

# Valuing Merchant Power Plants



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# Fair Market Value

The amount at which property would change hands between a willing seller and a willing buyer when neither is acting under compulsion and when both have reasonable knowledge of the relevant facts.

# Valuation Premise

- Value in Use
  - Ongoing operation sold with all necessary assets
    - equipment
    - contracts
    - assembled work force
    - goodwill
  
- Value in Exchange
  - Piecemeal liquidation of equipment
  - Assets removed from site, no installation value
  - Intangible asset value typically zero

# Due Diligence for Appraising Merchant Power Plants



## ■ Income Approach

- Forecast revenue and expenses
- Estimate federal and local tax burden
- Develop appropriate discount rate



## ■ Market Approach

- Ratio analysis of guideline publicly traded companies
- Compare to selling price of similar units



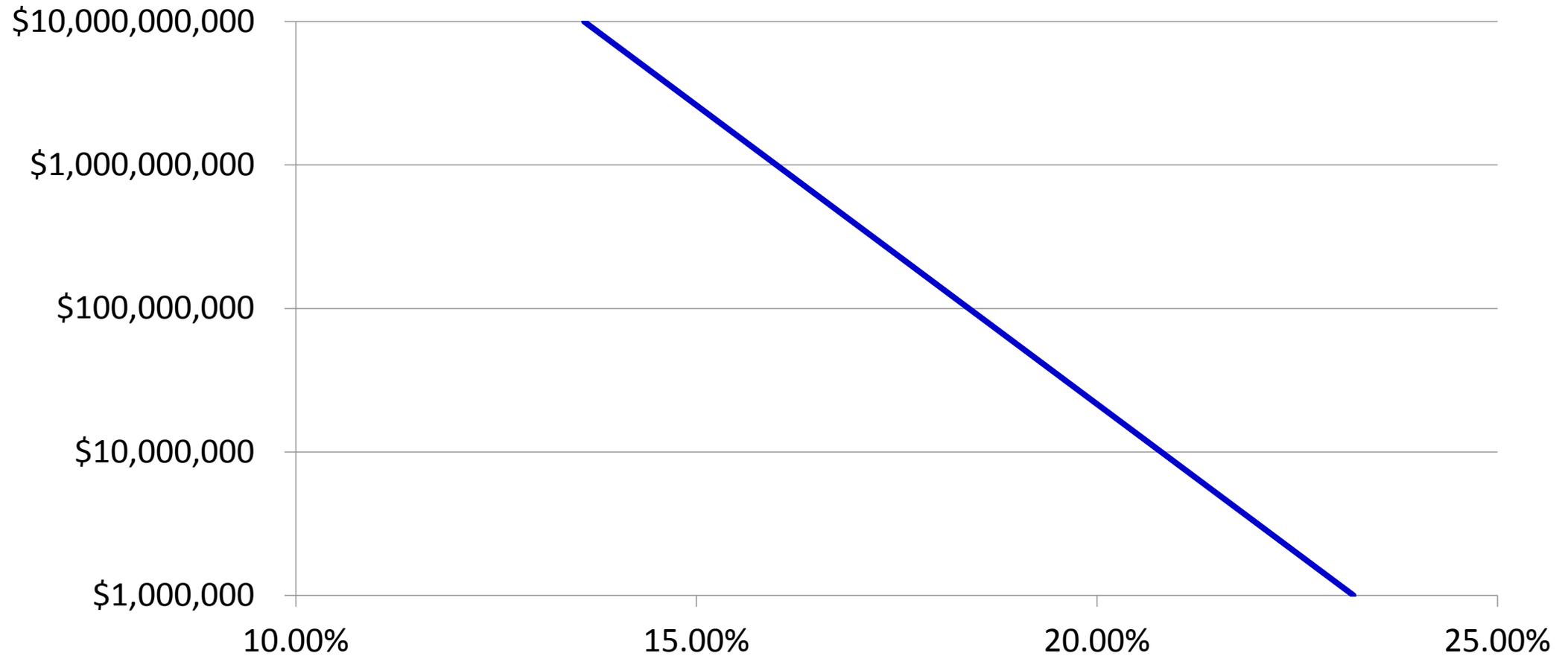
## ■ Cost Approach

- Replacement cost new
- Less depreciation
  - Physical, functional, economic

# Income Approach

$$\text{FMV} = \sum_{n=t}^{n=1} \frac{\text{Revenue} - \text{Fuel Cost} - \text{O\&M} - \text{Taxes}}{(1 + r)^n} - \text{Clean Up Cost}$$

# Market Value V. Rate of Return



# Capital Asset Pricing Model

Risk free rate of return	20-year treasury bonds	6.7%
Equity risk premium	NYSE return	7.4%
Beta	Price volatility	1.3
Excess small company risk premium	Ibbotson Associates	2.5%

$$\text{Equity rate} = 6.7 + (7.4 \times 1.3) + 2.5 = 18.9\%$$

# Weighted Average Cost of Capital (WACC)

- Equity Rate = 18.9%
- Effective marginal tax rate = 40%
- Reasonable Debt/Equity assumption = 50/50
- High yield bond rate = 9.5%

$$\text{WACC} = 0.5 \times 9.5 (1 - 0.4) + 0.5 \times 18.9$$

$$\text{WACC} = 14.8\%$$

# Cost Approach

- Significant physical assets provide barriers to new competition
- Banks generally lend on tangible assets
- Hidden assets may be uncovered
- Liquidation value can minimize downside risk
- Identifies intangible assets

# Obsolescence to Consider

- Physical
  - Usually dependent on age of facility and maintenance
- Functional
  - Some aero gas turbines have had problems operating continuously at 100%
- Economic
  - Long term gas prices
  - Future sales at less than full output has significant effect on efficiency

# Hidden Assets

- Assumable tax exempt financing
- Air permit in non-attainment area
- Fair market value of land
- Excess buffer land
- Dual fuel capability
- Purchase price may set lower assessment for property taxes
- Complete inventory of maintenance items
- GT turbine lease program
- Redundant pumps/motors

# Questions?

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