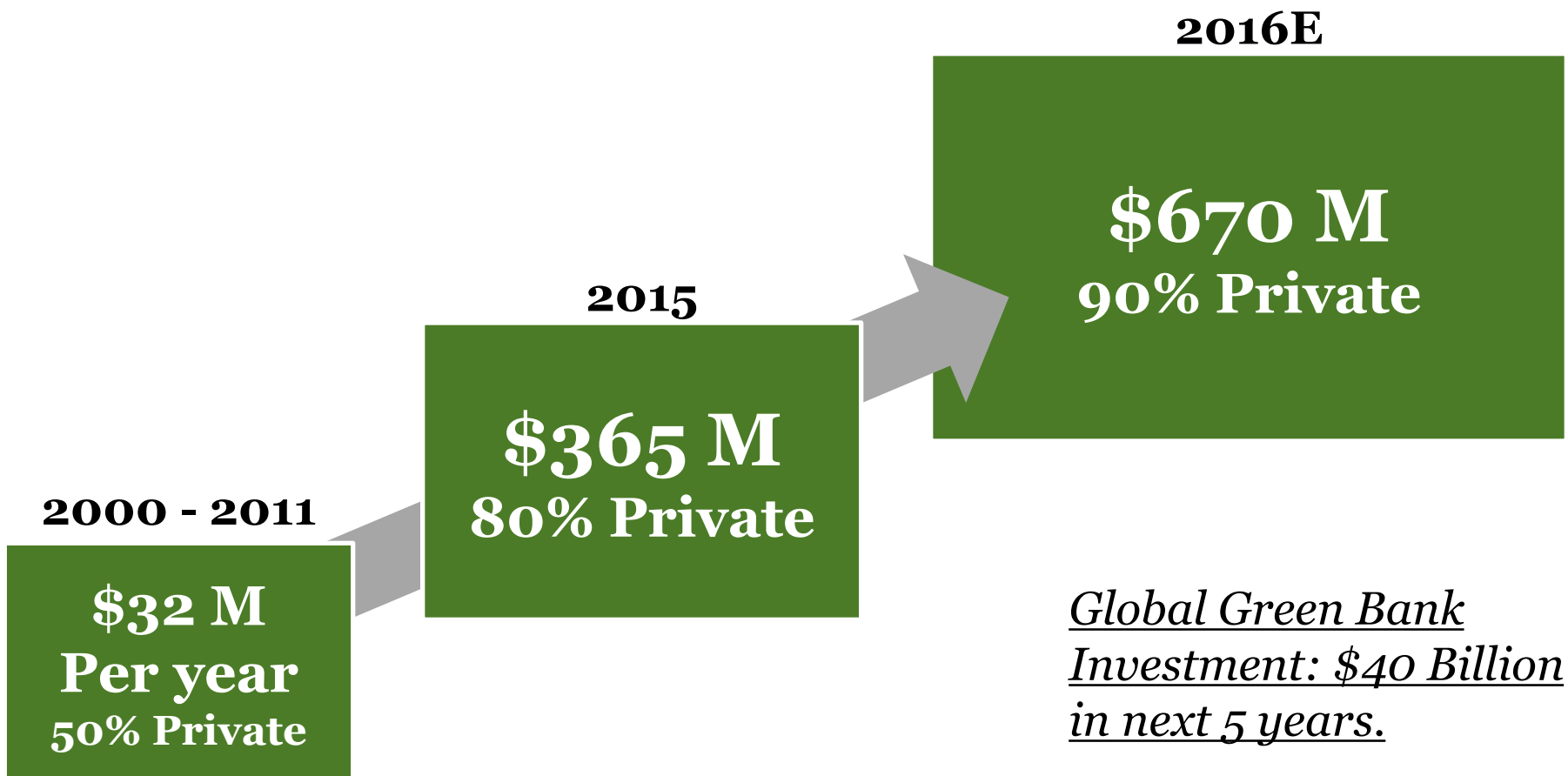
Green Banks help bridge the long gap between capital supply and demand for clean energy

Green Bank Market Development Activity Bridges Gap Between Supply & Demand



All of this activity must occur to reduce barriers to demand – some can be done by green bank, some done by private partners

In only 5 years, Connecticut Green Bank increased clean energy investment 20x per year!



India can borrow, copy and share best practices from Green Banks around the world

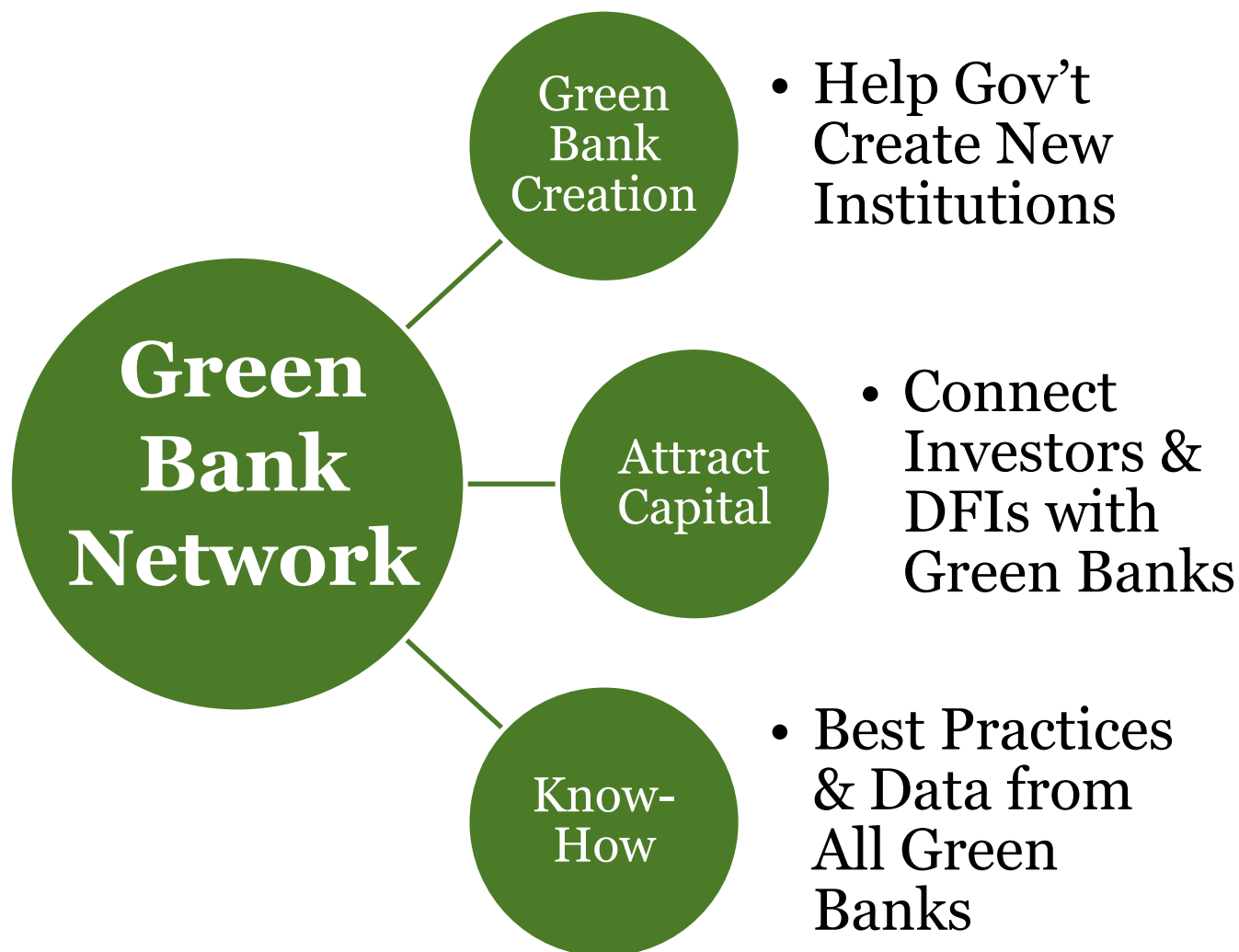


Green Banks are quickly spreading across U.S.

Green Banks Operating Or Under Development/Consideration



Global Green Bank Network just launched, hub for new Green Bank Development, knowledge sharing





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Thank You & Appendix

Contact

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