



Biomass in China Realizing the potential

Clean Energy Expo Asia

- Jerome Le Borgne
- November 2010

Why Biomass ?

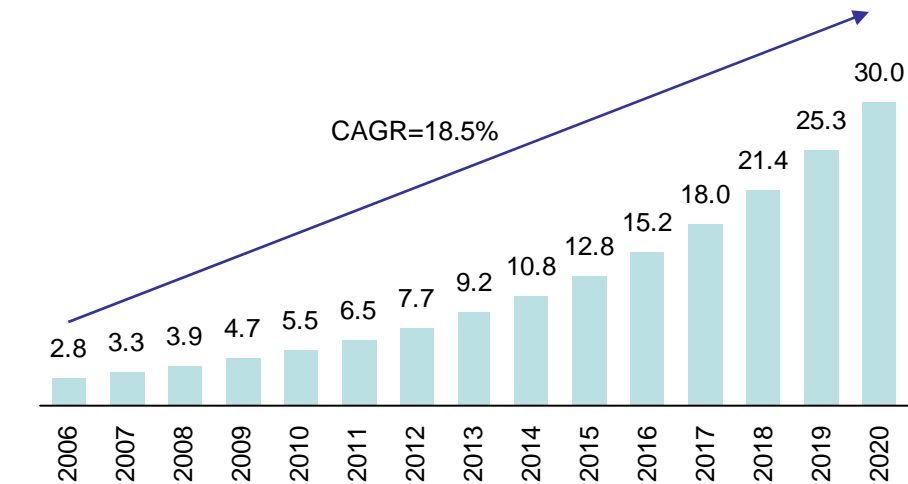
- Resource utilization; captures energy from the carbon cycle;
- Stable grid base load power;
- Distributed power;
- Strong social benefits – electrification in rural areas, redistribution of wealth.

The Chinese government Target

China

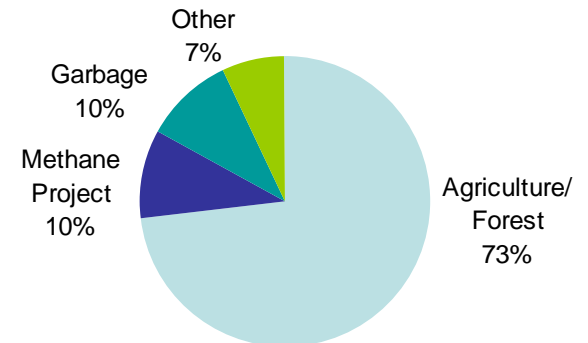
- Estimated 800,000,000 of biomass generated annually
- Assuming 30% utilization for power and heating, this equals to 30GM of power

Chinese Biomass Capacity Development Plan (GW)



Source: NDRC

Chinese Biomass Power Generation Mix Target in 2020



Source: NDRC

The Reality

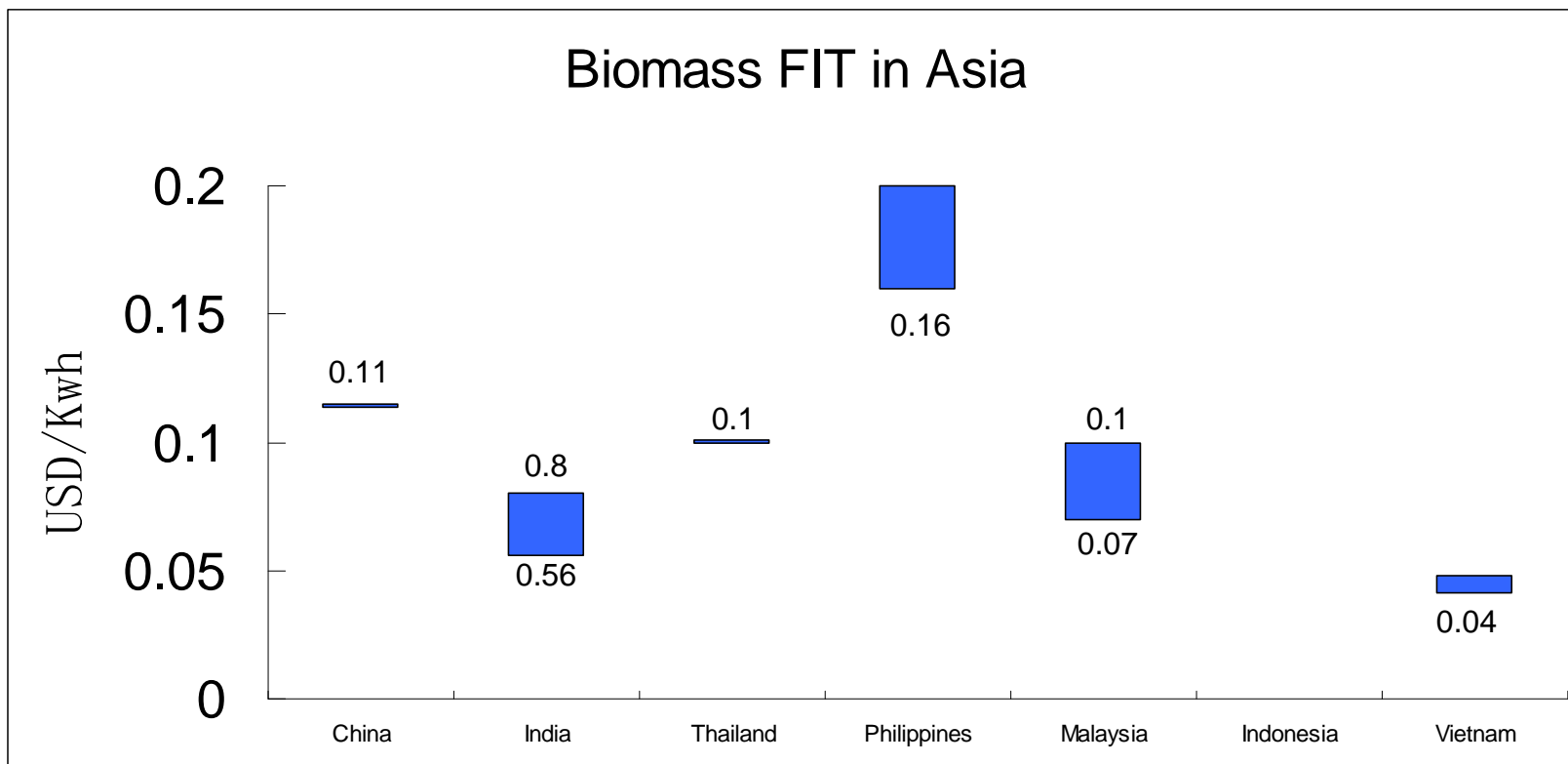
- Government Target 2009 = 3430MW
- Biomass Capacity in 2009 = 810 MWE (23% of Targets)

But

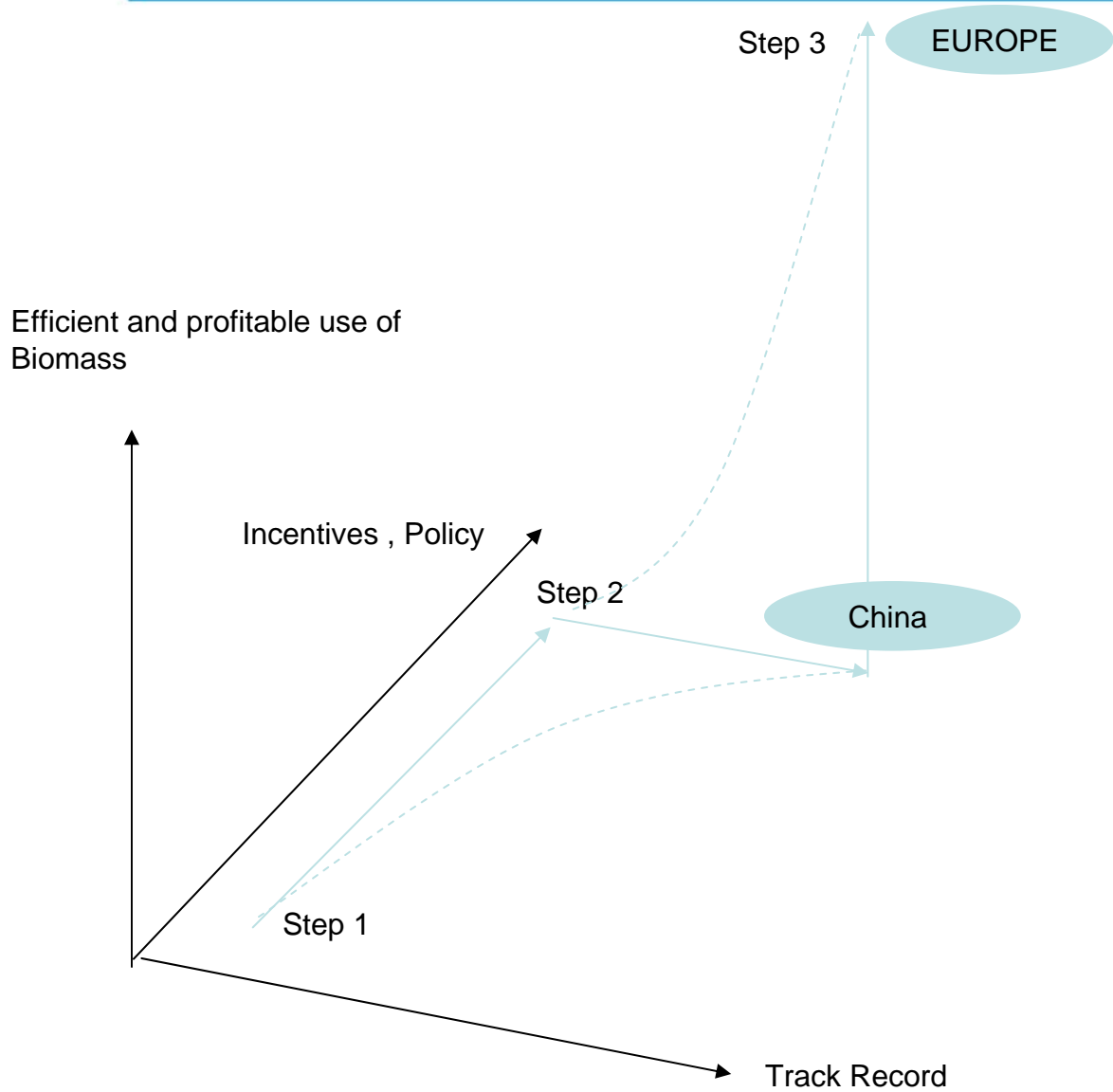
- China has built more power plant than anywhere else
- The Big 5 haven't really started yet
- Very active IPP

The new Chinese FIT for Biomass

The Chinese FIT is one of the best in ASIA



Biomass Initiatives in China



But There is still some Barrier

- Especially For Foreign investors
- Need to go through JV
- CDM requires Chinese partner to have majority stake
- Project Capitalization requirement
- need to develop big portfolio quickly

But there is still Challenges

- It all Starts with Fuel :
 - Un-industrialized Agriculture
 - Fuel Quality
 - Fuel Price
 - Availability
 - Control of the supply Chain
 - Fuel Logistics
- Biomass is not Coal
 - Need for the right technology for the right fuel
 - High efficiency
- Relentless focus on Capex
 - Impacting project Set Up (Packages vs EPC)
 - Contractor responsibility / Certainty of Delivery
- Execution skill of the management team
 - no industry expert
 - not enough people

National Bio-Energy – a case Study

- Technology – From Europe Leaders
- Due diligence – Walk first then run
- Accommodative government policy
- Accommodative financial policies
- Scale – leveraging the benefits
- Portfolio development result in de-risking – operationally and financially

THANK YOU

**Merci,
Terima Kasih
谢谢
ขอบคุณครับ
Dziekuje
Tak**