



# ***Overcoming Energy Efficiency Financing Barriers in the ASEAN Region***

***Dilip R. Limaye***  
***SRC Global Inc.***

***ENERGY EFFICIENCY POLICIES IN THE ASEAN REGION***

***A Workshop Sponsored by IPEEC/WEACT and MEMR***  
***Jakarta, October 18-20, 2011***



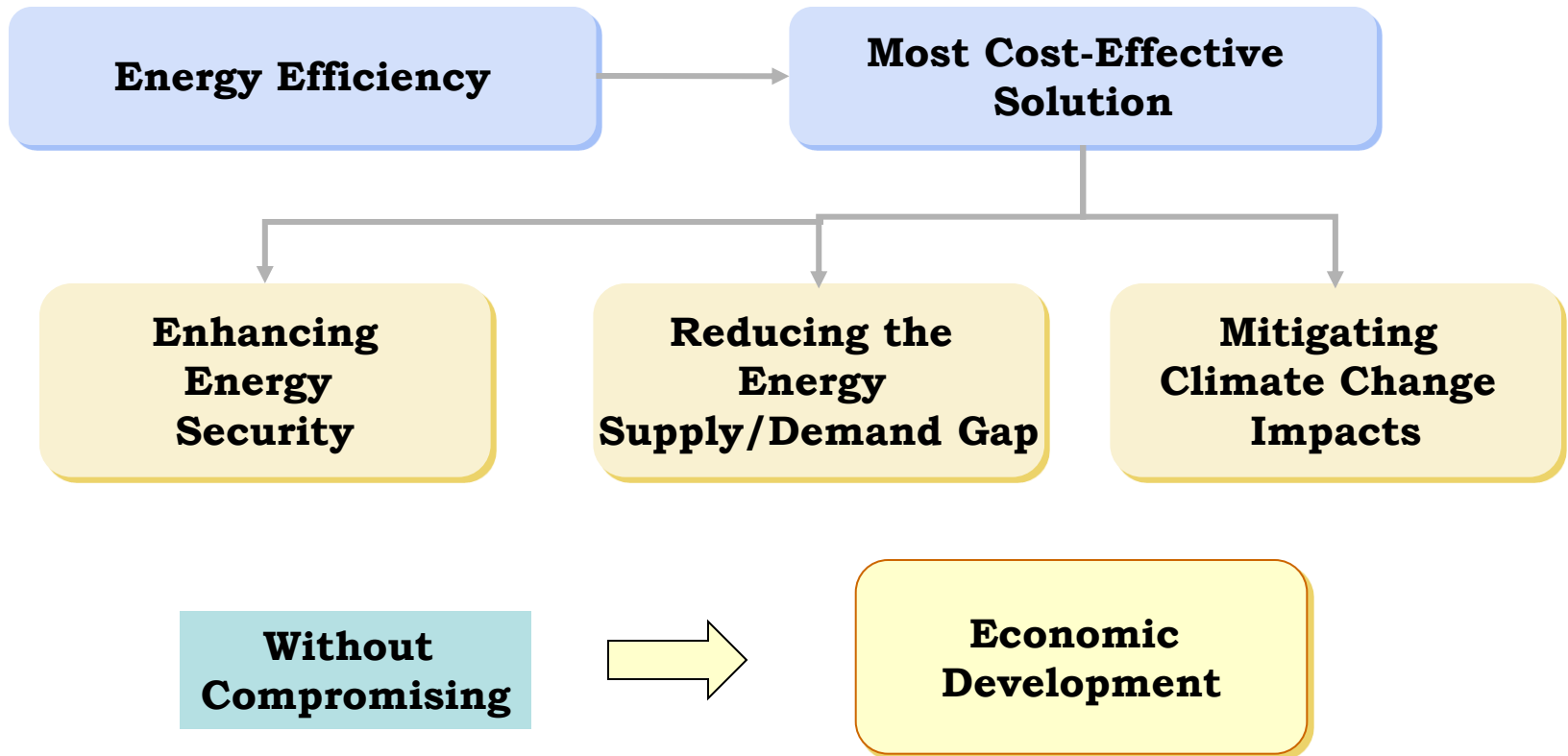
# ***Presentation Outline***

---

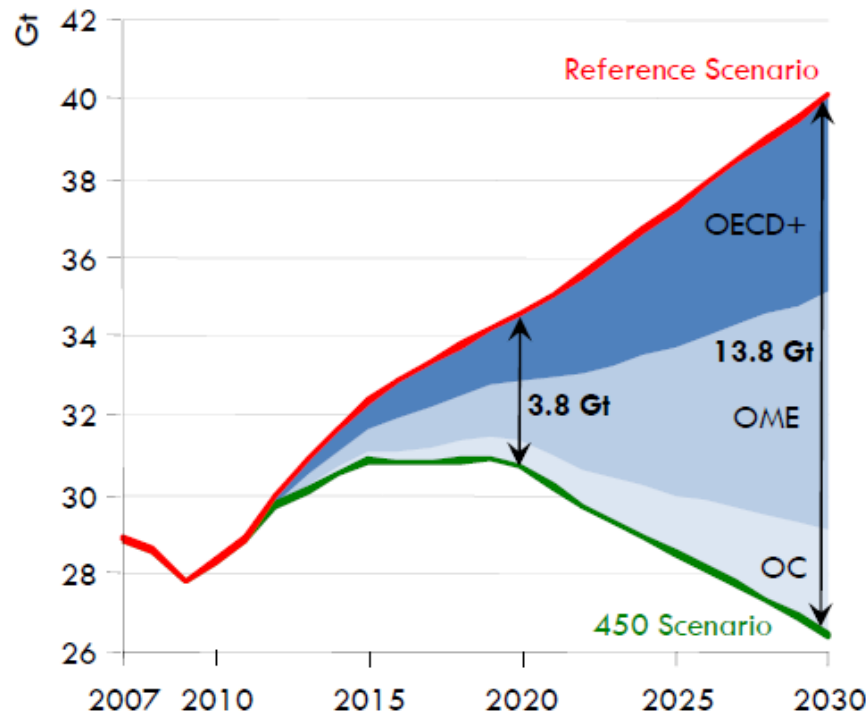
- **Introduction**
- **Financing Barriers**
- **Financing Mechanisms**
  - **Energy Efficiency Funds**
  - **Utility Financing**
  - **Dedicated Credit Lines**
  - **Risk-Sharing Programs**
  - **Leveraging Commercial Financing through Performance Contracting**
  - **Equity Funds**
- **Summary of Lessons Learned**



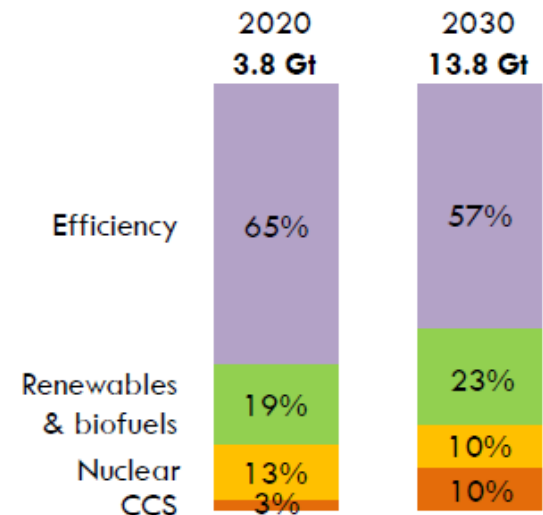
# ***Importance of Energy Efficiency***



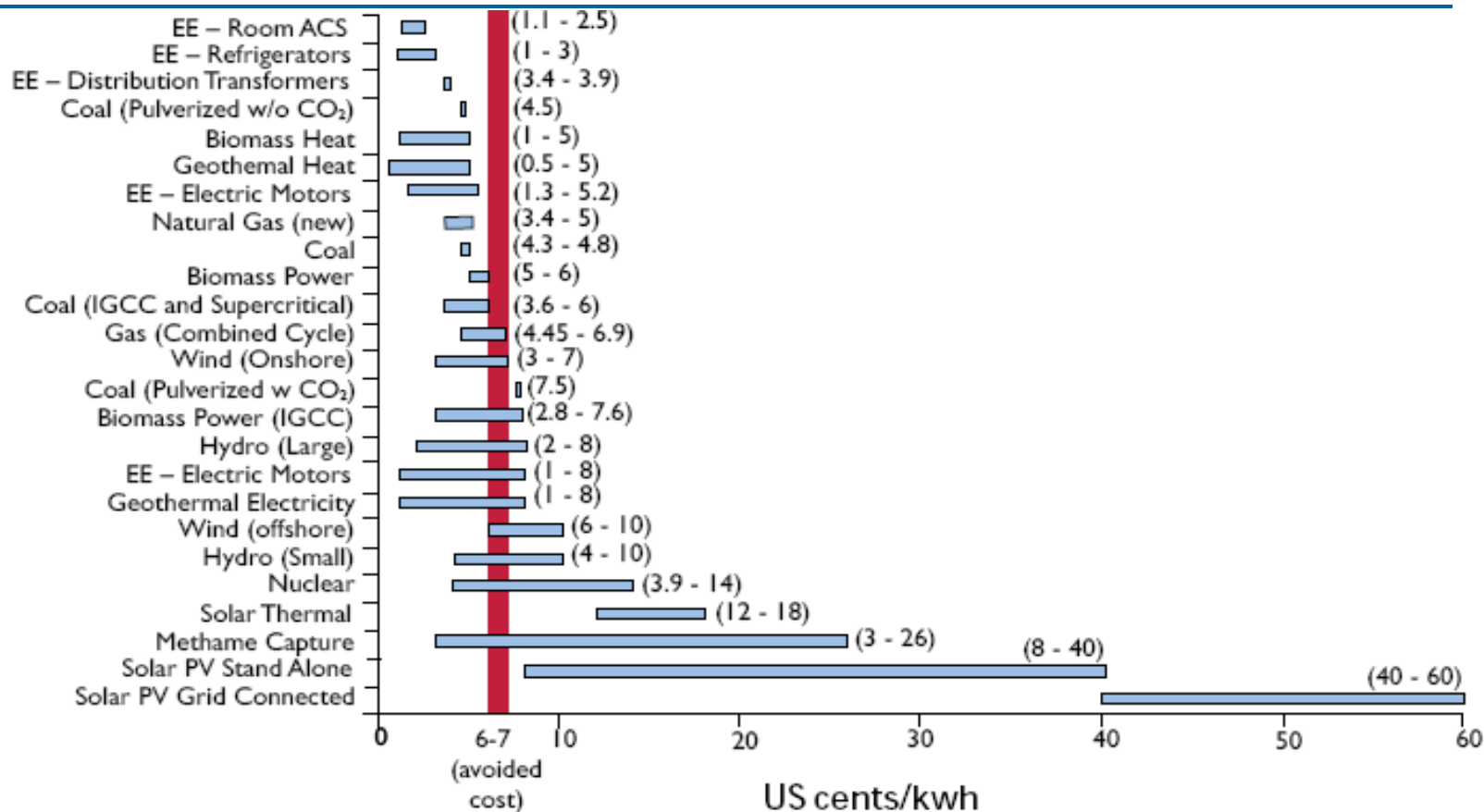
# Role of Energy Efficiency in Mitigating Climate Change



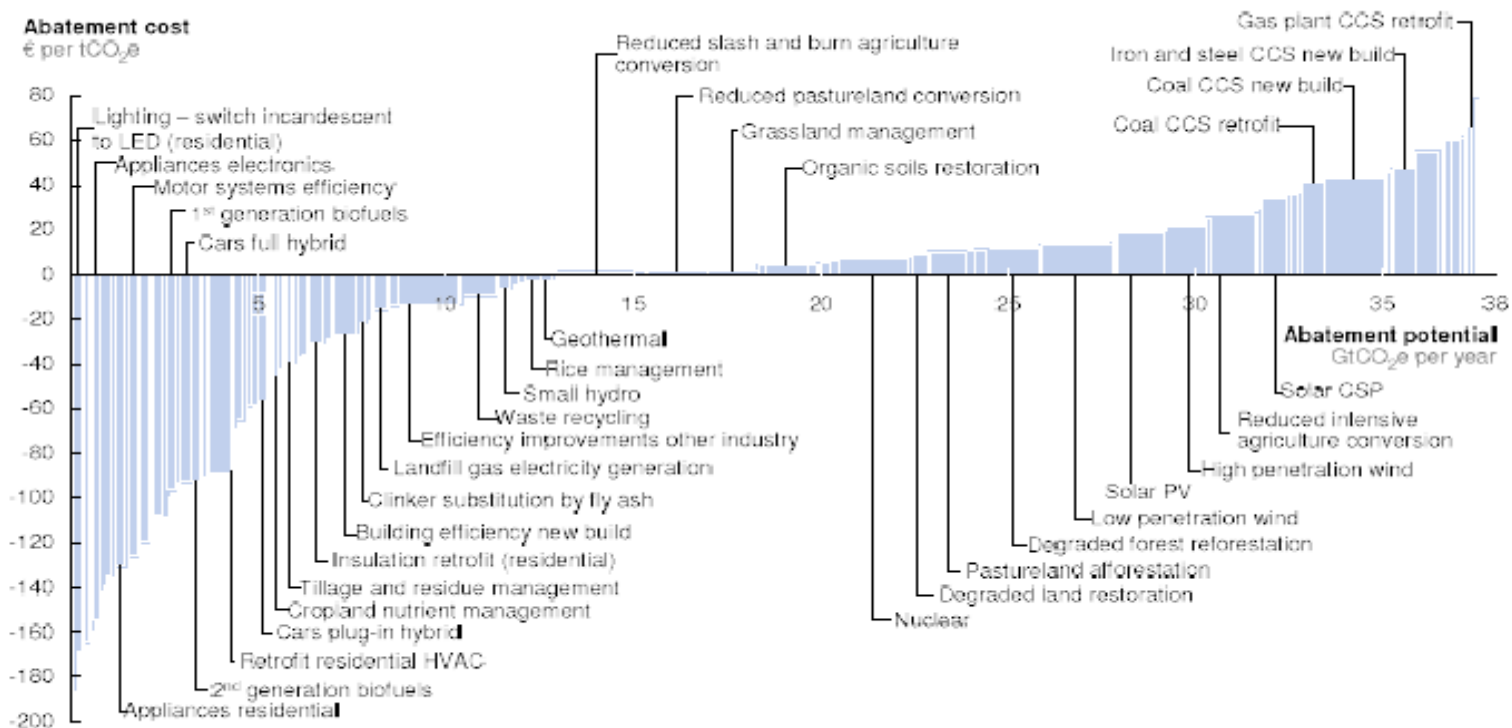
World abatement by technology



# GENERATION COST ESTIMATES OF ALTERNATIVE ENERGY OPTIONS



# McKinsey - Global GHG Abatement Costs

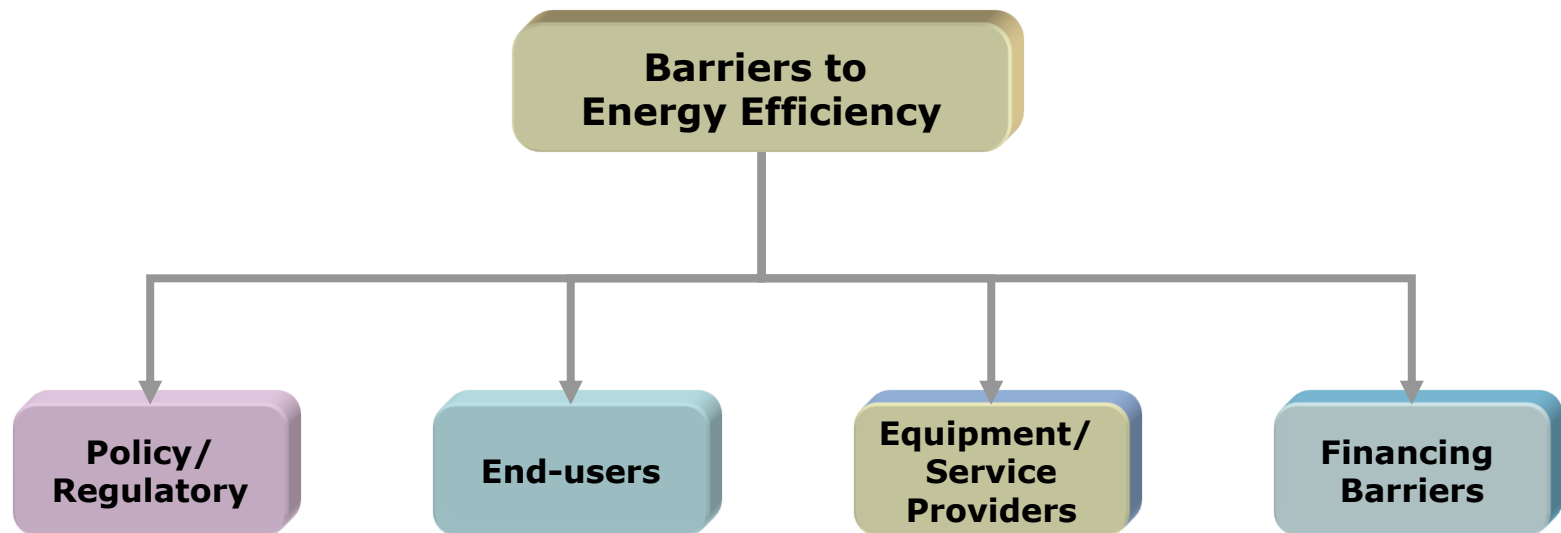


Source: McKinsey & Company

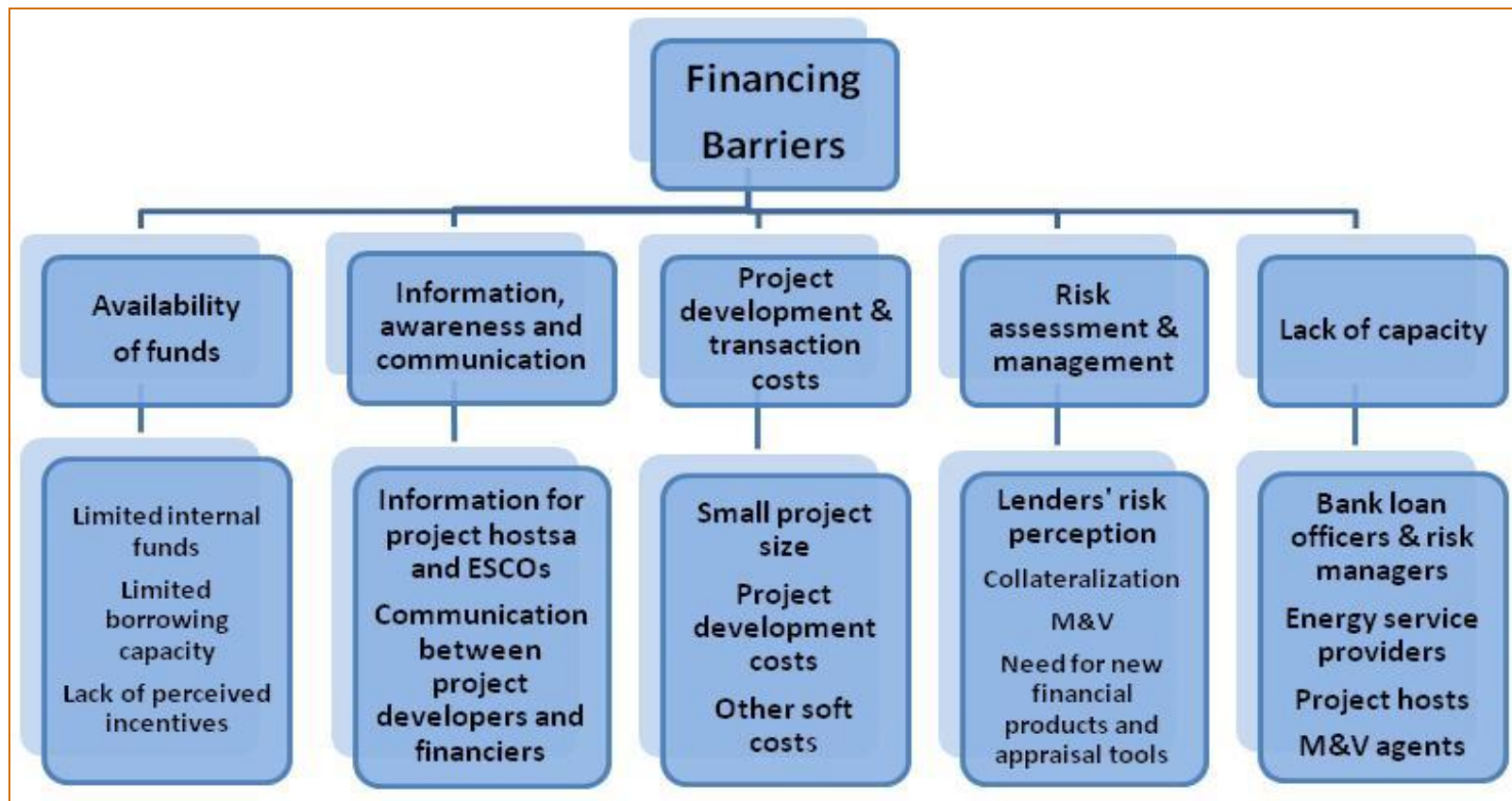


## ***Large Potential but Limited Implementation***

- **Energy Efficiency:**
  - Highly desirable
  - Attractive economics
  - High potential
  - But, implementation of EE is far short of potential



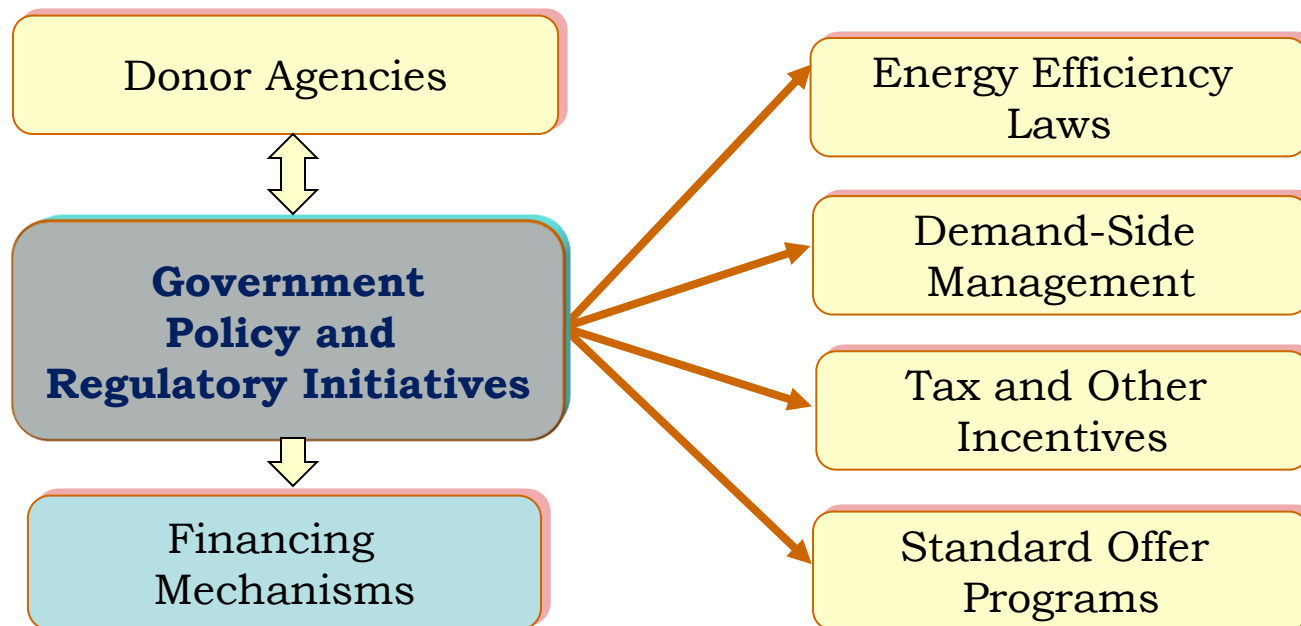
# *Financing Barriers to Energy Efficiency*





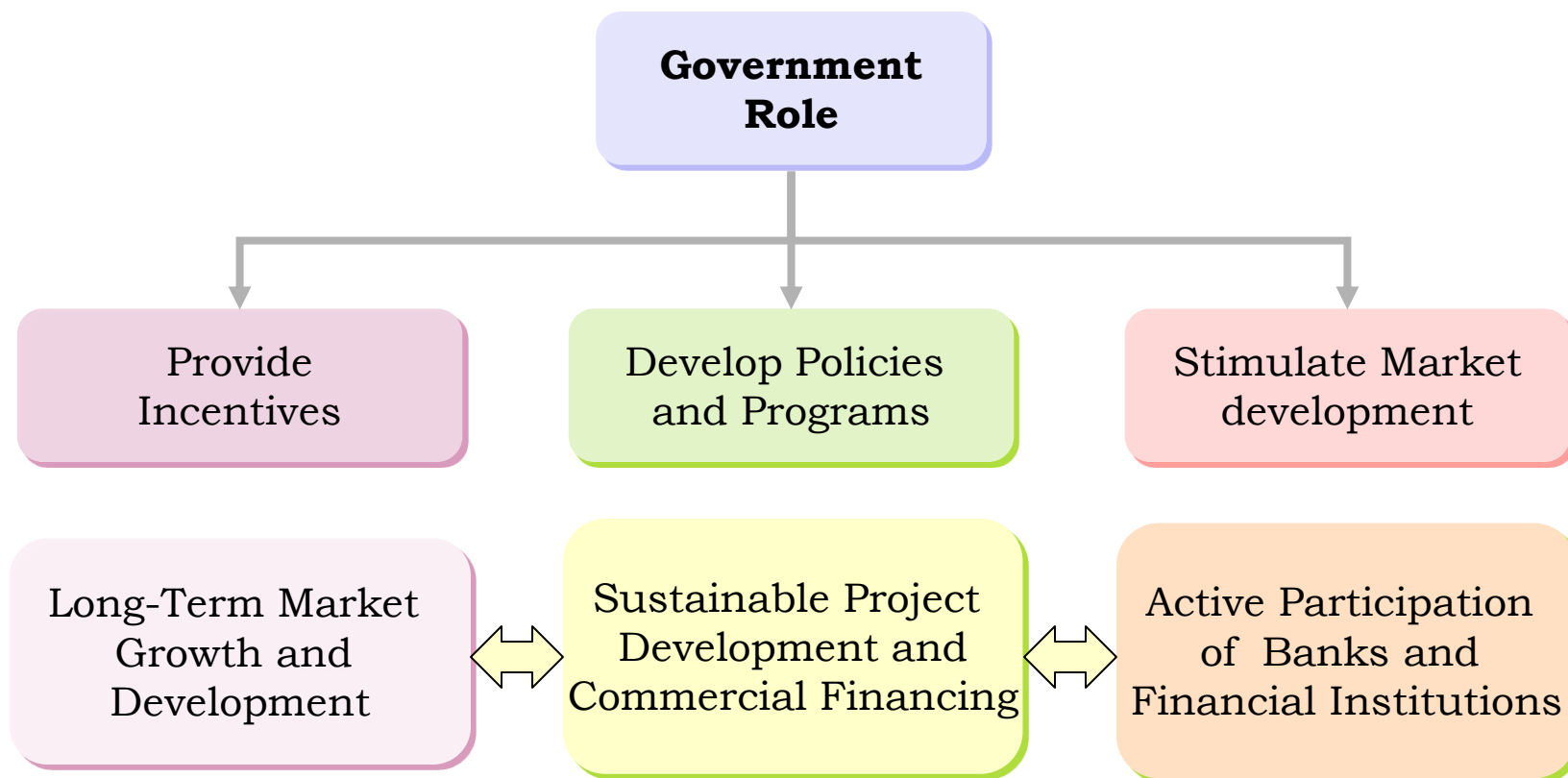
# ***Policy and Regulatory Instruments***

A wide range of policy and regulatory instruments can be adopted to address the EE financing barriers





## ***Government Role vs. Market Role***





# *Financing Mechanisms*

---

Public

PPPs

Private

**Energy  
Efficiency  
Funds**

**Dedicated  
Credit  
Lines**

**Risk-Sharing  
Programs**

**Utility  
Financing**

**Leveraged  
Commercial  
Financing**

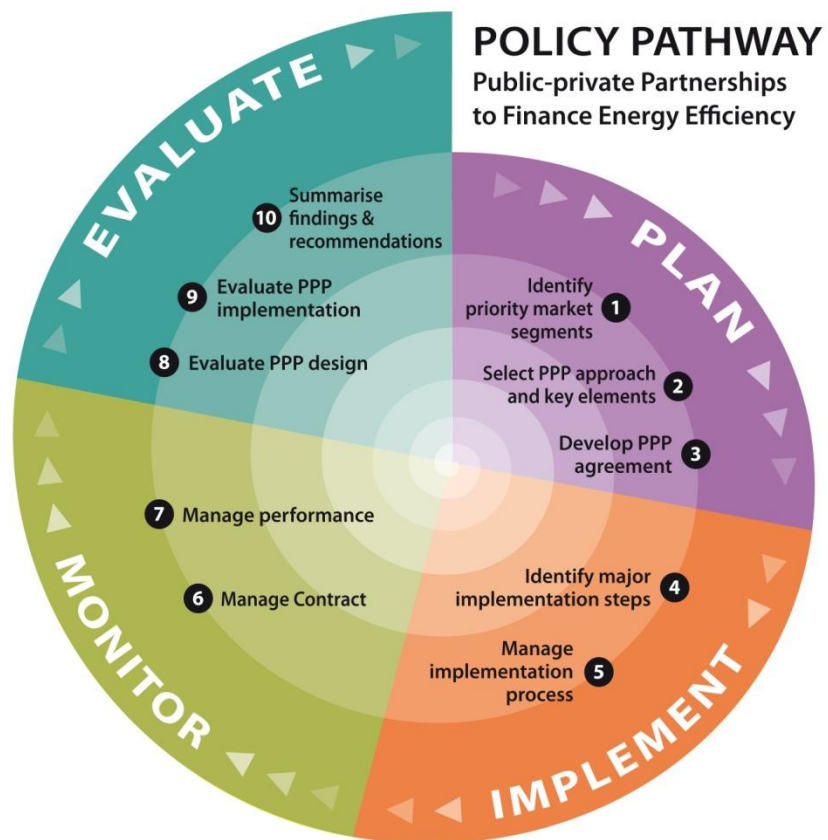
**Equity  
Funds**



# ***Public-Private Partnerships***

- **Public-Private Partnerships (PPPs) are mechanisms that use public policies, regulations or financing to leverage private sector financing for EE projects**
- **Key Characteristics of PPPs:**
  - **A contractual relationship (or agreement) between a public entity and a private organization**
  - **Fair allocation of risk between the public and private partner to encourage the private partner to mobilize financing**
  - **Mobilization of increased private sector project financing for EE**
  - **Payments to the private sector for delivering services to the public sector.**

# IEA Study of PPPs for EE Finance



## Key PPP Characteristics

- Formal agreement between public and private partners
- Equitable risk allocation between partners
- Mobilization of private financing
- Payments to private partner for services

## IEA study documents:

PPP mechanisms

Importance and benefits

Implementation procedures

Examples and case studies



## ***World Bank Study of Clean Energy Financing***

---

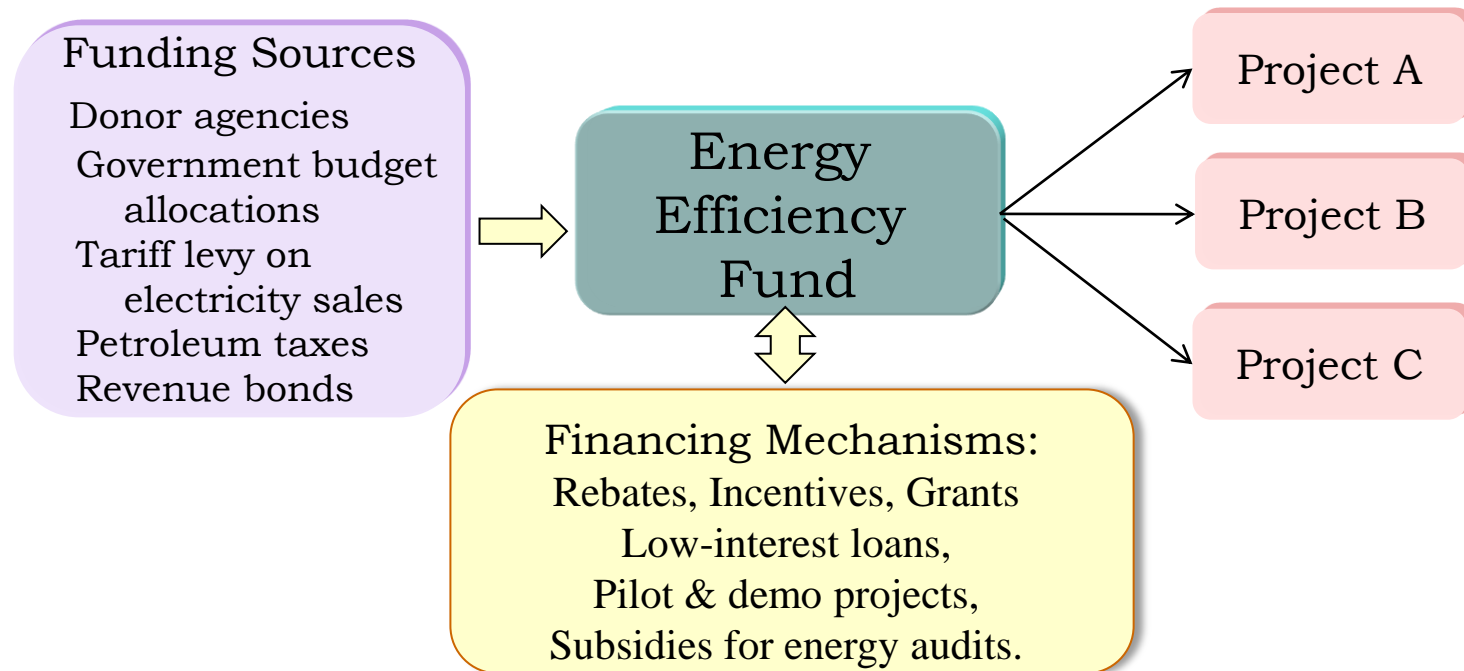
- **Documenting international experience in clean energy financing**
- **Addresses both EE & RE**
- **EE section includes**
  - **EE funds**
  - **Utility Financing**
  - **Dedicated Credit lines**
  - **Risk-Sharing Programs**
  - **Leveraging Commercial Financing with ESPC**
  - **Equity Funds**



# ***Energy Efficiency Funds***

# Energy Efficiency Funds

Designed to overcome the lack of fund availability







## ***Examples in Asia***

---

- **Thailand - Energy Conservation Fund (ENCON)**
  - EE Revolving Fund established in 2003
  - Funding from petroleum taxes
- **Korea – Korea Energy Management Fund**
  - Large fund managed by KEMCO
  - Loans to EE projects
- **India – State Energy Conservation Funds**
  - Kerala State ECF established with help from USAID ECO-Asia in 2010
- **Sri Lanka – Energy Conservation Fund**



# *Utility Financing*



## *Utility Financing*

---

- **Financing the customer's investment in energy efficiency projects or equipment**
  - **Recovering the investment cost through repayments on the customers' utility bills**
  - **Overcomes the customers' lack of funds and interest in EE**
  - **Facilitates processing and collection of loan repayments**
  - **Benefits to utility as well as customers**
-

## Example: Bangalore Efficient Lighting Program

**Figure 2.2 – BESCOM Efficient Lighting Program**





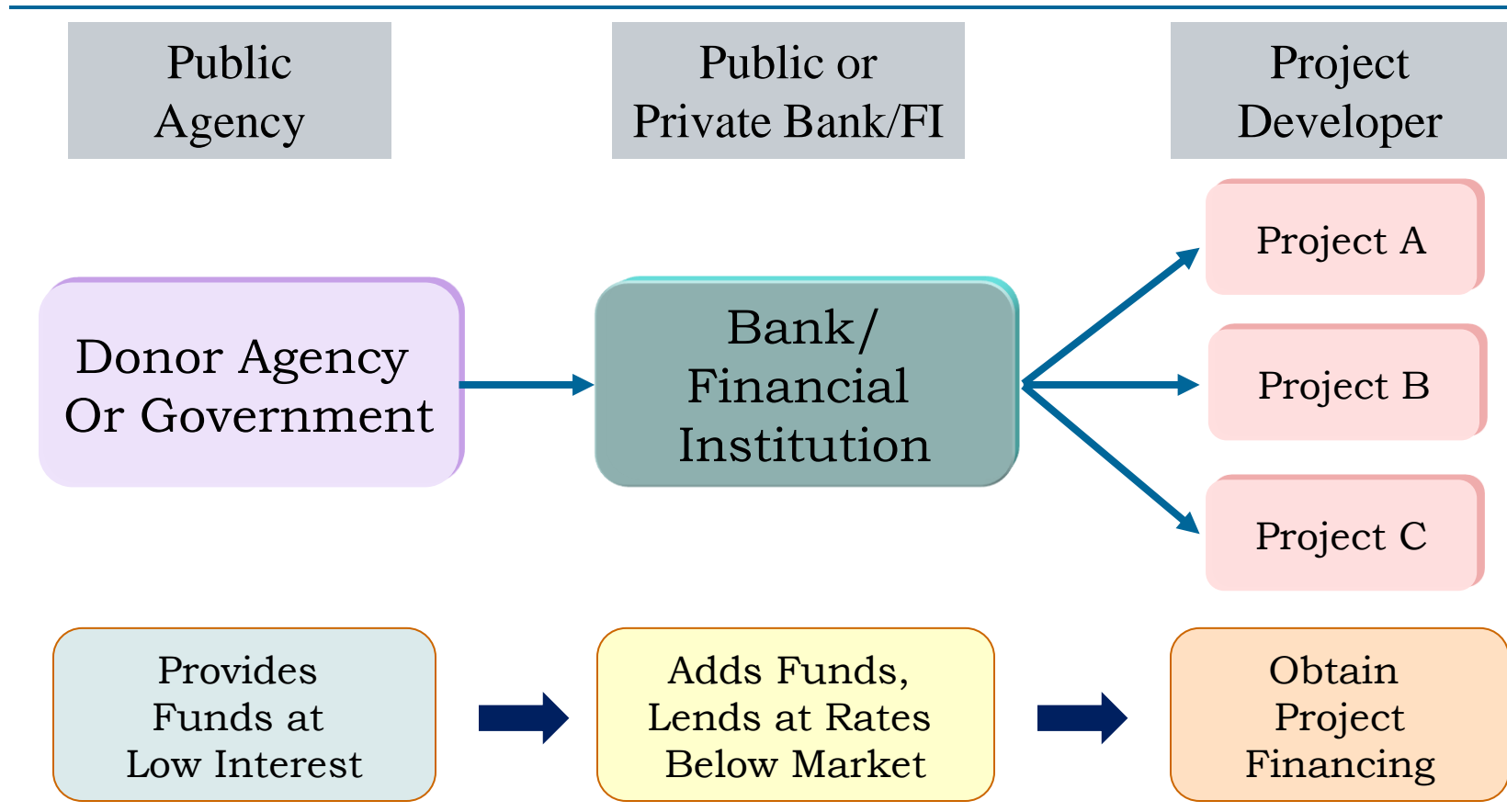
## ***Dedicated Credit Lines***



## ***Program Rationale***

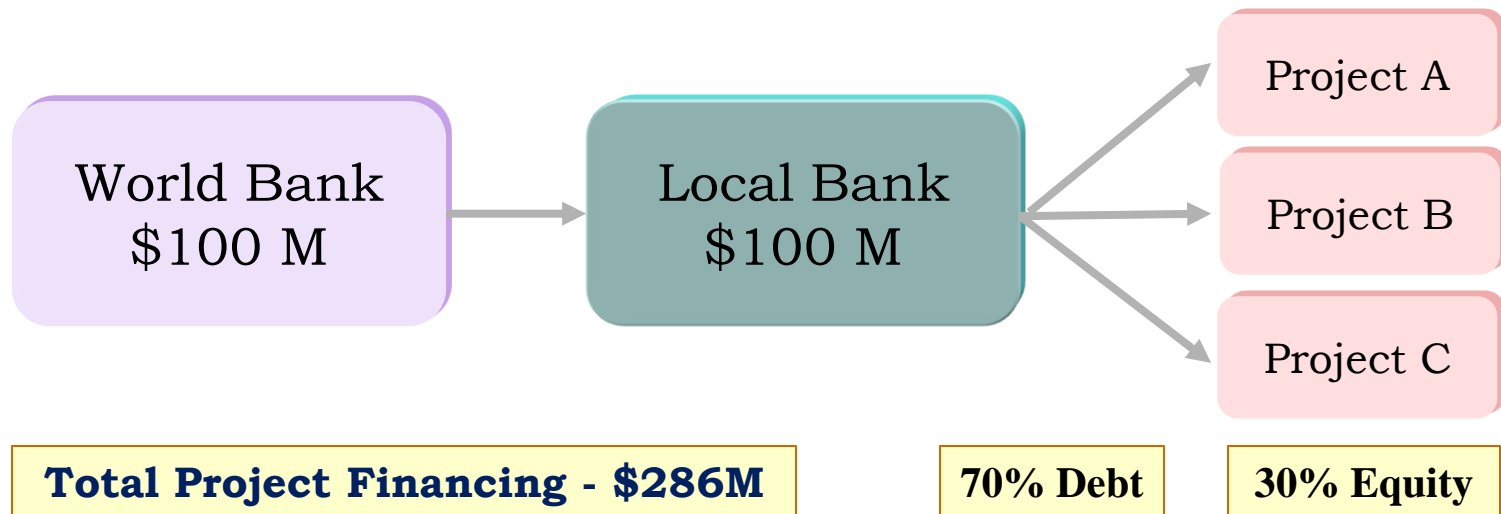
- **Create interest on the part of commercial banks in financing EE projects**
- **Enhance technical capacity of banks to scale up EE lending**
- **Leverage parallel financing from the participating banks for EE financing**
- **Strengthen the participating bank's capacity in identifying and managing project risks**
- **Assist the participating bank in exploring business opportunities in other low carbon lending and carbon financing businesses.**

## Structure of Dedicated Credit Line



## ***Example – CHEEF Program***

- **World Bank China Energy Efficiency Financing Program**
- **Credit lines from World Bank to 3 banks in China (Exim, Minsheng and Huaxia)**







# ***Risk Sharing Programs***



## ***Partial Credit and Risk Guarantees***

- **Designed to address the risk perception of banks and financial institutions**
- **Government or donor agency provides a partial guarantee covering loan loss from default**
- **Participating banks sign agreements specifying loan targets and conditions**
- **Banks conduct due diligence and process loans**
- **In case of loan default the guarantee covers a portion of the loss – the program may also include a “first loss reserve”**
- **Substantial technical assistance also provided to banks, project hosts and project developers (ESCOs)**



## ***IFC/GEF – Central & Eastern Europe***

**Successfully implemented the  
Commercializing Energy Efficiency Finance Program**



**IFC/GEF guaranteed 50% of the loss due to loan defaults**

- **Provided \$49.5 million in partial risk guarantees (PRG)**
- **Default rate < 0.5%**
- **Demonstrated low risk & high return of EE projects**
- **Increased bank financing of EE projects**
- **High leveraging of IFC/GEF funds achieved – Investment > \$200 M**
- **IFC program being replicated in Vietnam and Philippines**
- **India's Bureau of Energy Efficiency is launching a PRGF program**

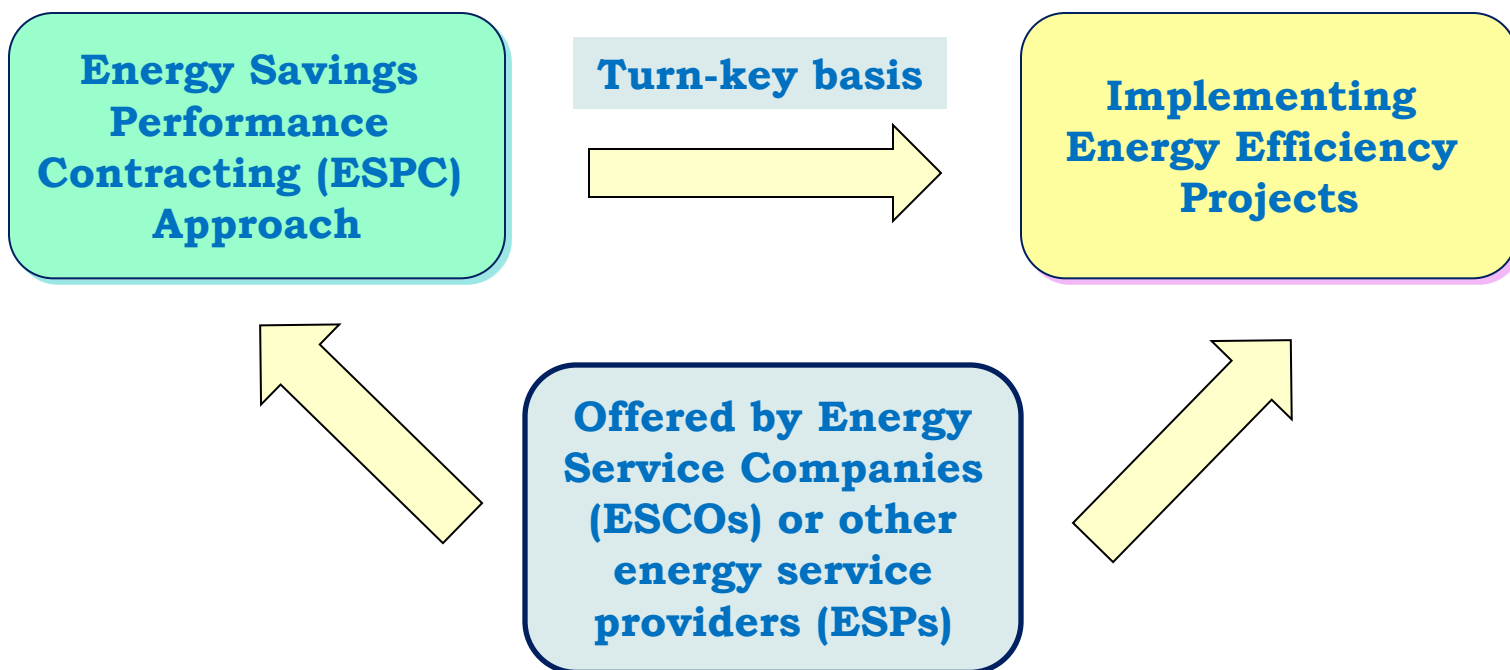


# ***Leveraging Commercial Finance through Performance Contracting***



# ***Energy Savings Performance Contracts***

---



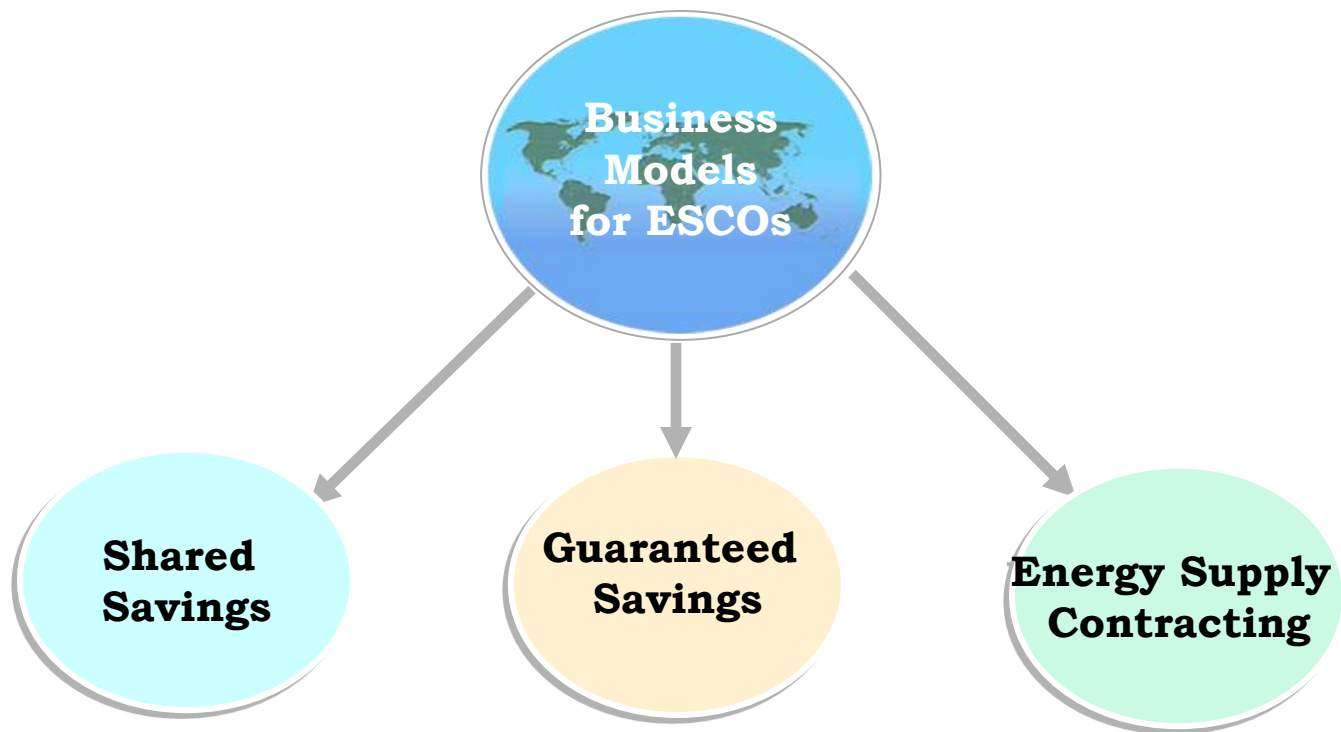
# ***ESPC Services***





## ***Common ESCO Business Models***

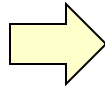
---





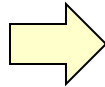
## ***ESCO Experience - Asia***

### **Thailand**



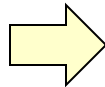
**ENCON fund promoted ESCO financing**  
**New ESCO Fund created for equity and project financing**

### **China**



**World Bank helped developed ESCOs**  
**Substantial growth of ESCO industry**  
**New initiatives by Chinese Government**

### **India**



**ESCO accreditation scheme**  
**Govt. and municipal ESCO programs**  
**Super ESCO (EESL) established for public sector projects**





# *Equity Funds*



## ***Role of Equity Funds***

---

- **Provide equity capital for commercializing of new or innovative EE technologies**
  - **Provide equity capital to ESCOs for project development and financing**
  - **Participate in EE projects as equity partners**
  - **Difficulties in implementation due to relatively high cost of due diligence**
  - **Private finance Assistance Network (PFAN) is actively pursuing EE equity financing**
-



## ***Examples of Equity Funds***

### **Private Sector Equity Funds:**

- **FE Clean Energy (invested in Lighting Company in India)**
- **Nadathur Fareast (invested in Cogeneration company in the Philippines)**
- **Milestone Holdings (investing in street lighting and district heating projects in China)**

### **Public Sector Equity Funds**

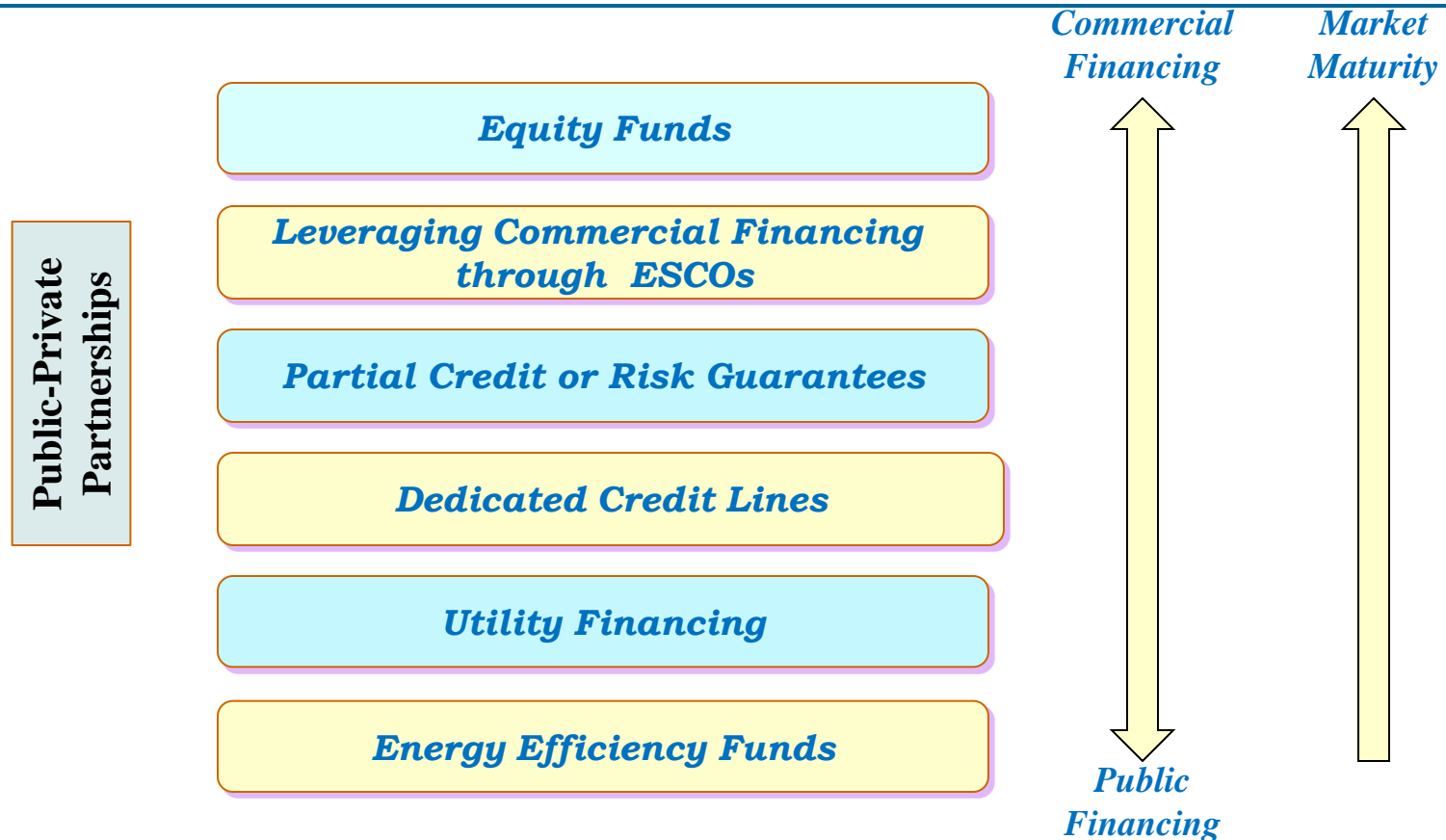
- **Thailand ESCO Fund**
- **India Venture Capital Fund for Energy Efficiency**

### **Potential for PPPs**



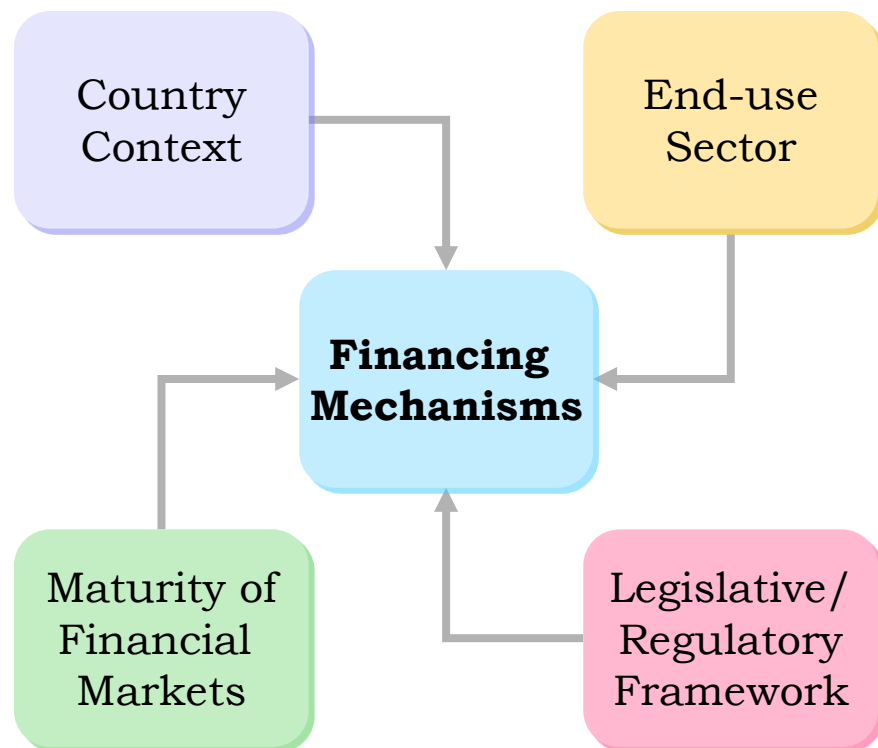
## ***Lessons Learned***

# Moving from Public to Commercial Financing





## *Designing the Financing Mechanisms*



- **Selection of mechanisms depends on local conditions**
- **Different mechanisms may be needed for different sectors**
- **Combinations of mechanisms may be more effective**
- **International experience provides useful information, but must be adapted to local conditions**



## *Questions for Discussion*

- **What are some of the successful financing mechanisms implemented in Asia?**
- **What can we learn from the experience of other countries?**
- **What are the main regulatory and policy instruments that need to be in place for these mechanisms to work?**
- **How can we encourage public-private partnerships in energy efficiency project financing?**
- **How can we best enhance the capacity of the financial institutions and the energy service providers?**
- **Where can we get additional information?**



***Thank you***

***Dilip R. Limaye  
SRC Global Inc.  
dlimaye@attglobal.net***