IFNEC FINANCE WORKSHOP

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• TVO in general

• Financing of commercial nuclear investments
  • risk allocation?
  • financing model?

• TVO’s financing model
TEOLLISUUDEN VOIMA OYJ (TVO) IN A NUTSHELL

Company
• Electricity generator owned mainly by leading Finnish utility companies
• Sells electricity to its shareholders at cost
• Produced 16% of electricity consumed in Finland in 2011

Existing Nuclear Power Plant Units (Olkiluoto 1 and 2)
• 2 x 880 MW, BWR, Westinghouse Atom
• Among the world’s best in terms of availability and stability

Nuclear Power Plant Unit (OL3) under construction
• 1 x 1,600 MW, PWR, under construction by Areva-Siemens consortium
• According to turnkey plant supplier, commercial operation is expected to start in 2014

OL4 under planning

Coal Condensing Power Plant Unit (Meri-Pori)
• 257 MW stake in 565 MW coal condensing unit

Posiva, a joint venture company with TVO (60%) and Fortum (40%)
• responsible for the final disposal of spent fuel and nuclear waste
TVO’S UNDERLYING OWNERS
(ABOUT 60 OFF-TAKERS)

- Industry: 44%
- Municip.: 30%
- Fortum: 26%
RISK ALLOCATION

- Risk/return profile for equity and debt investors
- Pure debt holders do not generally like risks
- However, there are financial instruments between debt and equity that may change risk/return profile
- Who is best positioned to carry various risks?
- Who will get the benefits?
- How are risks shared in construction phase vs. operational phase?
FINANCING CONCERNS REGARDING NUCLEAR INVESTMENTS IN GENERAL

Political risks
• what if political climate changes?

Licensing procedure
• how transparent is the licensing procedure?

Nuclear waste management
• is there a political and technical solution?
• how viable is the funding plan?

Project economics
• commercial viability?

Construction and completion risks
• who will cover the completion risk?

Technology
• proven technology?

Insurances
WHICH FINANCING MODEL TO CHOOSE?

Base analysis
- country/case specific?
- infrastructure/commercial investment?
- risk/return sharing?

Corporate model
- large corporates using their balance sheet

Project Finance
- "Independent Power Project"

Co-operative model
- for example Finnish TVO, US Co-Op's
**TVO’S OPERATING PRINCIPLE**

- **Debt holders**: market rate

- **TVO**
  - Power at cost base

- **Shareholders (6)**
  - Power at cost base
  - Equity injection
  - Subordinated shareholder loan
  - No dividend
  - Power use in own mills

- **Other power off-takers (about 60)**
  - Power at cost base
  - Power use in own mills

- **External Market**
  - Power to
  - Debt holders: market rate
  - Shareholders: equity injection, subordinated shareholder loan, no dividend
  - Power to TVO at cost base

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FINANCING ALTERNATIVES FOR NUCLEAR INVESTMENTS

TVO’s model

- also smaller companies and utilities can invest
- benefits of large scale production can be shared with more players → risk is also shared
- benefits of lower cost of nuclear power will be shared with large number of end-users
- ”Public Private Partnership”
- due to risk sharing structure and excellent track record on the existing operating units relatively low equity component is required for the investment
FINANCING THE OLKILUOTO 3 PROJECT
TVO SPECIFIC CONCERNS AT THE TIME OF INVESTMENT DECISION

- Large amount to finance
- No examples of privately funded nuclear projects lately
- Weak financial key ratios owing to TVO’s non-profit, cost cover structure
- Concentrated assets and dependence on nuclear generation
- Possible exposure to construction risks
WHY OL3 INVESTMENT HAS BEEN A STRONG PACKAGE FOR THE FINANCING WORLD? (1/2)

Stable political environment in Finland

• favourable public opinion

Waste Management solution agreed

• political decision
• site selected
• technology available
• fully funded State Nuclear Waste Management Fund
WHY OL3 INVESTMENT HAS BEEN A STRONG PACKAGE FOR THE FINANCING WORLD? (2/2)

- Financing on balance sheet (not project financing)
- Excellent operational performance of the two existing nuclear reactors
- High credit quality owners severally liable for annual costs → committed life time off-take by the owners
- Substantial equity injection committed by the shareholders
- Full turnkey delivery by high credit quality suppliers
- Joint and several liability by the suppliers
- Project economics

→ High investment grade credit rating (Fitch A-)