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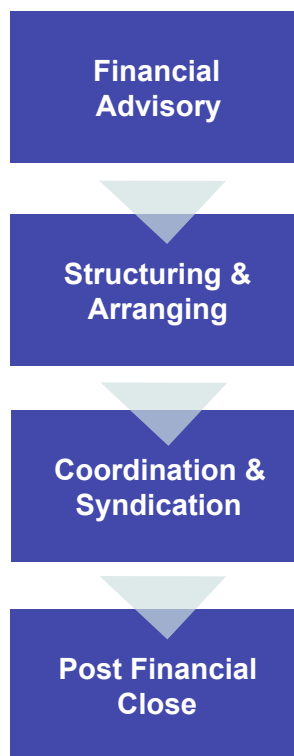
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Project Finance at Mizuho

- Mizuho has over 30 years of experience in the advising, structuring, arranging, closing, and distributing complex multi-source project finance transactions throughout the world.
- Mizuho PF team can utilize its extensive branch network worldwide, and its huge asset basis.
- For Project Finance, more than 150 full-time professionals covering all over the world, all industries, and full range of products through project development and implementation lifecycle.



- Evaluate project contracts, risks & economics
- Modeling and information memorandum preparation
- Financial structuring and negotiation with key parties
- Assist bid submissions and negotiation
- Devise / Implement optimal finance scheme
- Enlist ECAs and multilateral agencies
- Provide large underwriting capability
- Documentation
- Manage international syndication
- Lead negotiations among sponsors and financial institutions
- Focus on achieving timely financial close
- Full Agency services and Operations management
- Dedicated portfolio management team

Mizuho's Clean Energy Experience

In Europe

- UK offshore wind and OFTOs
- Four CSP deals in Spain in 2010/2011
- Solar thermal (CSP) in Abu Dhabi
- Solar PV in Spain and France
- Onshore wind in Spain, Italy, Germany, UK, Bulgaria
- Waste-to-energy, biomass and cogen
- Advisory on nuclear and CCS projects

Rest of the world

- Solar thermal in UAE
- Onshore wind, bioethanol, solar PV in US
- Onshore wind in Japan, Canada, Australia, Venezuela, China and Korea
- Geothermal and hydro in Asia

Over 80 renewables lending transactions since 2000



Project Finance & Clean Energy

■ UK clean energy:

- Onshore wind – well developed
- Offshore wind – huge opportunity
- Biomass – fuel supply is key
- Solar – strong recent growth
- CCS – still in development
- Transmission – availability-based OFTOs
- Nuclear – big projects, takes time
- Efficiency/demand-side

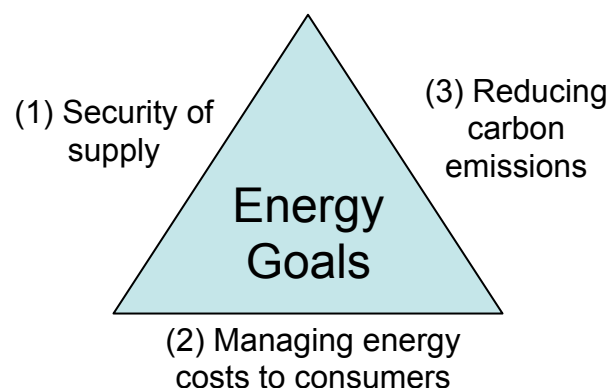
■ Project finance

- Tenor usually 10-20 years
- Non-recourse to sponsors
- Leverage 60-85%
- Secured on project assets and cashflows
- Covers construction (maybe) and operations
- Contractual requirements for construction, O&M, offtake, fuel supply

- Project finance will be a key funding source for UK renewable/low carbon energy development
- Market is driven by Regulation and Technology:
 - individual projects require strong regulatory backing
 - the longer term development and sustainability of the industry will require continued advances in technology to enhance reliability and bring down construction and operational costs

UK Power Market – Challenges for Policymakers & Regulators

- The government, through the Department of Energy and Climate Change (“DECC”), is seeking to address the so-called “energy trilemma” of balancing the need to provide security of supply, manage energy costs and reduce carbon emissions through the electricity market reform (EMR);



EMR components:
› Contract-for-difference Feed-in Tariffs
› Carbon price floor
› Emission performance standard
› Capacity market

- UK Government has committed to an increase in renewable power generation to 15% of energy mix by 2020 under the European Union 20-20-20 Rules (as at 2011, the figure stood at 3.8%)
- Due to plant closures and the need to replace and upgrade the UK’s electricity infrastructure, over the next decade the UK electricity sector is estimated to need around £110 billion of capital investment in order to reform the electricity market. New generation will be dominated by low carbon technologies.
- EMR designed with investment attractiveness and bankability in mind, but transition will be a concern

Regulation: comparison with other jurisdictions

■ Offtake arrangements and price support

- Need for PPA in UK can be problematic, and ROCs involve price risk
- German FIT system has less price risk and shorter tenor, enhancing bankability
- Spain and certain CEE countries have heightened perceived regulatory risk
- Middle East IPP model being used for renewables in Jordan, Morocco, UAE etc – contractual obligation of offtaker

■ Transmission

- German system is simpler but has its drawbacks
- UK implementation of unbundling with OFTOs has created a market that attracts capital but may be distraction from riskier generation assets

■ Planning consent

- Less issues on the continent and elsewhere

■ Government support

- GIB is a beneficial addition to the market comparable to EIB and KfW

Renewables projects: key risks from a bank perspective

- **Technology: long-term reliability still being demonstrated, O&M issues, specific known reliability issues**
 - Plant performance – choice of supplier, warranties, supply/maintenance agreement
 - Technical availability and long-term O&M costs are a key area for optimisation
 - O&M contractor should be incentivised to perform

- **Construction**
 - Technical challenges, weather, and availability of appropriate equipment create uncertainty
 - EPC can be difficult to achieve – packages of contracts need to be well-structured and interfaced
 - Contingencies should be budgeted appropriately
 - Decommissioning requirements – still being established, plant life, repowering options

- **Regulatory: transmission unbundling, renewables incentive regime**
 - Transmission operators may not be fully aligned with generation asset owners
 - Environmental considerations: marine life, birdlife, construction phase and operations

Renewables projects: key risks from a bank perspective

- **Resource & generating performance: how to model? how to structure loan with appropriate level of flexibility?**
 - **Availability variation can have a major impact**
 - **Fuel supply (for biomass) needs substantial certainty**

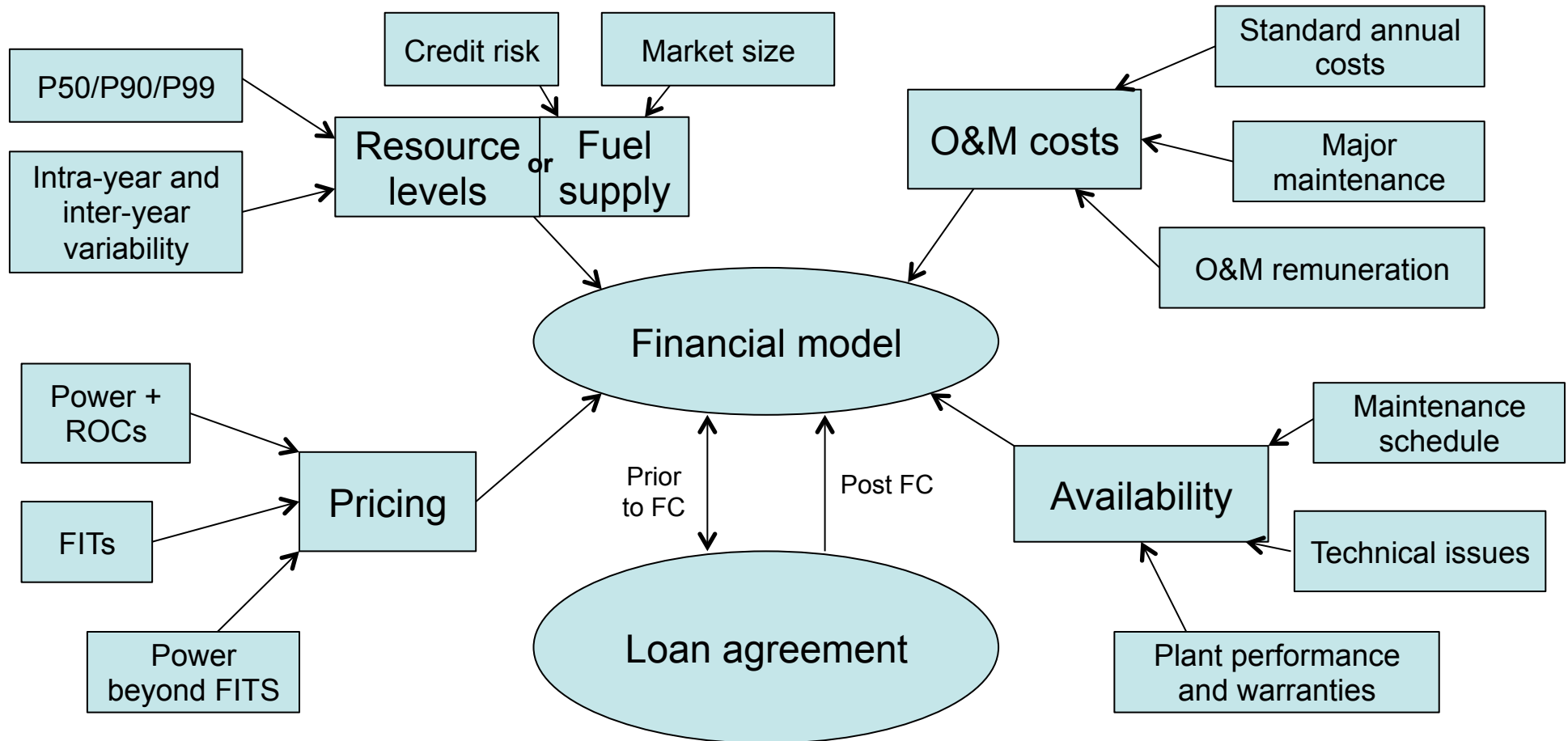
 - **Sponsor: new investors can lack direct operational/ownership experience, reliance on more experienced JV partners, direct influence on project can be constrained**

 - **JV structures: control issues, asymmetry of involvement in project**
 - **implications of provisions within shareholder or other project documents, particularly in potential downside scenarios,**
 - **need for alignment of incentives and careful structuring of documents when this cannot be achieved**

 - **Insurance – needs to cover business interruption, including disruption to the transmission assets**
 - **Insurance costs are a source of uncertainty**
-

Renewables projects: taking account of the risks

- Financial structure and model should take into account the various sources of risk



Renewables project finance: key considerations

■ Tenor

- Trend toward reduced tenors especially in UK (miniperms in offshore wind and solar)
- Refinancing risk presents its own issues
- Technology life expected to be greater than 20 years but regulatory support tends to be shorter

■ Terms/pricing

- Leverage up to 80%, cover ratios 1.40x and up – seem to be acceptable to sponsors
- Pricing increased since GFC, but does not seem to be insurmountable obstacle
- Increased pricing with longer tenor makes shorter tenors attractive (see above)

■ Structure

- Joint venture financing offers interesting solutions for developers/investors
- Requirement for PPA can be problematic especially for smaller projects
- ECA/multilateral support can be beneficial – almost mandatory for offshore wind at the moment
- Mitigation of regulatory risk is important

Renewables project finance: key considerations

■ Flexibility/bespokeness

- Project financing is bespoke to specific projects to meet needs of borrower and lenders
- But can restrict flexibility for sponsors (esp. in JV where not all partners are leveraged)
- Expansion facilities, portfolio facilities would suit renewables well but market precedent not established
- Technology advances present constant risk but mitigated by high levels of due diligence

■ Technology-specific issues

- Wind: intermittency, transmission, construction and operation costs and risks (esp. offshore)
- Biomass: fuel supply is the key risk, otherwise relatively straightforward
- Solar: panel reliability, degradation, quality of supplier warranty and creditworthiness
- Transmission: availability payment makes financing very attractive, but pricing being pushed
- Nuclear: complicated, long construction, contingent risks
- CCS: complex integration of different technology streams, sequestration risk unacceptable
- Efficiency technologies: tend to be too small/disperse to attract PF, better suited to leasing

Case study: Offshore wind

- **Potentially the largest sector for UK renewables development**
- **Good fit for project finance: large projects, major industrial players**
- **Project financing presents a range of challenges nonetheless**

Offshore wind – recent UK transaction

- Mizuho completed its first offshore wind financing transaction in March 2012, putting in place project financing for Marubeni Corporation's 49.9% stake in the Gunfleet Sands offshore windfarm.



(Image courtesy of DONG Energy)

Offshore wind: where will the capital come from?

■ **Utilities** → Have the experience but running out of balance sheet

■ **Industrial investors**
 ■ **Financial investors – equity** } Usually in a JV with utility

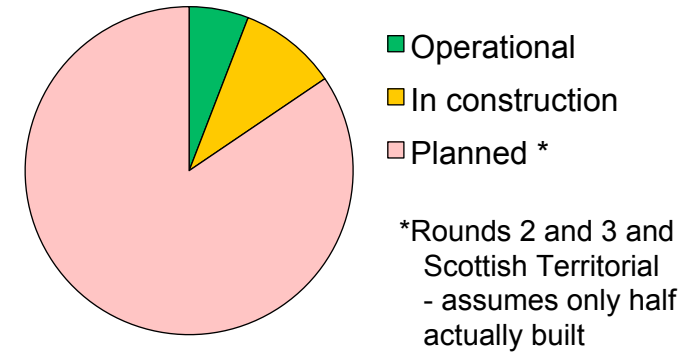
■ **Project finance banks**
 ■ **ECAs, MLAs/DFIs** } Still getting used to structures, construction and operational risks

■ **Institutional debt investors** → Promising signs but very early days

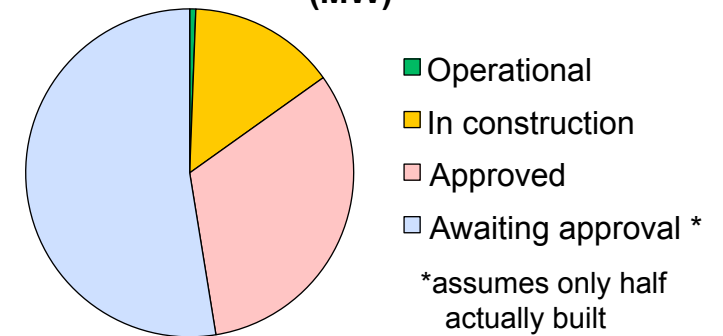
■ **Debt capital markets?**

Great in principle but, as with other areas of project finance, this is a while off

UK offshore wind fleet (MW)



cf. German offshore wind fleet (MW)



Investment also sought by Belgium, Netherlands, France & Denmark...

Offshore wind: structuring to attract investment

- **Corporate structure for project ownership**
 - **Unincorporated or incorporated JV structures**
 - **Continental markets have seen a number of ‘conventional’ project financings including banks taking construction risk**
 - **UK non-recourse financings tend to be ‘structured’**
 - **Utilities must balance the restrictions associated with PF bankability off against the benefits of additional investment sources**

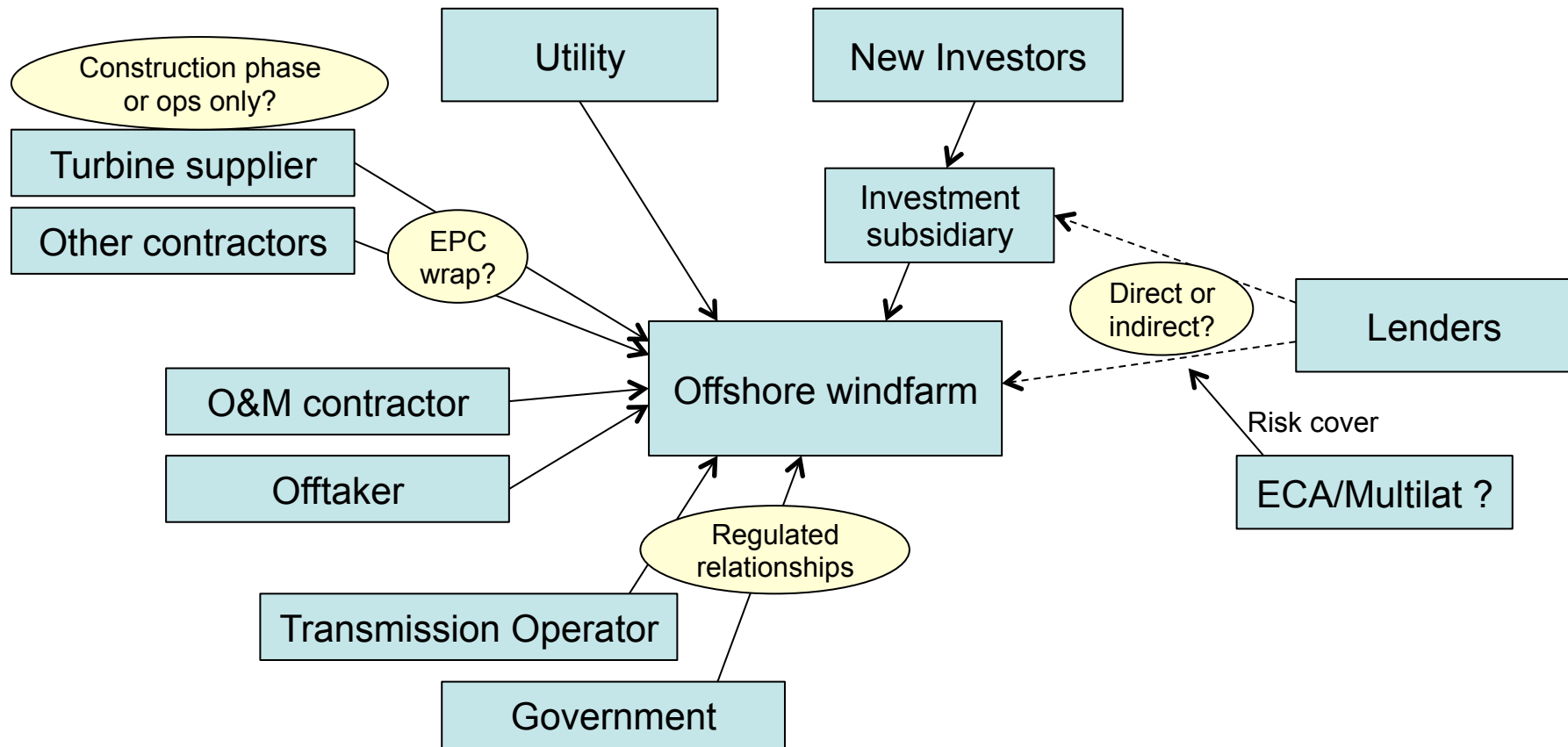
- **Risk allocation between parties**
 - **Sponsors/investors differ significantly in their technical expertise**

- **Regulatory issues – transmission unbundling, licences, leases**
 - **Challenge for governments to set up systems to incentivise innovation whilst providing stability required by investors**

- **Insurance requirements - PF banks typically expect more risk transfer**

Offshore wind: generic JV structure

- Contractual arrangements and choice of counterparties are key to bankability



Final remarks

- **Project finance is a very important source of capital for the extensive clean energy development plans envisaged by the UK government**
- **UK is an attractive market for renewables project financing with excellent resource, especially offshore wind, and greater perceived stability than many other jurisdictions**
- **Regulatory certainty is paramount for attracting finance: it is seen as the biggest risk**
- **Technical issues can cause concern for banks but high levels of due diligence and increasing industry expertise provide comfort: technological advances need to continue to increase reliability and reduce costs**
- **Alternative sources of financing, equity, debt and in-between, should also be pursued in order to meet the huge requirement for capital but there will certainly be a place for traditional project finance banks in funding projects**

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