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SUSTAINABLE ENERGY
FOUNDATION

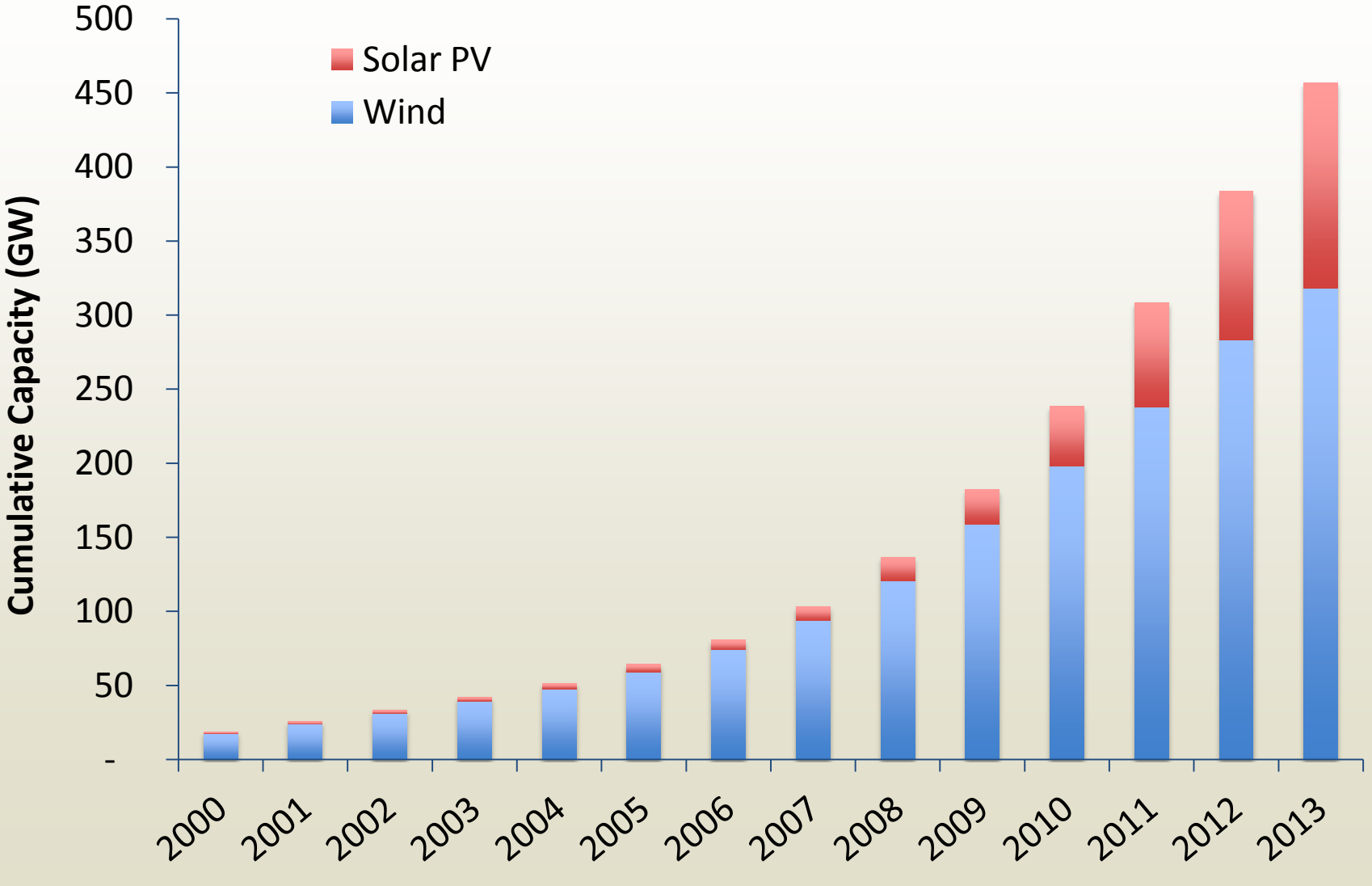
FINANCING RENEWABLE ENERGY PROJECTS

Presented at Climate Parliament's Parliamentary Forum in Jordon | November 7, 2014

In this presentation

1. Why is Financing, an important consideration for RE?
2. Link between financing, and policies!
3. International examples
4. India specific analysis
5. Key message

Global Growth in Installed Capacity



Only 3.6% by energy in 2013

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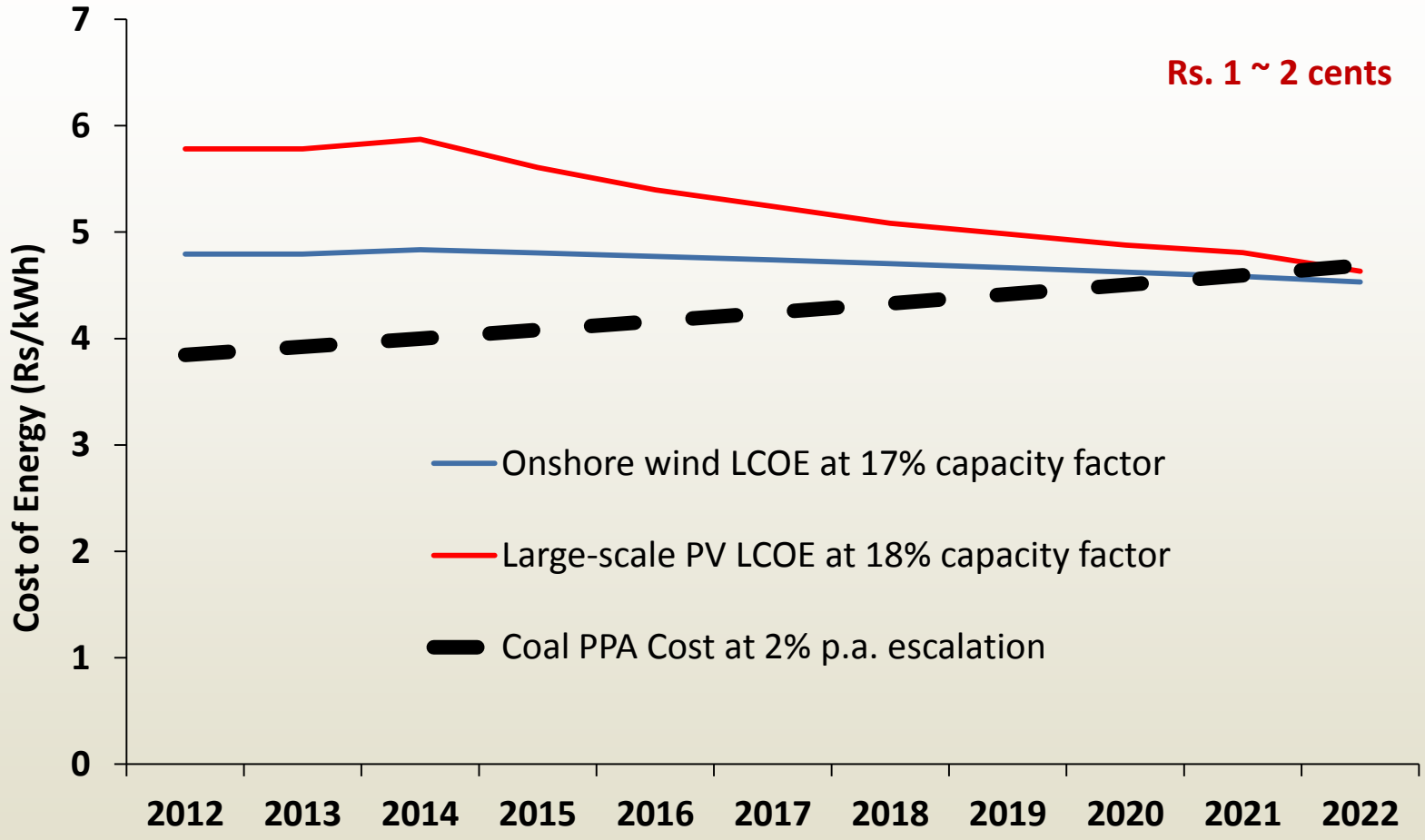
RE Costs (India) – Close to Grid Parity!



Globally, investments in RE are critical, to reap future benefits

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Constituents of cost of energy (per unit)

Characteristics	Depleting Resources (Coal/ Gas/ Oil)	Renewable Resources (primarily Solar/ Wind/ Hydro)
Cost of capital	10 – 50%	70 – 90%
Operating costs (OPEX)	50 – 90%	10 – 30%
Cost of Fuel	High and variable	Nil
Maintenance	High	Moderate

Cost of capital for RE is significant

Project Funding Sources

Primary Sources – driven by markets

Equity Investments

- High return expectations
- Limited availability
- Risk money

Debt (loans)

- High costs (in developing countries)
- Short repayment periods
- Typically risk averse

Additional Sources – typically from Government

Capital / Fiscal support

- Tax benefits
- Capital subsidies

Operating support

- Preferential tariff
- Performance based subsidies

Cost of Capital

Components:

1. Extent of investment (technology costs)
2. Return expected by investors (return on equity)
3. Interest rates of loans (cost of debt)

Equity and debt costs are governed by state of economy, state of sector (RE) and competing requirements

Markets will deal with RE like any other investments

To bring costs down, RE specific policy interventions must

Expectations from Policymakers

- Support growth of RE by legislative and policy dispensations towards
  - Reducing sector level risks
  - Enhanced pace of deployment
  - Creating dedicated pool of resources
  - Leveraging government resources to enhance private sector participation
- Least disruption to commercial financial markets

Equally important to grid and off grid RE

Financing – Policy linkages

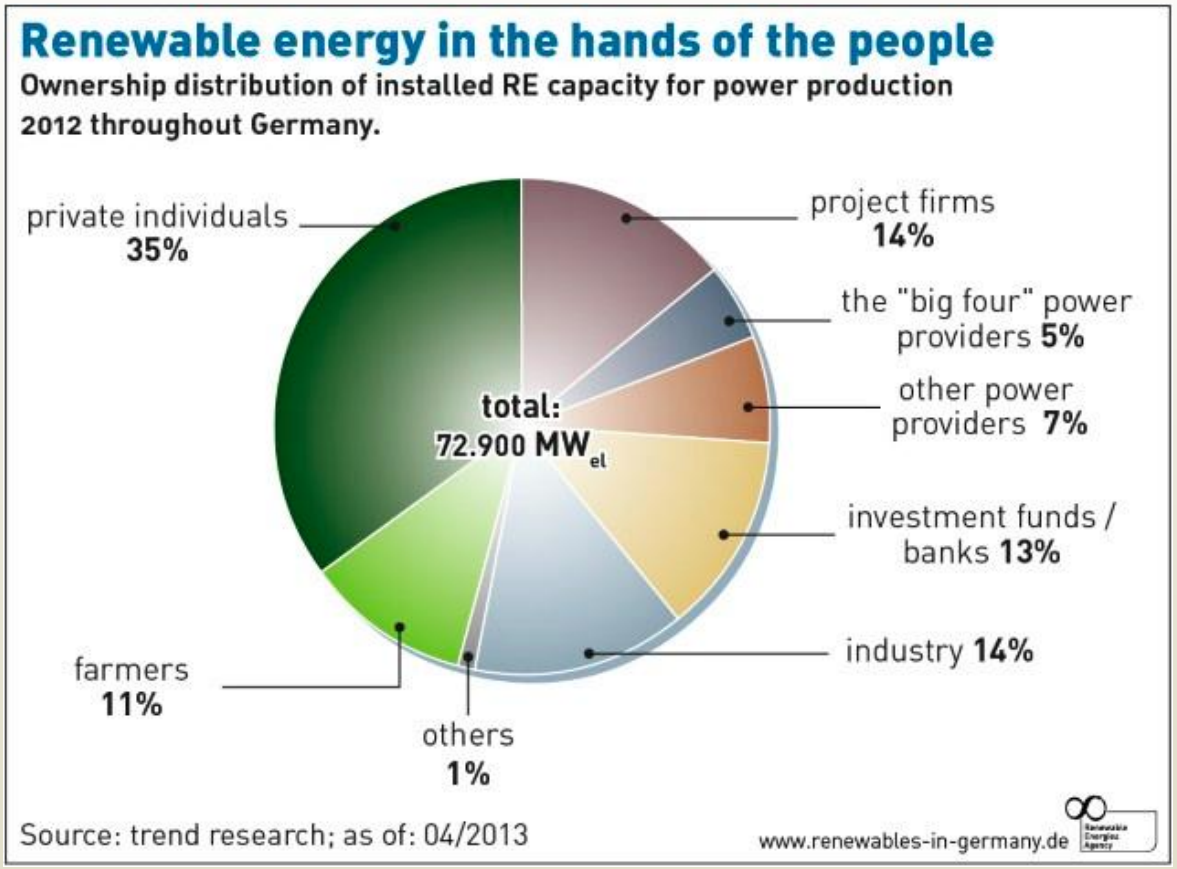
- **Risk increases costs**

Issues	Policy based Solutions
Non certainty of demand	**RE targets (China, Germany)**
Non certainty of Price	**Feed in tariffs (many)**
Long term project cycles	**RE investment Zones (USA)**
Non clarity on Incentives	**National incentive mechanisms (Solar GBI in India)**

- **Lack of access to long term, low cost capital**
  - Dedicated funds (China's Central Development Fund)
  - Green bonds / Green Banks (USA)

Feed-in-Tariff (FIT) – Ensuring returns to investors

- Most widely adopted globally – as of 2013, 99 jurisdictions have implemented it
- German experience
  - Enabled new stakeholders to participate in RE
  - Leveraged larger capital for investing in RE
  - Revenues from RE flow to individuals, cooperatives, etc. leading to more economic development



China's Story

Feed-in tariffs.

•Renewable electricity generators received a subsidy at market rates for electricity

Renewable Power Quotas.

•Quotas set annually

•Directed at, and enforced by, the grid companies (not the consumers)

Priority Dispatch

•Regulations require grid companies to give priority electricity dispatch to RE\

Central Development Fund

•Renewable energy surcharges allocated to a central renewable energy development fund

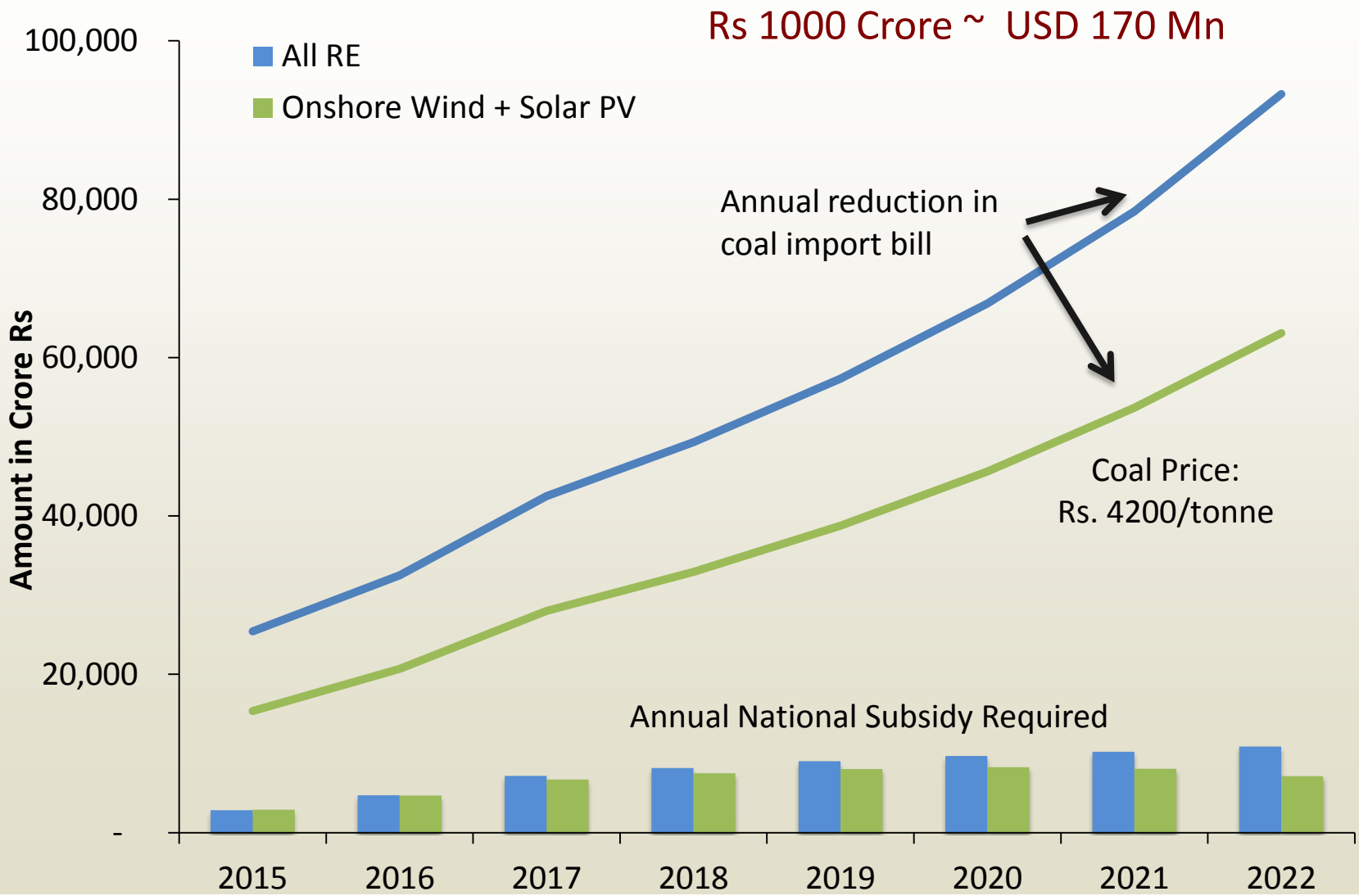
•Central government manages the fund, instead of provincial grid companies, to spur further financial investment and development

India Specific Analysis – A Rough Estimate

If India chooses to make buyers indifferent between RE (till RE becomes cheaper) and fossil fuel based generation, what would be a rough estimate of the costs?

To achieve 20% RE in grid by 2020

Financial Support Vs. Avoided Coal Import Bill



Amount of Subsidy is less than 1.6% of Total Power Purchase Cost in all years

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Possible Range of Specific Interventions

De-risk: By project development and long term policy/regulatory certainty

Reduced return expectations by investors

Enhanced finance availability through regulatory tools

Special green bonds	Pension funds, insurance, sovereign funds	Lower sovereign guarantee fee for NBFCs	Tradable tax credits	Infrastructure Debt Fund

Reduction in cost of capital using innovative mechanisms

Pooling commercial and non-commercial capital from domestic and international sources – Green Banks	Government of India to offer hedging support for debt (through its remittances)

Thank you

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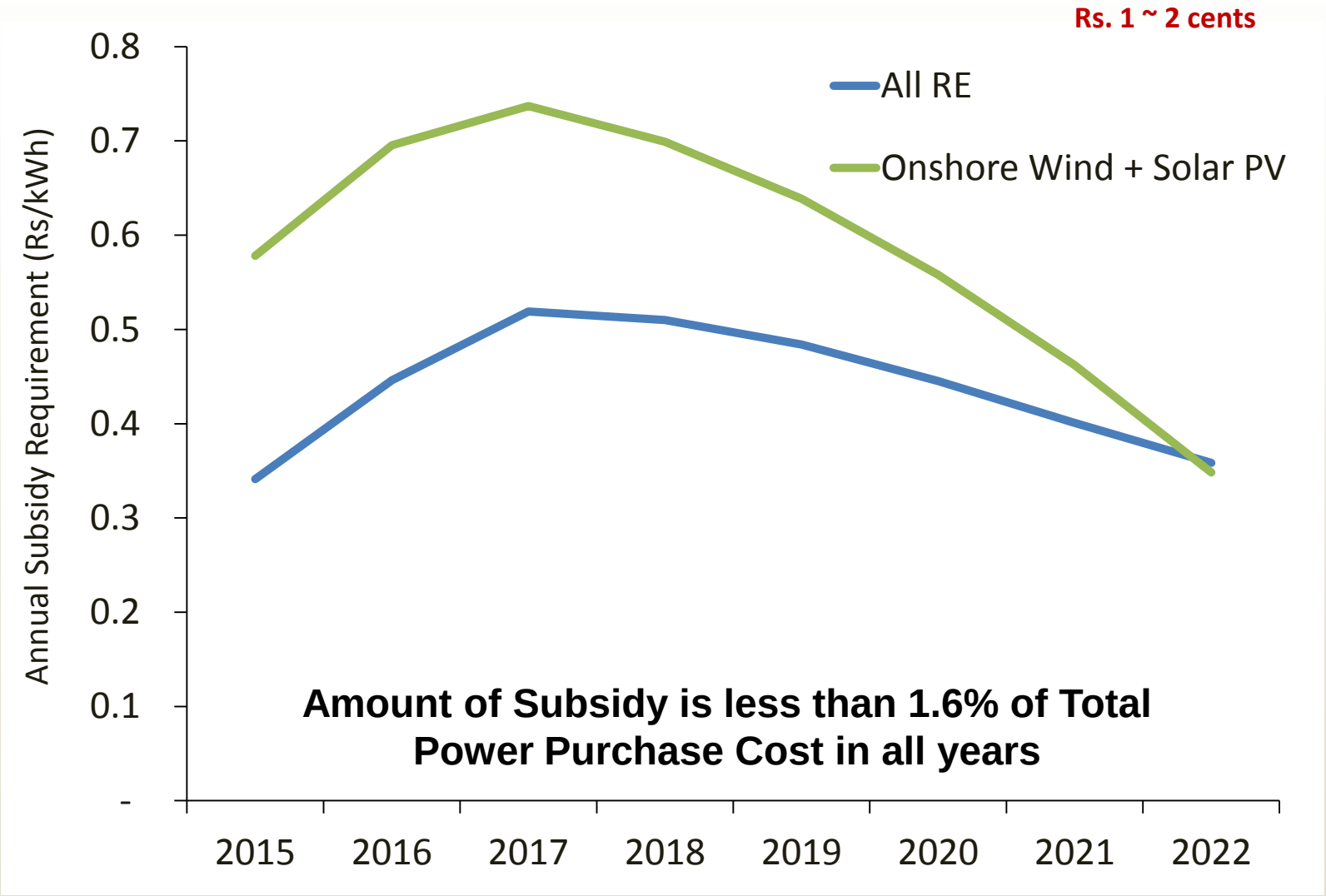
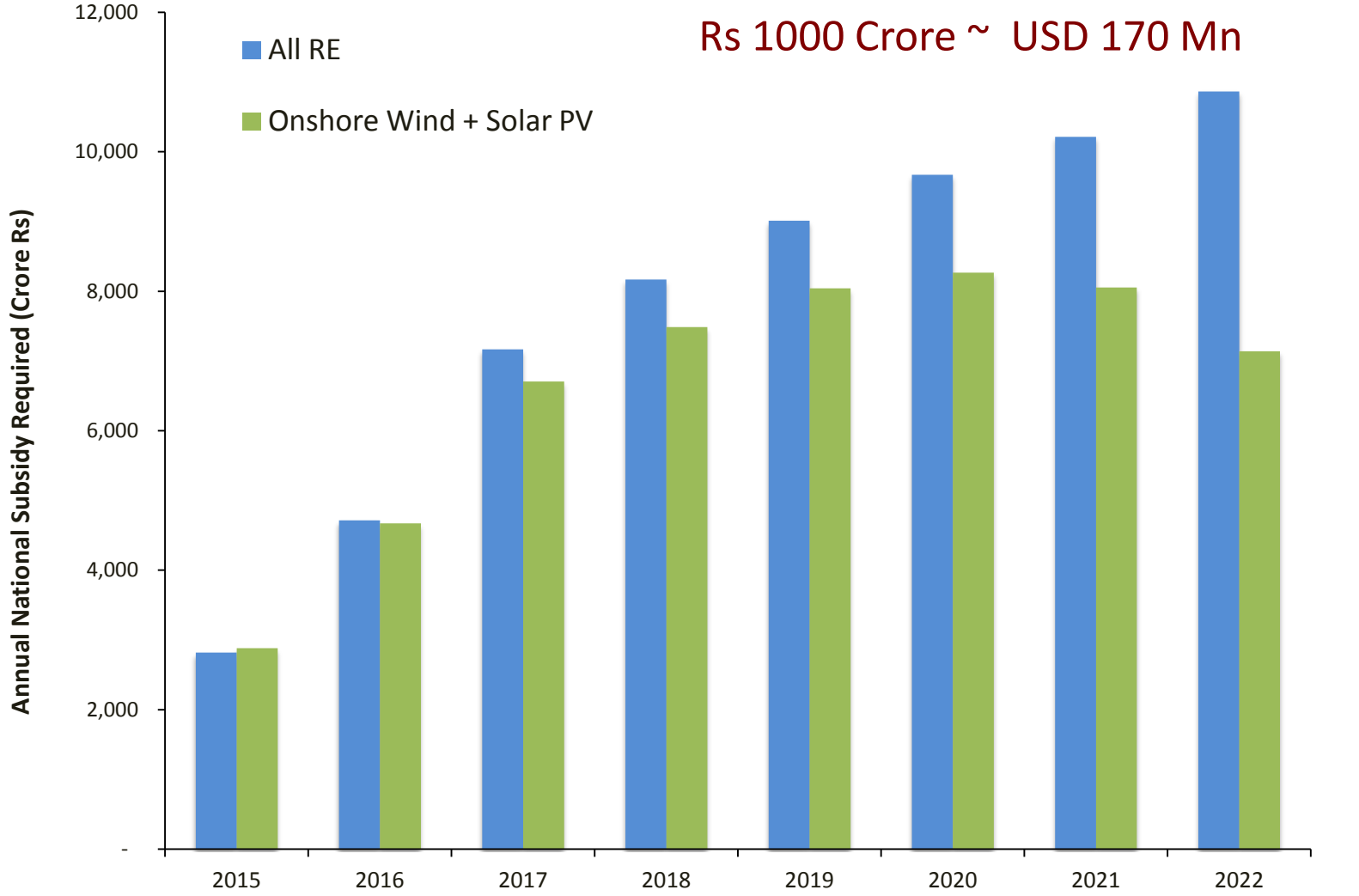
Annual Financial Support (Rs/kWh)



Annual Financial Support Requirement



Support in form of low cost finance or direct financial support