

Financials Overview

1. Generating Resources & MicroFin
2. Financial Sponsors
3. Levelized Cost of Energy Examples and Sensitivities
4. Questions ?

Supply Side Cost Estimation

1. Generating Resources/GRAC – provides estimates of **capital cost** and operating characteristics for new resources
2. MicroFin – used to produce estimates for the **cost of capital** for these resources

Generating Resources/GRAC

1) Cost estimates

Capital Cost \$/kW

Fixed O&M \$/kW-yr

Cost escalation (or de-escalation)

2) Estimates for Operating Characteristics

Capacity MW

Heat Rate btu/kWh (thermal unit)

Capacity Factor (variable resource)

Economic life

Development Schedule

Fuel Price Forecast

1) Fixed fuel price \$/kW-yr

2) Variable price \$/mmbtu



Micro Fin Levelized Cost Calculator

1) Fixed Levelized Cost - \$/kW-yr

2) Full LCOE - \$/MWh (with energy production and variable costs)



**Regional
Portfolio
Model**



MicroFin

Revenue requirements financial model

1. Calculates annual cash flows over the plant lifetime that satisfy revenue requirements
2. Annual cash flows are compressed into a single year dollar value – Net Present Value (NPV)
3. NPV is converted into an even, annualized payment (like a mortgage payment) – Levelized Cost. When divided by annual energy production – it becomes the Levelized Cost of Energy \$/MWh

Three financial sponsor options

1. Muni/PUD
2. IOU
3. IPP

Key assumption differences among the sponsor types

1. Tax rates
2. Debt rates and service periods
3. Equity return rates and service periods

MicroFin Financials Key Assumptions	Municipal/PUD	Investor Owned Utility	Indep. Power Producer
Federal Tax - %	0	35	35
State Tax - %	0	5	5
Fed Tax Inv Credit - %	0	30/10 ¹	30/10 ¹
Property Tax - %	0	1.4	1.4
Insurance - %	0.25	0.25	0.25

Debt Fraction - %	100	50	60
Debt Interest Rate (not tax adjusted)	5.24	6.69	6.69
Debt payment Period	25 ²	25 ²	20 ²
Return on Equity	0	10	13.7
Equity Payment Period	25 ²	25 ²	20 ²
Discount Rate	4	4	4
Inflation Rate	1.64	1.64	1.64

¹Solar only – Fed ITC 30% thru 2016, 10% following

² Gas 30/30/15

LCOE Example - CCCT Adv 2

ADV CCCT 2

Input

Capacity 425 MW
 Capital Cost \$1,217/kW
 Capacity factor 0.6

ADV CCCT 2

Output

NPV \$3.1 billion
 Level. Cost of Energy
 \$71/MWh

