



Energy, Water & Waste

Asset Management & Asset Development

Financing Energy Projects

- Global Outlook
- Triple Bottom Line Framework to evaluate projects
- Dichotomy of “Emerging Markets” & “Socio-Economic Benefits”
- Investor, Government & Developer Perspectives & Challenges

Kiran Jethwa
Managing Partner

FUMASE: WHAT WE DO

Advisory:

Policies, Energy Mix,
Tariff, Due Diligence

Projects being developed:

Solar: Malaysia (40MW), Philippines (100MW),
India (100MW)

WasteToEnergy: Malaysia, India, Nepal,
Philippines



Technology Partners:

In all sectors

Development Fund:

Used to get projects to shovel
readiness

Construction Fund:

Used for project construction

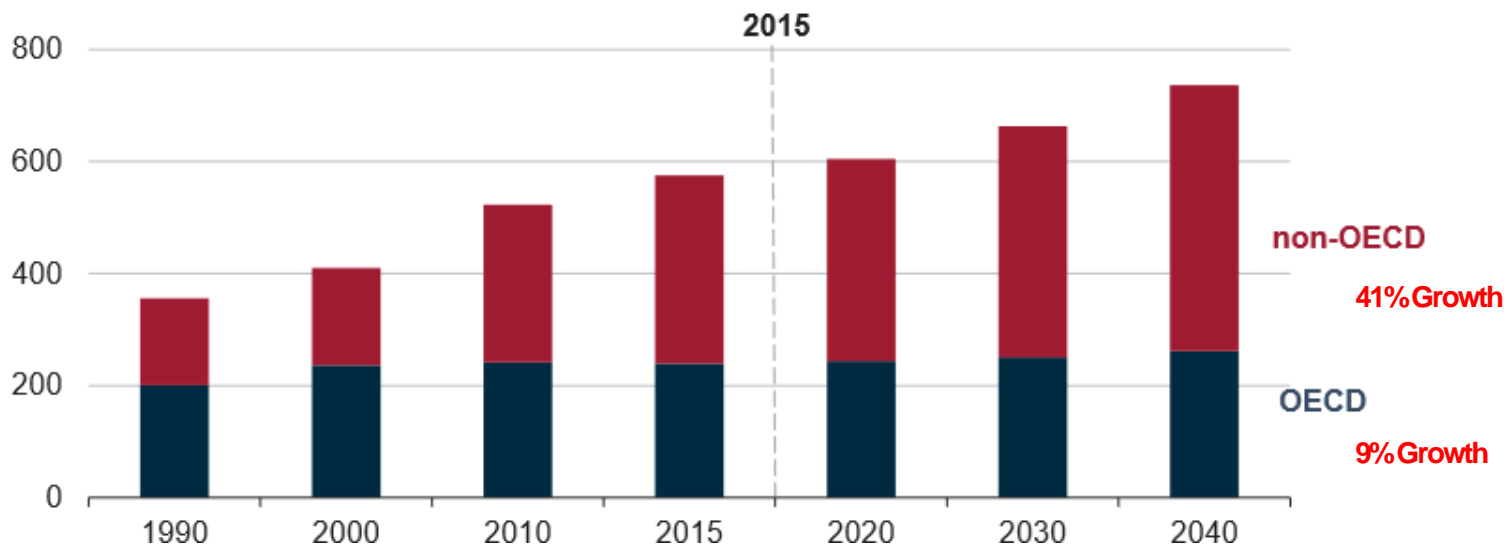
HOLISTIC APPROACH TO SUSTAINABLE, CLEAN & GREEN CITIES



Global Outlook - Electricity Demand

World energy consumption rises 28% between 2015 and 2040 in the Reference case—

World energy consumption
quadrillion Btu

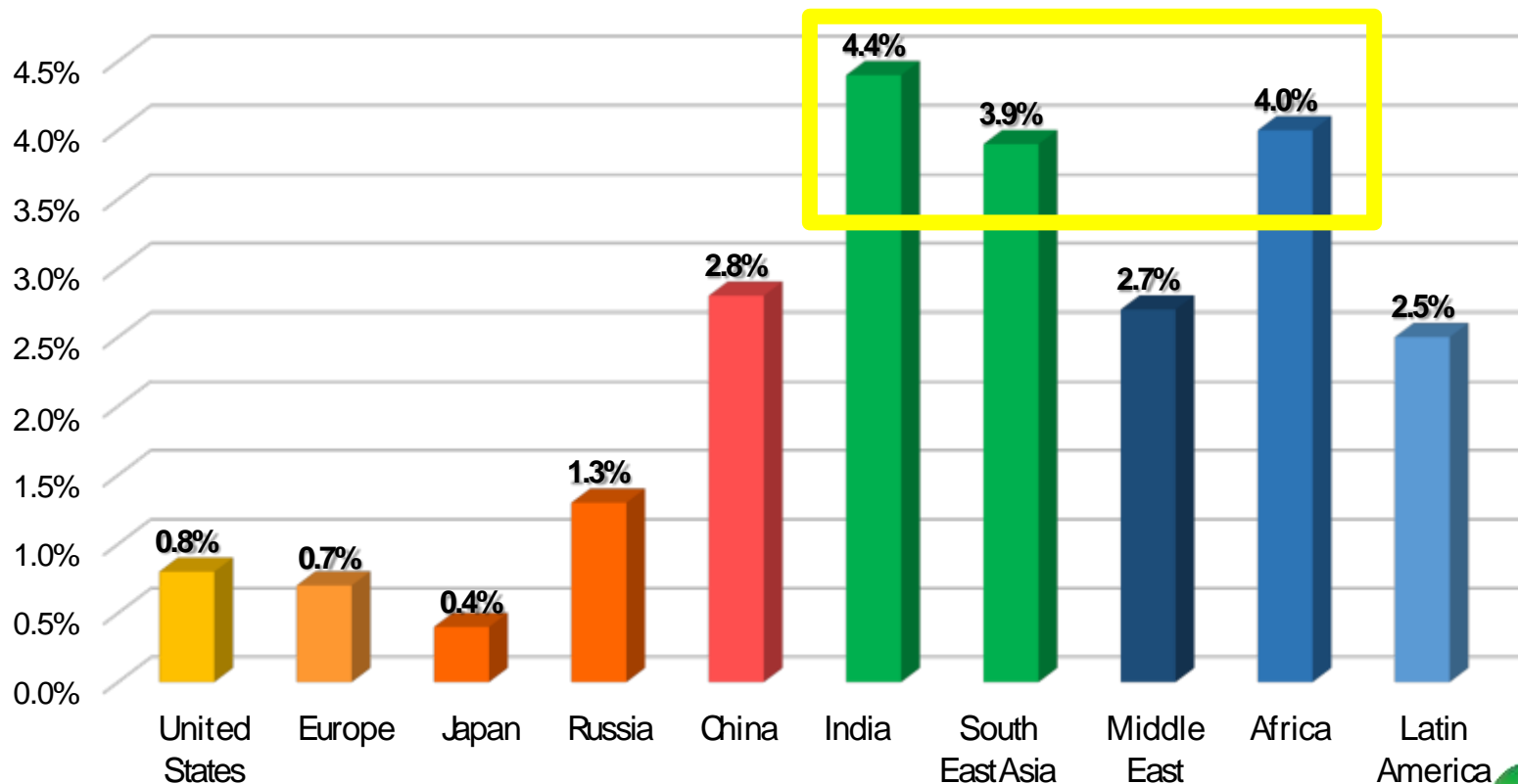


Strong economic growth, increased access to marketed energy, and quickly growing populations fuel non-OECD energy consumption

Source: US EIA International Energy Outlook, 2017

GLOBAL OUTLOOK - ELECTRICITY DEMAND

Electricity Demand by Region in the New Policies Scenario Compound Average Annual Growth Rate (CAAGR), 2012-2040



Source: IEA World Energy Outlook, 2014

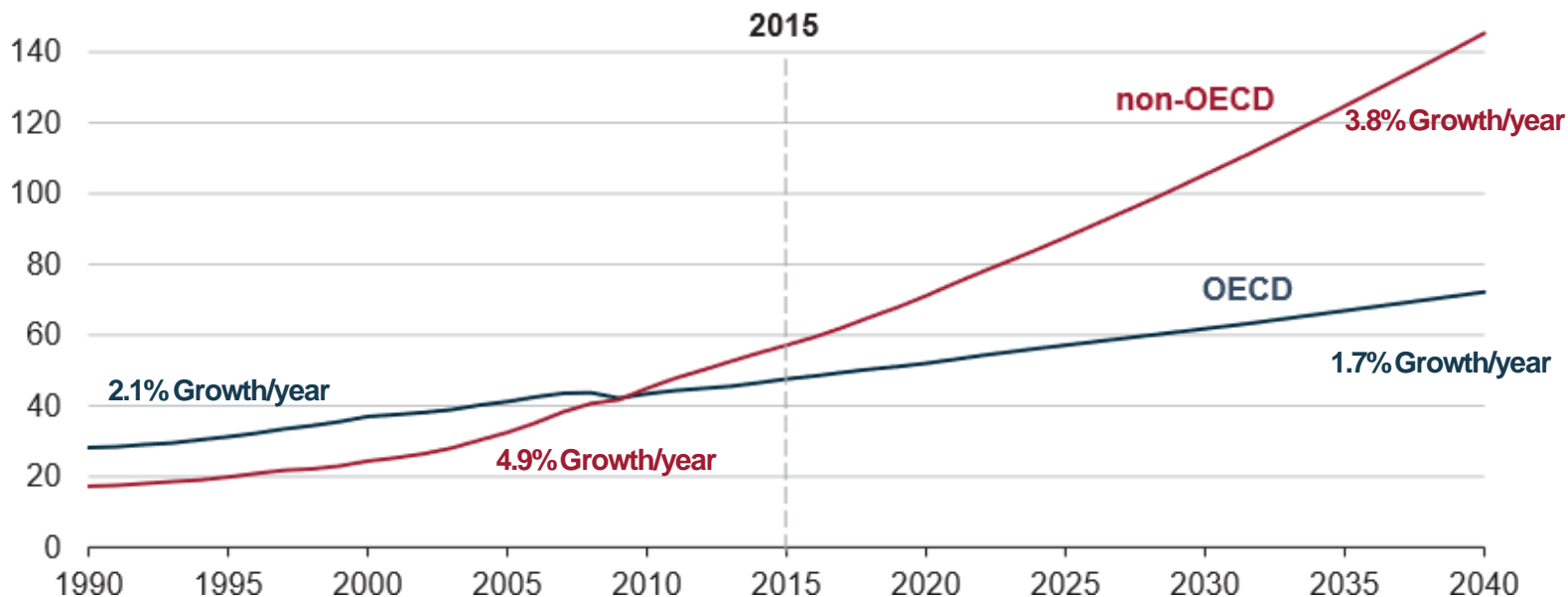


Global Outlook - Energy Demand

Economic growth is anticipated to be highest in non-OECD regions—

World gross domestic product

trillion 2010 dollars, purchasing power parity



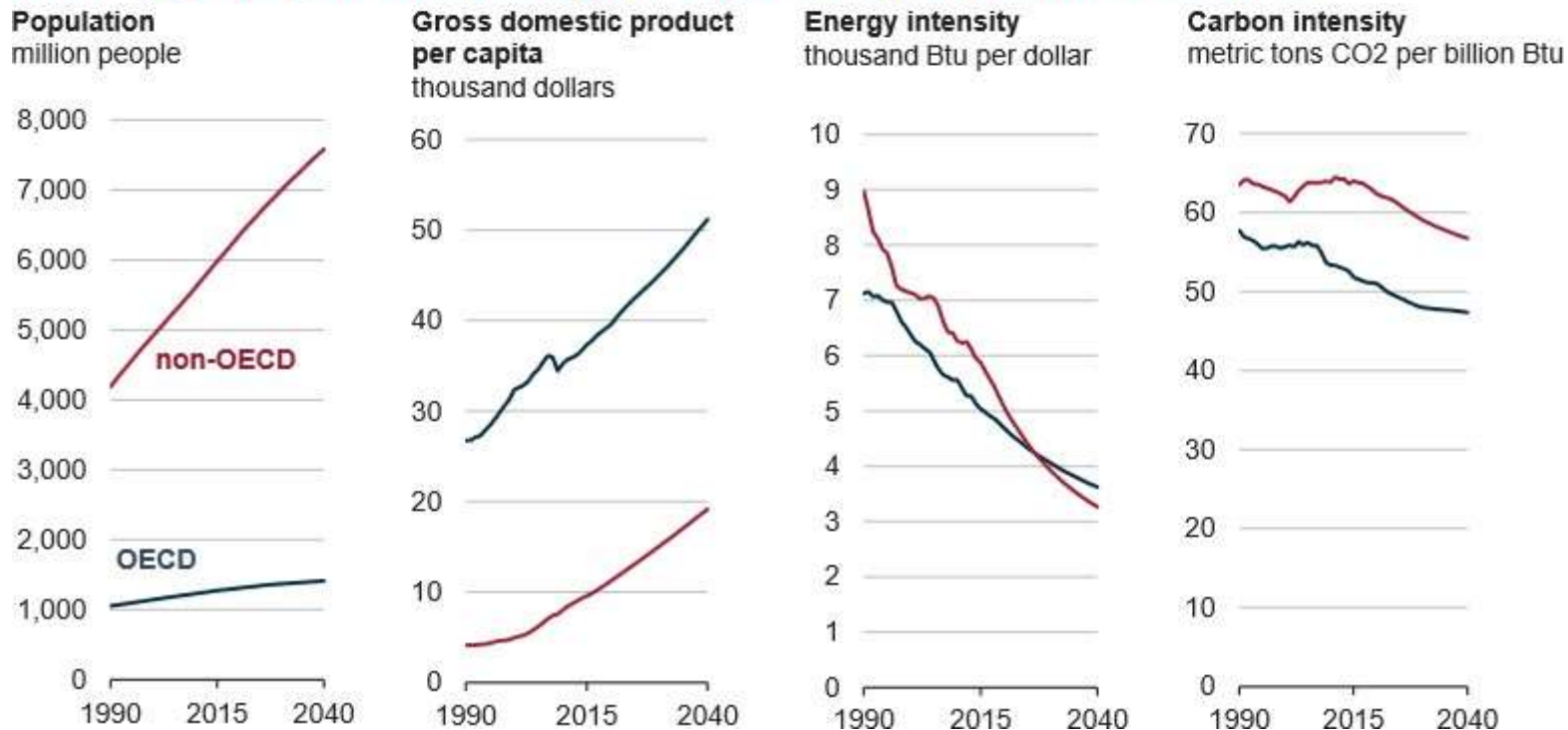
Source: US EIA International Energy Outlook, 2017

Power is the bloodline of every economy



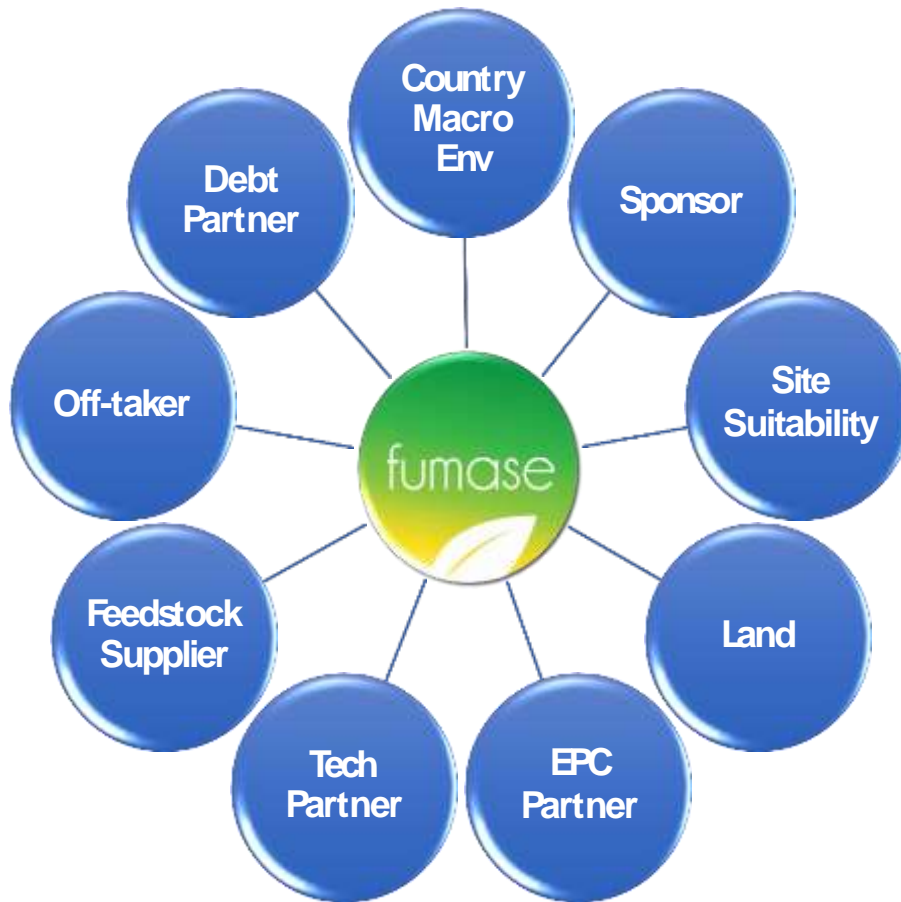
Global Outlook - Energy Demand

Although population and per capita output continue to rise—



Source: US EIA International Energy Outlook, 2017

TYPICAL PROJECT INVESTMENT PROCESS

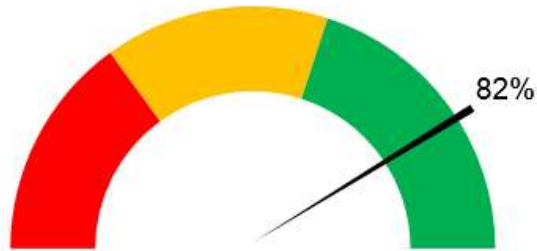


Risks

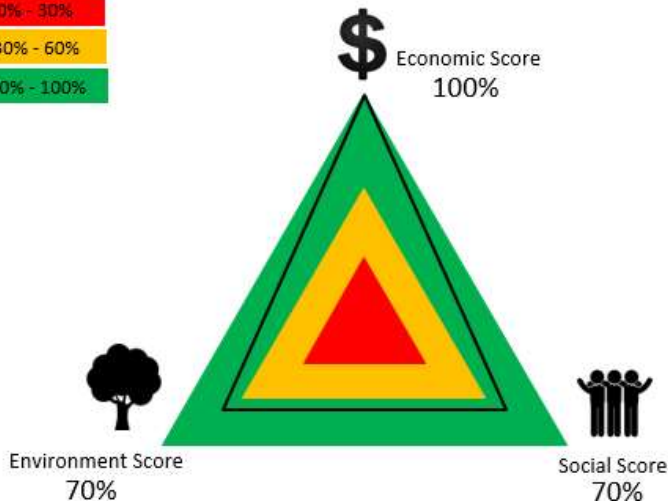
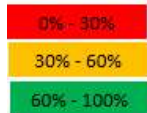
VS

✓ **Levered IRR**
✓ **ROE**
✓ **DSCR**

TRIPLE BOTTOM LINE (3BL)MODEL



Triple Bottom Line



Scoring Components

1. Economic Score

- Local Currency IRR
- DSCR
- Equity Payback
- Sensitivity to Commodity Pricing

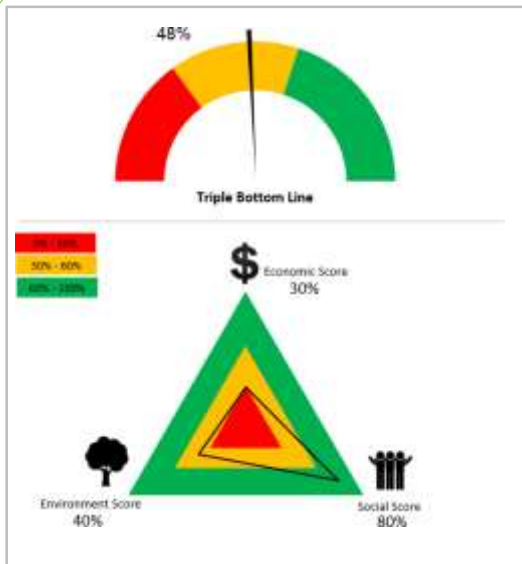
2. Social Score

- Health impact
- Permanent Jobs
- Local economy creation
- Improvement to standard of living

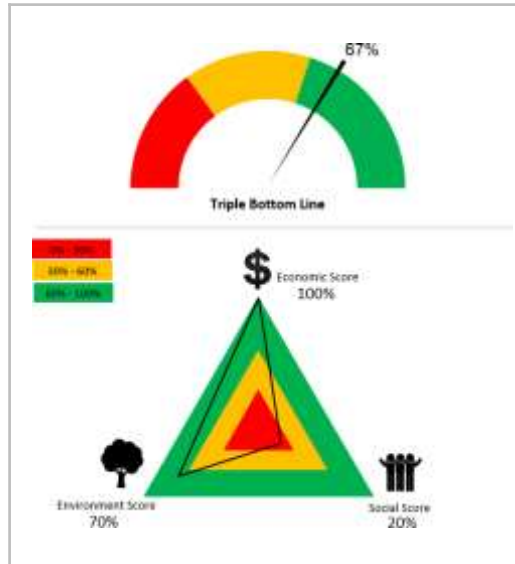
3. Environment Score

- GHG emissions
- Emissions EPA Standards
- Impact to land & water conditions
- Carbon Sink

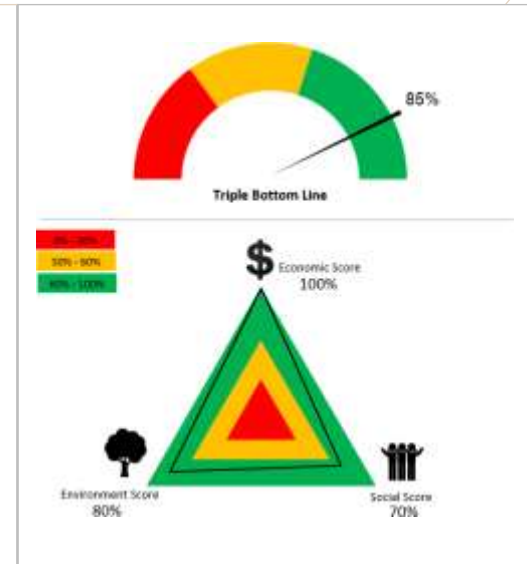
EXAMPLE: THERMAL VS SOLAR VS WTE



- LCOE, IRRs & equity payback affected
- Sensitive to commodity pricing
- Energy security
- Permanent jobs added
- Toxic industrial waste water



- High CAPEX, Low OPEX
- Predictable returns
- Low permanent jobs added
- Jobs created at EPC
- Very large single purpose usage of land



- Positive health impact
- Creates local economy
- Reduce landfill usage
- Positive impact on land & water conditions

Dichotomy of “Emerging Markets” & “Socio-Economic Benefits”

- **Emerging countries'** FIRST priority is Economy / GDP growth
- **Developed nations** have large economies built on years of pollution
- Should Emerging countries **follow foot steps** of developed nations?
 - *Telecommunication Industry: Land line vs Cellular networks*

Should Social & Environmental responsibilities be 2nd fiddle to economic growth?

Doesn't have to be

Past/ Present

- Coal is cheap, decades of experience
- Economy cannot exist without Fossil Fuel

Future

- Solar is cheaper
(IF emissions are important)
- Bhutan, Scotland, Denmark, JPMorgan, Rockefeller
- Energy Security vs Commodity Pricing

Social/Environmental benefits translate into
sustainable economic benefits



STAKEHOLDERS



Developers



Government: Economic Policies



Investors



INVESTORS: ENTERING EMERGING MARKETS

Challenges:

1. Emerging Market Risks
2. Due Diligence: Lack Understanding/Expertise
3. Collateral
4. Track Record
5. Developer Credit
6. Country Macro Risks

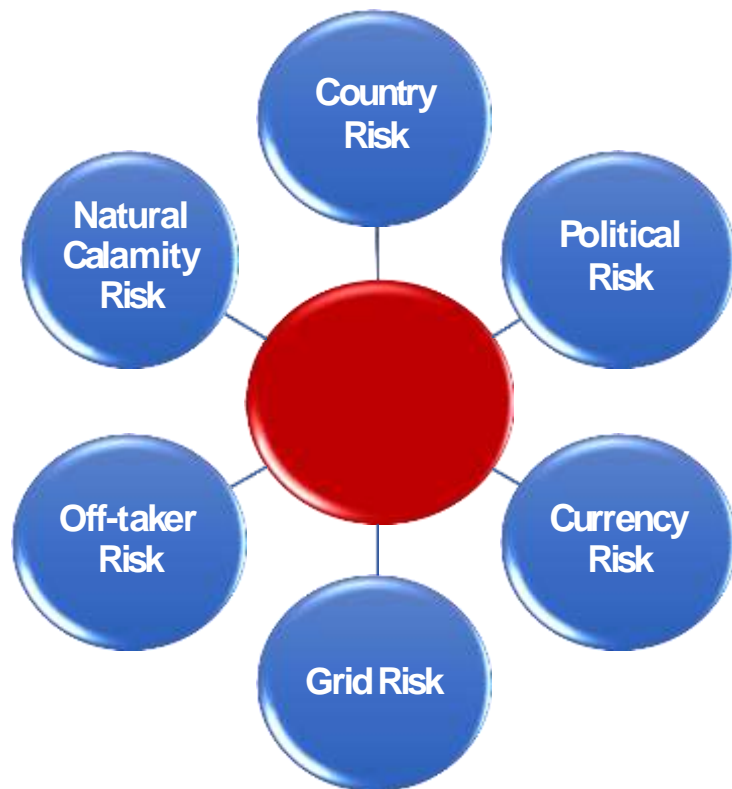
Our Strategy:

1. Project Finance (cash flow finance) vs Corporate Finance
2. IRRs, Interest rates
3. Business Model Innovation
4. Track record: EPC vs Developer
5. Coal-fired power plants = commodity risk, RE no commodity risk
6. Holistic Approach

Integrity vs Intelligence vs Zeal vs Connections



EMERGING MARKET RISKS: RISK PREMIUMS



**Premium added to
Return Expectations
for each of the Risks**

**Countries competing
for FDI**

INVESTORS : FINANCING OPTIONS

Types of Funding

1. Angel/F&F
2. Private Equity
3. Commercial Banks
4. DFIs
5. Pension Funds
6. Insurance Companies
7. Sovereign Wealth Funds
8. Green Bonds
9. YieldCos
10. Green Tech Financing

Nepal Local Funding

1. Commercial Banks
2. Insurance Companies:
 - Nepal Insurance Co Ltd
 - Nepal Life Insurance
 - Life Insurance Co Nepal (LIC)
 - Nepal Health Insurance
3. Social Health Security (SHS)
4. Pension Funds
 - EPF



GOVERNMENT : STRATEGIES FOR INCREASEING RE IN THE ENERGY MIX

Challenges:

1. RE Policies – FIT, Net Metering, Reverse Auction
2. Financing – Local vs FDI
3. Subsidized tariff rates
4. Demand vs Supply
5. Frail Grid
6. RE Intermittency
7. Profitability of Utilities
8. Country Macro Risks

Suggestions:

1. Net Metering not ideal for lower tariffs
2. Foreign ownership, FDI
3. USD denominated PPAs
4. Profit & Revenue Repatriation
5. Ease of doing business
6. Sovereign Guarantees
7. Transparency
8. Energy Storage
9. RE as baseload generation
10. Level the playing field – subsidies














GOVERNMENT: CHALLENGES FOR NEPAL

FRAGILE STATES INDEX 2017 – ANNUAL REPORT

© Sunday, 14 May 2017



BY J.J. MESSNER, NATE HAKEN, HANNAH BLYTH, CHRISTINA MURPHY, AMANDA QUINN, GEORGE LEHNER, DANIEL GANZ

ELEVATED WARNING	HIGH WARNING	ALERT	HIGH ALERT
 74.4 Maldives (=86) ▼	 80.3 Kyrgyz Rep. (=65) ▲	 90.5 Timor-Leste (35) ▲	 101.1 Ethiopia (15) ▼
 74.4 Turkmenistan (=86) ▲	 80.3 Tanzania (=65) ▲	 90.8 Rwanda (34) ▲	 101.6 Nigeria (=13) ▲
 74.7 China (85) ▲	 80.8 Turkey (64) ▼	 91.0 Nepal (33) ▲	 101.6 Zimbabwe (=13) ▼
 74.9 Morocco (84) ▼	 81.5 Uzbekistan (63) ▲	 91.1 Angola (32) ▼	 102.4 Guinea (12) ▲
 76.0 Bhutan (83) ▲	 81.7 Lesotho (62) ▼	 92.9 Mali (31) ▲	 105.3 Haiti (11) ▼
 76.2 Thailand (82) ▲	 81.8 Tajikistan (61) ▲	 93.3 North Korea (30) ▲	 105.4 Iraq (10) ▼



GOVERNMENT: CHALLENGES FOR NEPAL

S&P Global Ratings

ACTIONS & CRITERIA

REGULATORY

RATINGS ACTIONS

PRESS RELEASES

India (Republic of)

Issuer Credit Rating	
Rating Type	Rating
Local Currency LT	BBB- Regulatory Disclosures
Local Currency ST	A-3 Regulatory Disclosures
Foreign Currency LT	BBB- Regulatory Disclosures
Foreign Currency ST	A-3 Regulatory Disclosures

Transfer & Convertibility Assessment	
Rating Type	Rating
T&C Assess	BBB+ Regulatory Disclosures

View Ratings Definitions

S&P Global Ratings

ACTIONS & CRITERIA

REGULATORY

RATINGS ACTIONS

PRESS RELEASES

Bangladesh (People's Republic of)

Issuer Credit Rating	
Rating Type	Rating
Local Currency LT	BBB- Regulatory Disclosures
Local Currency ST	B Regulatory Disclosures
Foreign Currency LT	BBB- Regulatory Disclosures
Foreign Currency ST	B Regulatory Disclosures

Transfer & Convertibility Assessment	
Rating Type	Rating
T&C Assess	BBB- Regulatory Disclosures

View Ratings Definitions

S&P Global Ratings

ACTIONS & CRITERIA

REGULATORY

RATINGS ACTIONS

PRESS RELEASES

Nigeria (Federal Republic of)

Issuer Credit Rating	
Rating Type	Rating
Local Currency LT	B Regulatory Disclosures
Local Currency ST	B Regulatory Disclosures
Foreign Currency LT	B Regulatory Disclosures
Foreign Currency ST	B Regulatory Disclosures
Nigeria National Scale LT	ngBBB Regulatory Disclosures
Nigeria National Scale ST	ngA-2 Regulatory Disclosures

Transfer & Convertibility Assessment	
Rating Type	Rating
T&C Assess	B Regulatory Disclosures

View Ratings Definitions

Debt Types

S&P Global Ratings

ACTIONS & CRITERIA

REGULATORY

Search Results

No results found for "Nepal"

Please check your spelling or try a different search term

Moody's

Find ratings, research, analysts and more

Research & Ratings

Products & Solutions

News & Events



DEVELOPERS : STRATEGIES FOR IMPROVING BANKABILITY

Challenges:

1. Financing
2. Land Acquisition
3. Feedstock Security
4. Soft costs
5. Inexperience
6. Legal System
7. Ease of Doing Business

Suggestions:

1. Local expertise vs Industry/development expertise
2. Track Record vs EPC Expertise
3. Multiple revenue streams
4. Contracts, Permits & Agreements
5. Risk Mitigation
6. Professionalism, Ethics & Transparency
7. Sense of Urgency

Integrity vs Intelligence vs Zeal vs Connections No

Get Rich Quick Schemes



This planet is not inherited from our parents

The planet is borrowed from our children



FUMASE, LLC


Kiran Jethwa

+1 (650) 465-7411 (USA)

+6 (011) 2028-2382 (Malaysia)

+91 (706) 579 7730 (India)

kiran@fumase.com

 [kjethwa](https://twitter.com/kjethwa)

©Nepal Power Investment Summit 2018 www.fumase.com