Dublin Valuation Conference

The Valuation Process – Solar Energy Farms

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Irish Solar

- Dale Foods Cookstown
- Solar Farm to provide 20% of cheese factory power requirement
- 20 year supply
- To enable expansion in an area of limited electricity capacity

Contents

- The Development of Solar Farms
- The Role of Valuers
- The Valuation Process
- Other Issues

The Development of Solar Farms 1

- Technical Requirements
  - Access for delivery of panels (200 no 40 ft containers)
  - Wayleaves for electricity & communication
  - Grid connection with
    - Inverters
    - Switchgear
    - Works required by Distribution Network Operator
  - Switchgear house
  - Security fencing
  - Landscaping/offsetting works offsite

The Development of Solar Farms 2

- Typical Scales

	size	Generates
Domestic system	4 KW	3,300 kwh
Medium scale building array	50 - 100 KW	42 – 85 MWh
Solar farm 5 – 6 acres	1 MW	850 MWh
Solar farm 25 – 30 acres	5 MW	4250 MW

The Role of Valuers

- Planning advice
- Procurement and project management
- Option and lease negotiation for landowners
  - Competitive tendering
  - Direct approaches
- Revenue and supply mix
- Valuations
- Decommissioning, repowering redevelopment

The Valuation Process 1

- Framework
  - Red Book & Blue Book Compliance
    - Clarity of instruction
    - Inspection & investigation
    - Assumptions & Special Assumptions
  - Guidance
    - Valuation of renewable energy installations – RICS 2012
    - On-Farm Generation of Renewable Electricity – CAAV March 2011

The Valuation Process 2

- Requirement for Valuation
  - Trading – disposal or acquisition
  - Funding – development or collateral
  - Taxation – national or local
  - Matrimonial
  - Financial reporting
- Basis of Valuation
  - Market Value
  - Fair Value
- Timing
  - Conceptual
  - Development
  - Completed

The Valuation Process 3

- The Interest
  - Investment
  - Business operator
  - Landowner / operator
- The benefit
  - Revenue – direct income or rent
  - Generated power – opportunity rent
- Information
  - Ownership
  - Terms – option & lease
  - Access – construction & wayleave
  - Planning – aviation
  - Grid connection offer, **availability** & cost
  - Capacity
  - Resource assessments
  - Technology & warranties
  - Regulator accreditations
  - Capital and revenue expenditure projections

The Valuation Process 4

- Methods
  - Comparable
  - Investment
  - Discounted Cash Flow
  - Multiple Regression Analysis
- Favoured – DCF – reliance on Assumptions
  - Factual – contracted revenue and cost
  - Forecast – energy yield
  - Market influence – electricity prices
  - Return – investor sentiment/appetite
  - Support – subsidy regimes
- Three Critical Issues
  - Government subsidy
    - UK – grandfathering subsidies
    - Other European countries – retrospective adjustments
  - Electricity prices
    - Forward pricing curves
    - Market volatility
  - Energy yield
    - On site data

The Valuation Process 5

Investment Method

- Where freehold site subject to lease
- Complex rents – base plus turnover
- Model development output
- Lease term – ability to renew
- Variables
  - Stage of development
  - Transactions
  - Lease Terms
  - Forecasts and data
  - Key risks – grid frailty

DCF

- Assess viability
- Detailed data requirement
- Output – Net Present Value of Project
- Sensitive to inflation/discount rates
- Variables
  - Stage of development
  - Accuracy output forecasts
  - Warranties/performance guarantees
  - Assumptions over repowering/decommissioning
- Sensitivity analysis

The Valuation Process 6

- Multiple Regression – Deloitte analysis
  - 240 transactions in solar farms
  - Majority >50 MW ~ 9> 100 MW
  - Distribution
    - North America 39
    - France 9
    - Germany 16
    - Italy 55
    - UK 61
    - Spain 19
    - Asia 28

- Analysed Values
  - Average installed MW 29 ~ Planned 48
  - Average price €m 79
  - Capacity multiplier €m 2.2 per installed MW

- Geographical
  - Europe/ North America – premium
  - Asia – discount
  - Europe –
    - UK France & Germany installed capacity trading at discount
    - Italy & Spain at premium

Some other issues

- Environment and management
  - Landscape management
  - Continuity of supply
- Reversionary issues
  - Decommissioning
  - Repowering or brownfield development
  - Legacy values /discounts
- Valuation
  - Marriage value
  - Enablement value