# Recent trends in financing of energy projects in ASEAN

## 2004 Cogeneration Week in the Philippines

**21-22 June 2004, Mandarin Oriental Hotel, Manila**
**24 June 2004, Queen Jennifer Hotel, Isabela**

**Alan Dale Gonzales**
**COGEN 3 Chief Business Adviser**


...HOW DOES THAT WORK?
ZERO INTEREST LOANS
EASY. I HAVE NO INTEREST IN MAKING LOANS.
ZERO INTEREST LOANS
9.16
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# EXISTING FINANCING SCHEMES (1)

| System | Scope | Financing options/Schemes |
|---|---|---|
| Small-scale/Non-grid | • Solar home systems<br>• Small wind power systems & hybrid solar/wind/diesel systems that have no associated distribution network<br>• Pico- and micro-hydropower<br>• All energy system with capacity less than 1 MW<br>• Small EE projects | Should develop innovative financial mechanisms; seek assistance for capacity building.<br>• Self-financing<br>• On-balance sheet<br>• Micro-credit<br>• Grant/subsidy<br>• RESCO/ESCO<br>• Leasing<br>• First-cost subsidies & lower import duties<br>• Mortgage financing<br>• Vendor credit<br>• Dealer credit<br>• Financial bundling |

# EXISTING FINANCING SCHEMES (2)

| System | Scope | Financing options/Schemes |
|---|---|---|
| Medium-scale/Isolated-grid/Grid-connected | • Mini-hydropower<br>• Biomass gasifiers & cogeneration systems<br>• Wind/diesel/solar hybrids & other medium-scale energy systems in the range of 1-15 MW<br>• Larger EE projects | Should use innovative financing mechanisms, while exploiting the benefits of financing schemes applied to conventional energy.<br>• On-balance sheet<br>• Equity financing<br>• Venture capital<br>• Project finance (ltd. recourse)<br>• Corporate guarantee<br>• Grant/subsidy<br>• RESCO/ESCO<br>• Leasing<br>• Vendor credit<br>• Targeted project credit<br>• Financial bundling |

# EXISTING FINANCING SCHEMES (3)

| System | Scope | Financing options/Schemes |
|---|---|---|
| Large-scale/Grid-connected | • All energy systems with capacity greater than 15 MW | Should operate within the same financing rules applied to conventional energy projects.<br>• Project finance (limited/non-recourse)<br>• Venture capital<br>• Multilateral lending<br>• ECAs<br>• Political risk guarantee<br>• Bonds issuance<br>• Refinancing |

➢ *Despite the existence of the foregoing mechanisms, there is still a dearth of examples of projects that have been financed in a more sustainable way, i.e., on a purely commercial basis without full recourse to the sponsors.*

# OVERVIEW OF FINANCING TRENDS

## Corporate loan or On-balance-sheet financing

Structure:

- Project sponsor takes out the loan to finance the project
- Loan is reflected on the balance sheet of the sponsor

Conditions/Security arrangement:

- Acceptable D/E ratio
- Collateral/guarantee to cover the amount of the loan

Documentation:

- Documents related to the creditworthiness of the sponsor

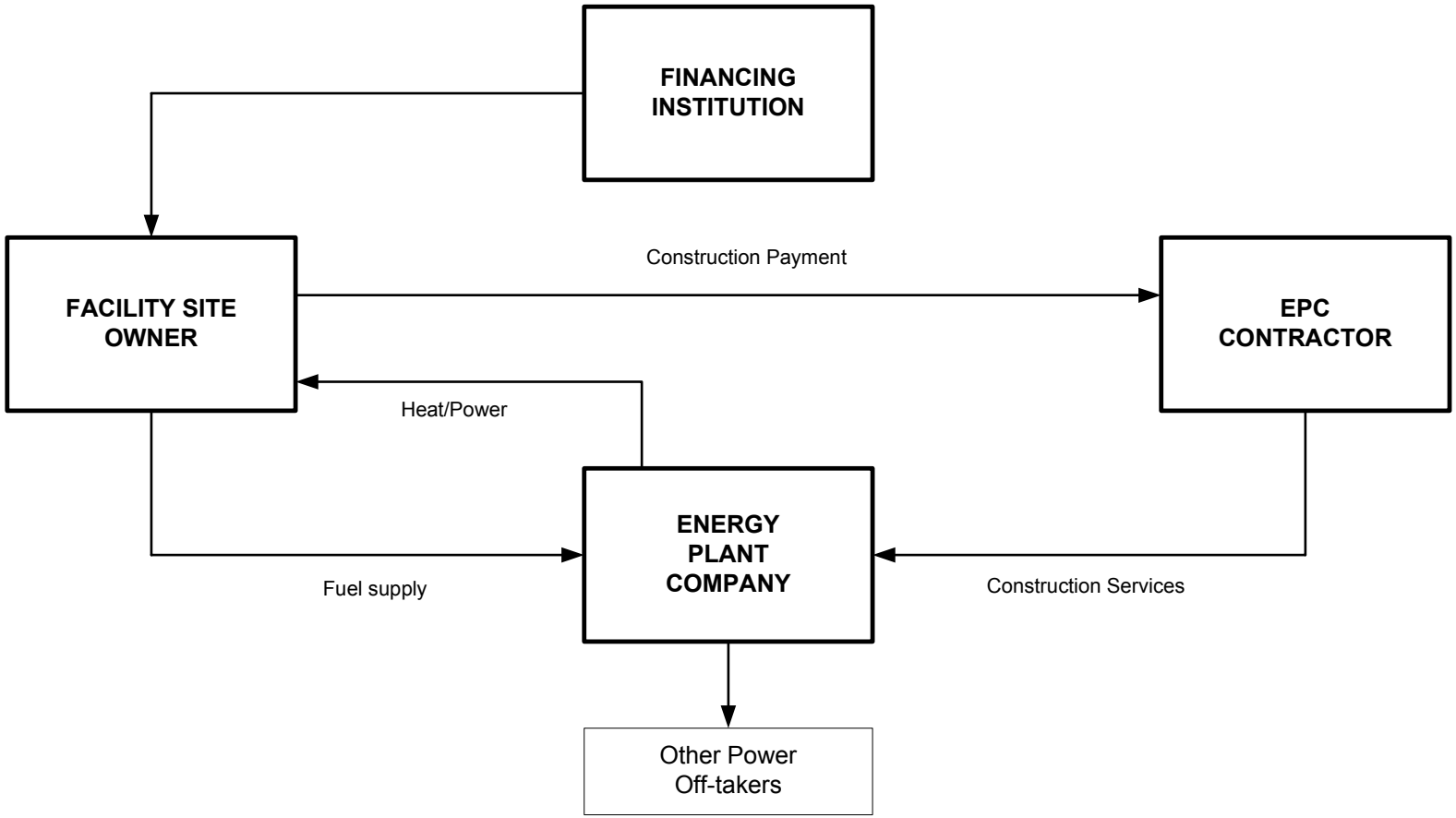
Advantages:

- Can be arranged quickly if conditions are met
- Simple documentation and security arrangements

Disadvantages:

- Risks are mainly carried by the sponsors
- Loan increases the debt burden on the balance sheet of the sponsors
- Likely to be used only by strong corporate sponsors
- Repayment periods are not long (normally < 10 yrs)

# On-Balance-Sheet Financing Model
## Facility Owner-Operated and Financed



# OVERVIEW OF FINANCING TRENDS

## Project finance

Structure:

- Special purpose company takes out the loan to finance the project
- The source of debt service (interest & principal) is primarily the cash flow from the project
- Lending entity has no or limited recourse to the sponsors

Conditions/Security arrangement:

- Acceptable D/E ratio
- Assets pledged as security to the bank
- Assignment of contracts to the bank (PPA, SSA, etc.)
- Covenants related to shareholding structure, issuance of dividends, additional loan
- Accounts pledged to the lenders
- Construction guarantee
- Partial to full guarantee

# OVERVIEW OF FINANCING TRENDS

## Project finance (cont.)

Documentation:

- Information memorandum
- Contracts (PPA, SSA, EPC, FSA, EIA)

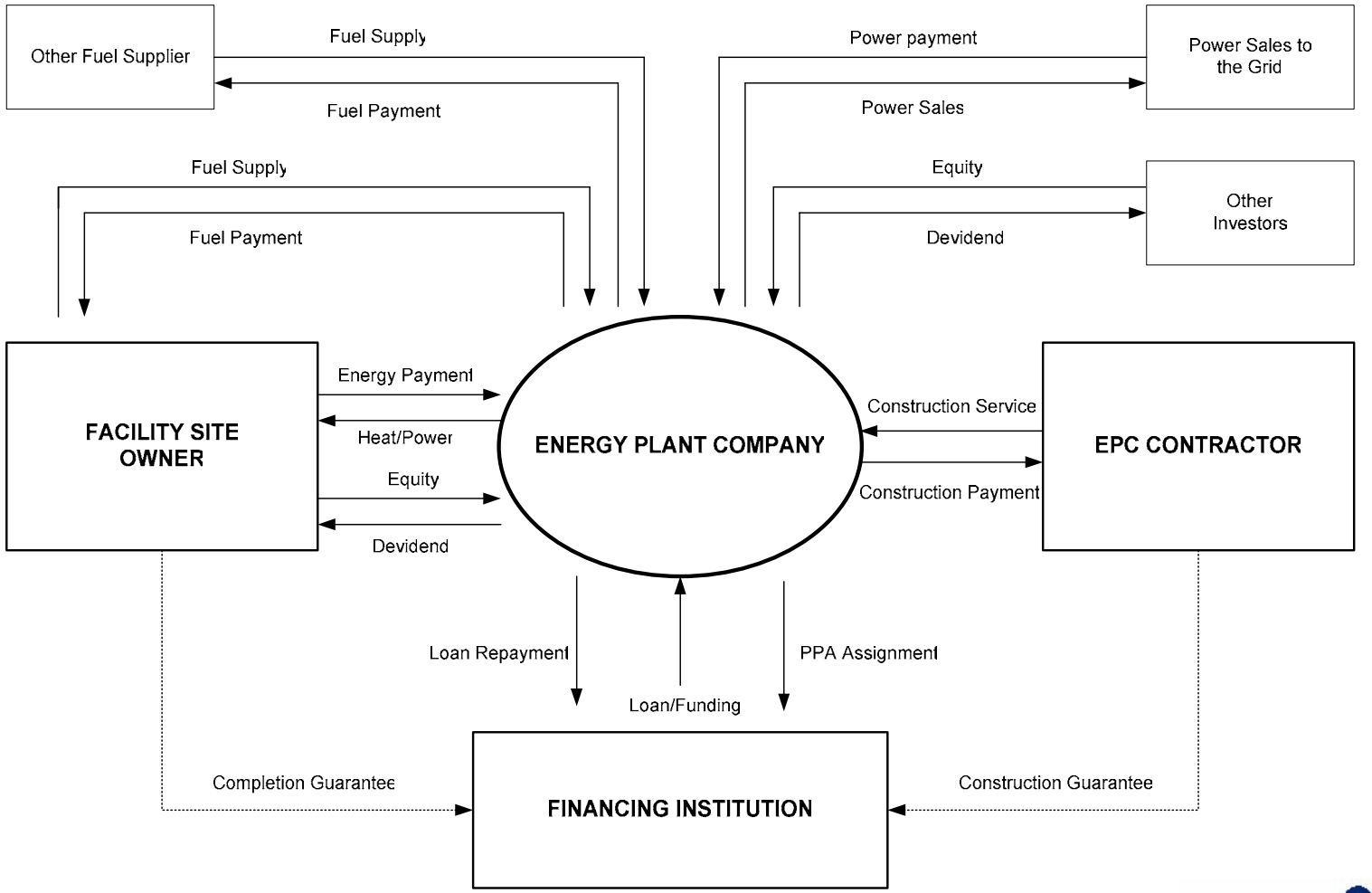
Advantages:

- Minimum risk carried by the sponsors
- Loan does not appear on the balance sheet of the sponsor
- Long maturity of loan possible to achieve

Disadvantages:

- May take longer time to reach financial close
- Involves complex legal documentation and contractual arrangements
- Strict requirements for due diligence as well as legal and technical assessments
- High compliance for administration & reporting requirements

# Project Finance Model
## Financing Directly to Project



# CASE STUDIES

## Case study 1: *53 MWe Bagasse-Fired Cogeneration Project*

Owner/developer: Dan Chang Bio-Energy Co., Ltd.
Project type: Bagasse-fuelled energy plant
Location: Dan Chang, Suphanburi, Thailand
Description: Dan Chang Bio-Energy is a special purpose company set up to implement this cogeneration project. The plant is located adjacent to a sugar mill which will supply bagasse as fuel. The electricity generated from the project will be sold to the sugar mill and the excess power to the Electricity Generating Authority of Thailand (EGAT). The project consists of new equipment (41 MW) & old transferred from the sugar mill.
Power Purchase Agreement: "Firm" contract, 21 years
Tariff: 1) energy payment, indexed to natural gas price
2) capacity charge, indexed to Dollar exchange rate
Incentives: BOI privileges, EPPO subsidy
Commercial operation date: May 2004

# CASE STUDIES

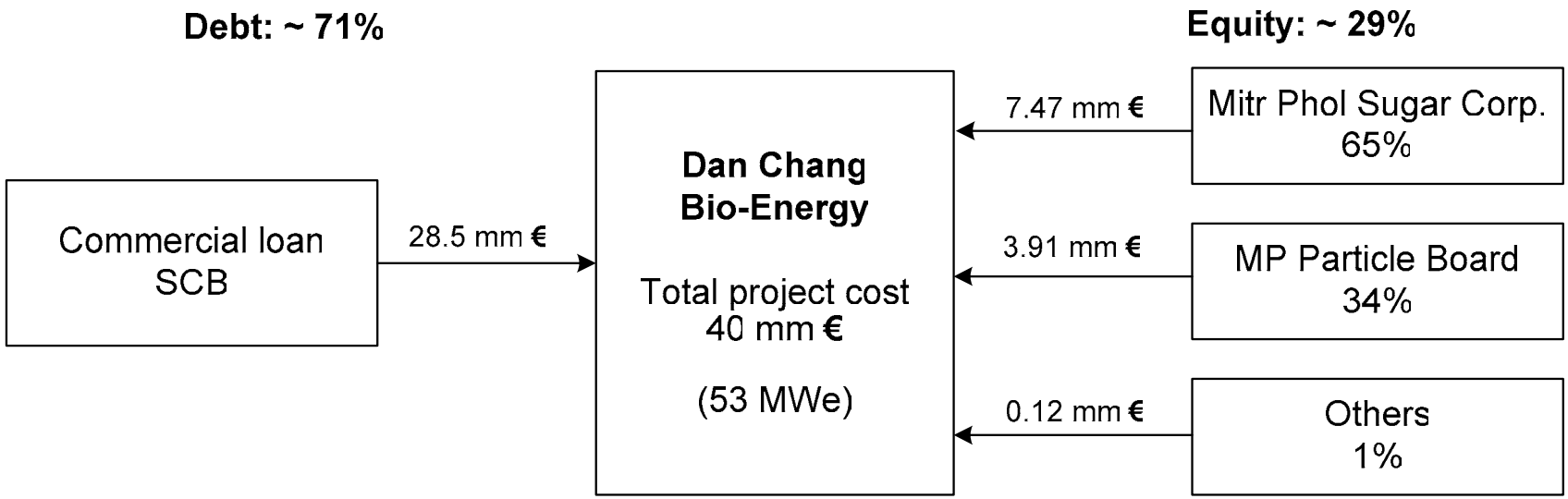
## Case study 1: *53 MWe Bagasse-Fired Cogeneration Project*

Total project cost: THB 2,170 million
Shareholders' equity: ~29 % = THB 620 million
Loan: ~71 % = THB 1,550 million
Financing institution: Siam Commercial Bank
Interest rate: MLR before operation, Fixed for 1st yr, MLR-1.00% afterwards
Maturity: 11 years (including grace period)
Grace period: 2 years
Security arrangements:

- Mortgage of all land, building and equipment to the bank
- Assignment of PPA (DC vs. EGAT)
- Assignment of Utilities Supply Agreement (DC vs. MP)
- Corporate guarantee for the whole portion of the loan (to be released when listed in SET)
- All risk insurance for equipment & all assets in the name of the bank

# CASE STUDIES

## Financing structure of Dan Chang Bio-Energy Co. Ltd.



# CASE STUDIES

## Case study 2: *65 MWe Bagasse-Fired Cogeneration Project*

Owner/developer: Phu Khieu Bio-Energy Co., Ltd.
Project type: Bagasse-fuelled energy plant
Location: Phu Khieu, Chaiyapoom, Thailand
Description: Phu Khieu Bio-energy, a special purpose company, owns a 65 MW cogeneration project consisting of 41 MW new equipment and 24 MW existing equipment from the sugar mill. The plant is a state-of-the-art high pressure system implemented to supply power and steam to the adjacent sugar mill, which in turn will supply bagasse as fuel. The excess power will be sold to the Electricity Generating Authority of Thailand (EGAT).
Power Purchase Agreement: "Firm" contract, 21 years
Tariff: 1) energy payment, indexed to natural gas price
2) capacity charge, indexed to Dollar exchange rate
Incentives: BOI privileges
Commercial operation date: June 2004

# CASE STUDIES

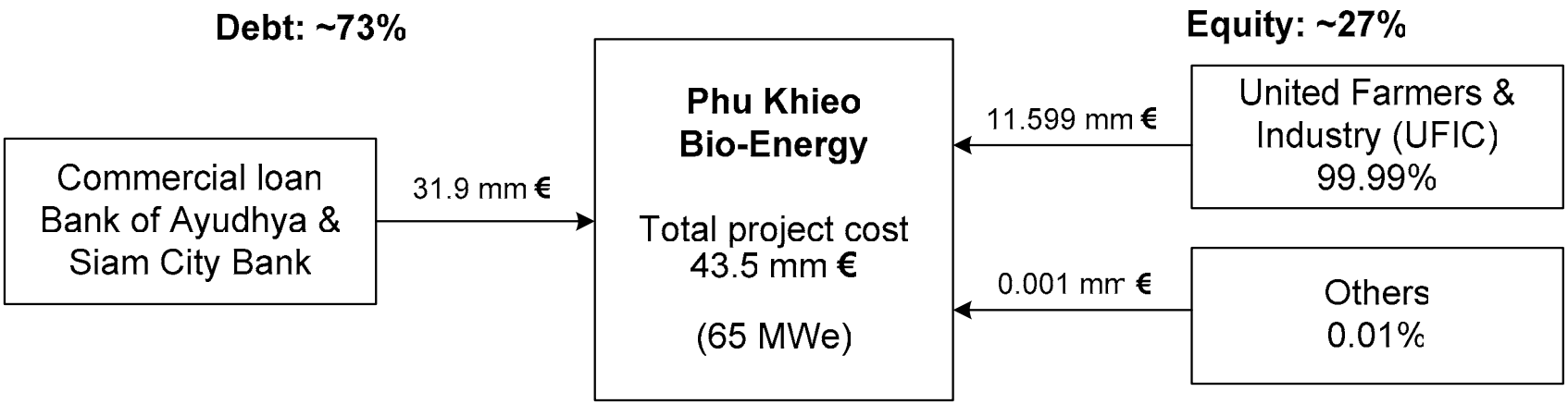
## Case study 2: *65 MWe Bagasse-Fired Cogeneration Project*

Total project cost: THB 2.175 million
Shareholders' equity: ~27 % = THB 580 million
Loan: ~73 % = THB 1,595 million
Financing institution: Syndicated Loan from Bank of Ayudhya and Siam City Bank
Interest rate: Fixed for 1st 3 yrs, MLR – 0.5% afterwards
Maturity: 11 years (including grace period)
Grace period: 2 years
Security arrangements:

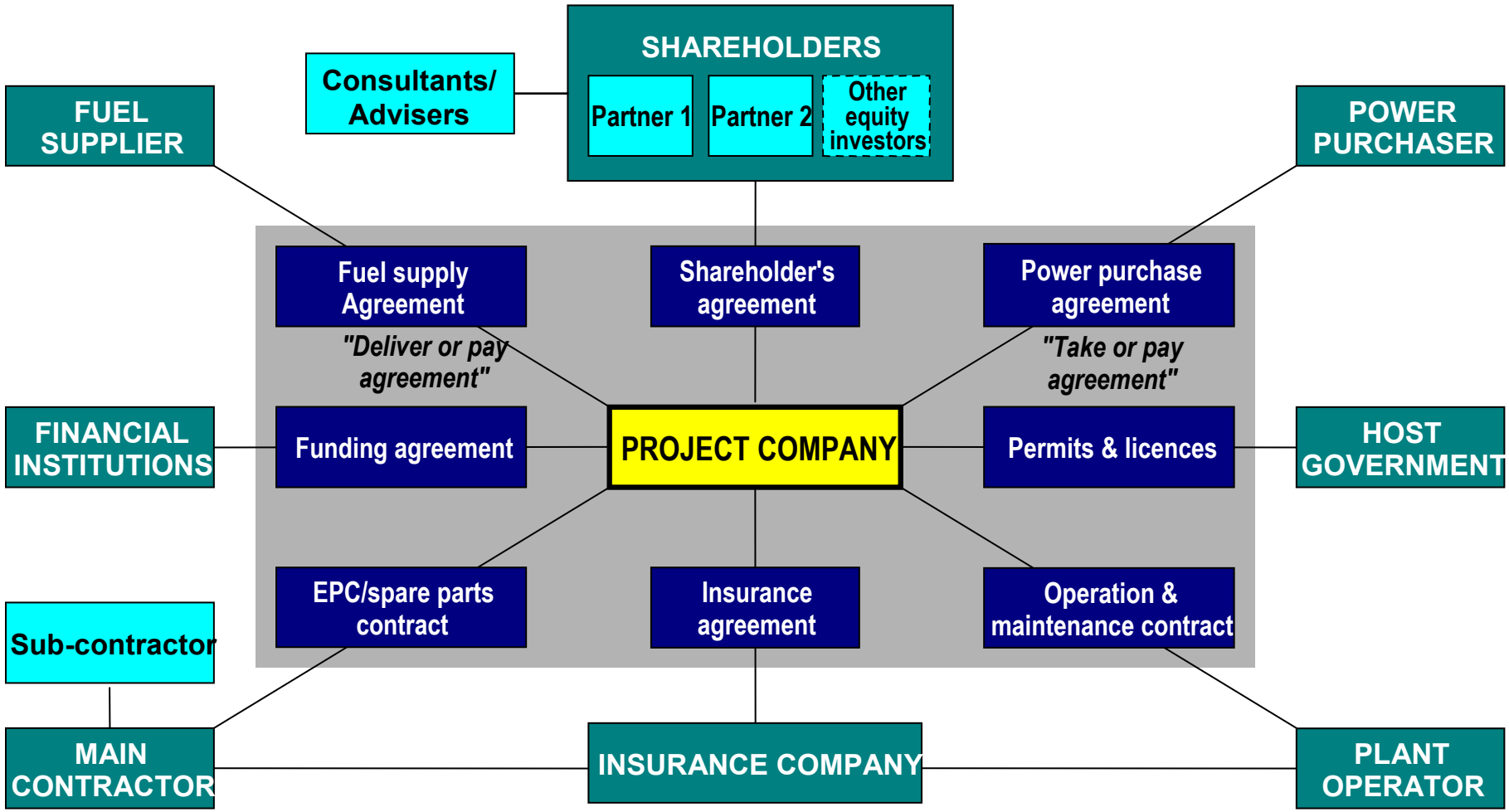
- Mortgage of all land, building and equipment to the bank
- Assignment of PPA (PK vs. EGAT)
- Assignment of Utilities Supply Agreement (PK vs. MP)
- Corporate guarantee for the whole portion of the loan (to be released when the above arrangements are fulfilled)
- All risk insurance for equipment & all assets in the name of the bank.

# CASE STUDIES

## Financing structure of Phu Khieo Bio-Energy Co. Ltd.



# STAKEHOLDERS



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# Thank You !