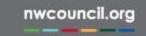
Financials Overview

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

Supply Side Cost Estimation

- 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

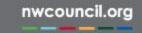
- 1) Fixed fuel price \$/kW-yr
- 2) Variable price \$/mmbtu

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

- 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

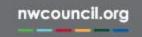
Three financial sponsor options

- Muni/PUD
- 2. IOU
- 3. IPP

Key assumption differences among the sponsor types

- 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

