FEBRUARY 2009

LEVELIZED COST OF ENERGY ANALYSIS – VERSION 3.0

LAZARD

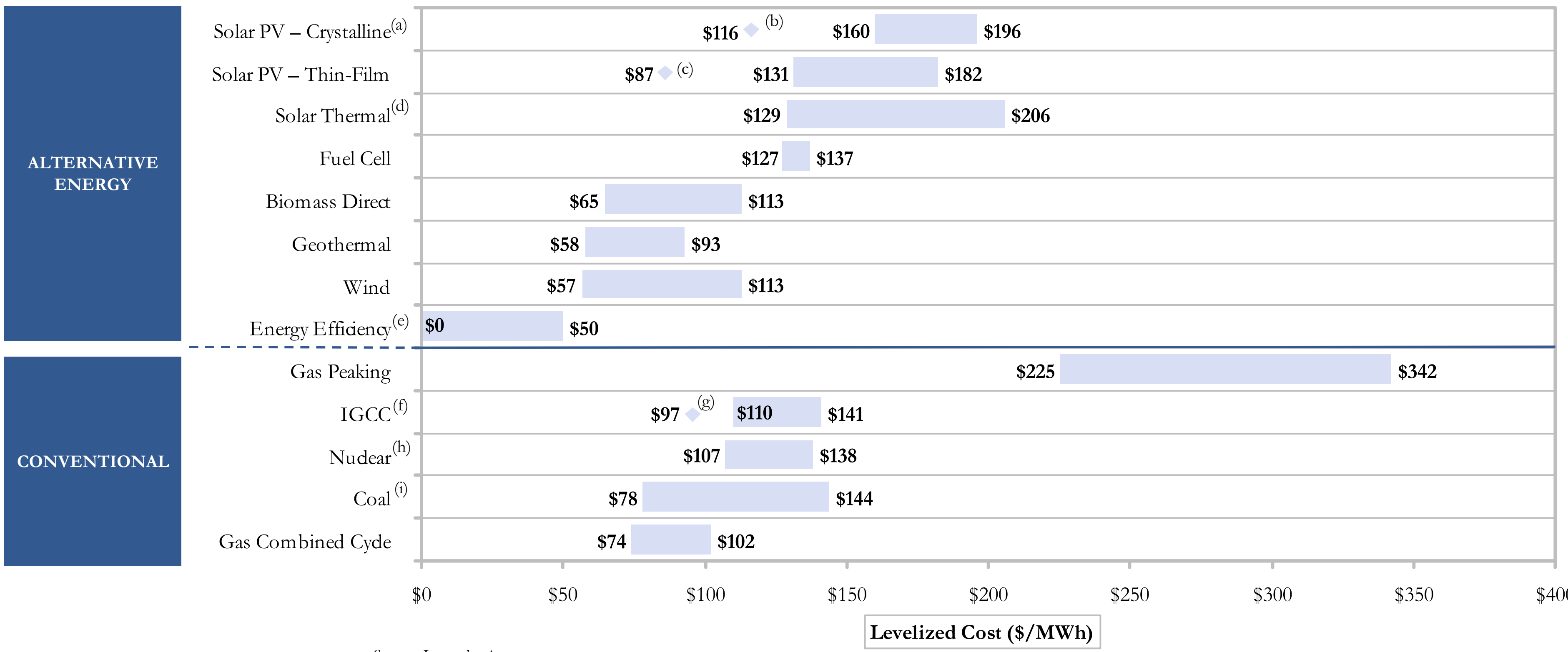
Introduction

Lazard's Levelized Cost of Energy Analysis ("LCOE") addresses the following topics:

- **Comparative "levelized cost of energy" for various technologies on a $/MWh basis, including sensitivities, as relevant, for:**
  - **Fuel costs**
  - **Illustrative carbon emission costs**
  - **U.S. federal tax subsidies**
  - **Anticipated capital costs, over time**
- **Illustration of how the costs of solar-produced energy compare against peak power costs in large metropolitan areas of the U.S.**
- **Comparison of assumed capital costs on a $/kW basis for various generation technologies**
- **Decomposition of the levelized costs of energy for various generation technologies by capital costs, fixed operations & maintenance expense, variable operations & maintenance expense, and fuel costs, as relevant**
- **Considerations regarding the applicability of various generation resources, taking into account factors such as location requirements/constraints, dispatch characteristics, land and water requirements and contingencies such as carbon pricing**
- **Summary assumptions for the various generation technologies examined**
- **Summary of Lazard's approach to comparing the levelized cost of energy for various conventional and Alternative Energy generation technologies, including identification of key potential sensitivities not addressed in the scope of this presentation**

Levelized Cost of Energy Comparison

Certain Alternative Energy generation technologies are already cost-competitive with conventional generation technologies under some scenarios, even before factoring in environmental and other externalities (e.g., RECs, potential carbon emission costs, transmission costs) as well as construction and fuel costs dynamics affecting conventional generation technologies



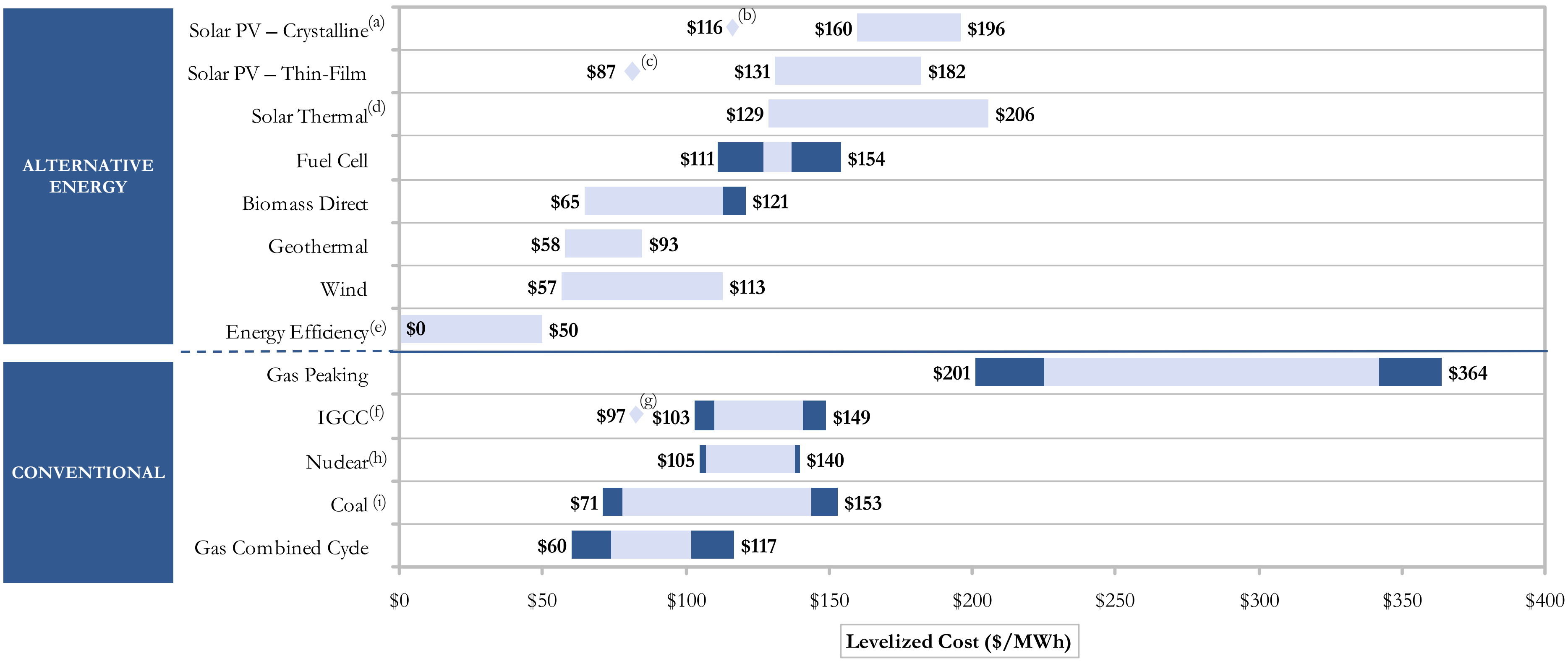
Source: Lazard estimates.

Note: Reflects production tax credit, investment tax credit and accelerated asset depreciation, as applicable. Assumes 2008 dollars, 20-year economic life, 40% tax rate and 5-20 year tax life. Assumes 30% debt at 8.0% interest rate, 40% tax equity at 8.5% cost and 30% common equity at 12% cost for Alternative Energy generation technologies. Assumes 60% debt at 8.0% interest rate and 40% equity at 12% cost for conventional generation technologies. Assumes coal price of $2.50 per MMBtu and natural gas price of $8.00 per MMBtu.

(a) Low end represents single-axis tracking crystalline. High end represents fixed installation.
(b) Represents estimated implied levelized cost of energy in 2012, assuming a total system cost of $3.50 per watt for single-axis tracking crystalline.
(c) Represents a leading thin-film company's targeted implied levelized cost of energy in 2012, assuming a total system cost of $2.00 per watt.
(d) Low end represents solar tower. High end represents solar trough.
(e) Estimates per National Action Plan for Energy Efficiency; actual cost for various initiatives varies widely.
(f) High end incorporates 90% carbon capture and compression.
(g) Represents estimated implied levelized cost of energy for Southern Company's proposed IGCC facility in Mississippi that is expected to be in service in 2013, assuming a total system cost of $3.00 per watt and 50% carbon capture, per Southern Company public comments.
(h) Does not reflect decommissioning costs or potential economic impact of federal loan guarantees or other subsidies.
(i) Based on advanced supercritical pulverized coal. High end incorporates 90% carbon capture and compression.

Levelized Cost of Energy Comparison – Sensitivity to Fuel Prices

Variations in fuel prices can materially affect the levelized cost of energy for conventional generation technologies, but direct comparisons against "competing" Alternative Energy generation technologies must take into account issues such as dispatch characteristics (e.g., baseload and/or dispatchable intermediate load vs. peaking or intermittent technologies)



Source: Lazard estimates.

Note: Darkened areas in horizontal bars represent low end and high end levelized cost of energy corresponding with ±25% fuel price fluctuations.

(a) Low end represents single-axis tracking crystalline. High end represents fixed installation.

(b) Represents estimated implied levelized cost of energy in 2012, assuming a total system cost of $3.50 per watt for single-axis tracking crystalline.

(c) Represents a leading thin-film company's targeted implied levelized cost of energy in 2012, assuming a total system cost of $2.00 per watt.

(d) Low end represents solar tower. High end represents solar trough.

(e) Estimates per National Action Plan for Energy Efficiency; actual cost for various initiatives varies widely.

(f) High end incorporates 90% carbon capture and compression.

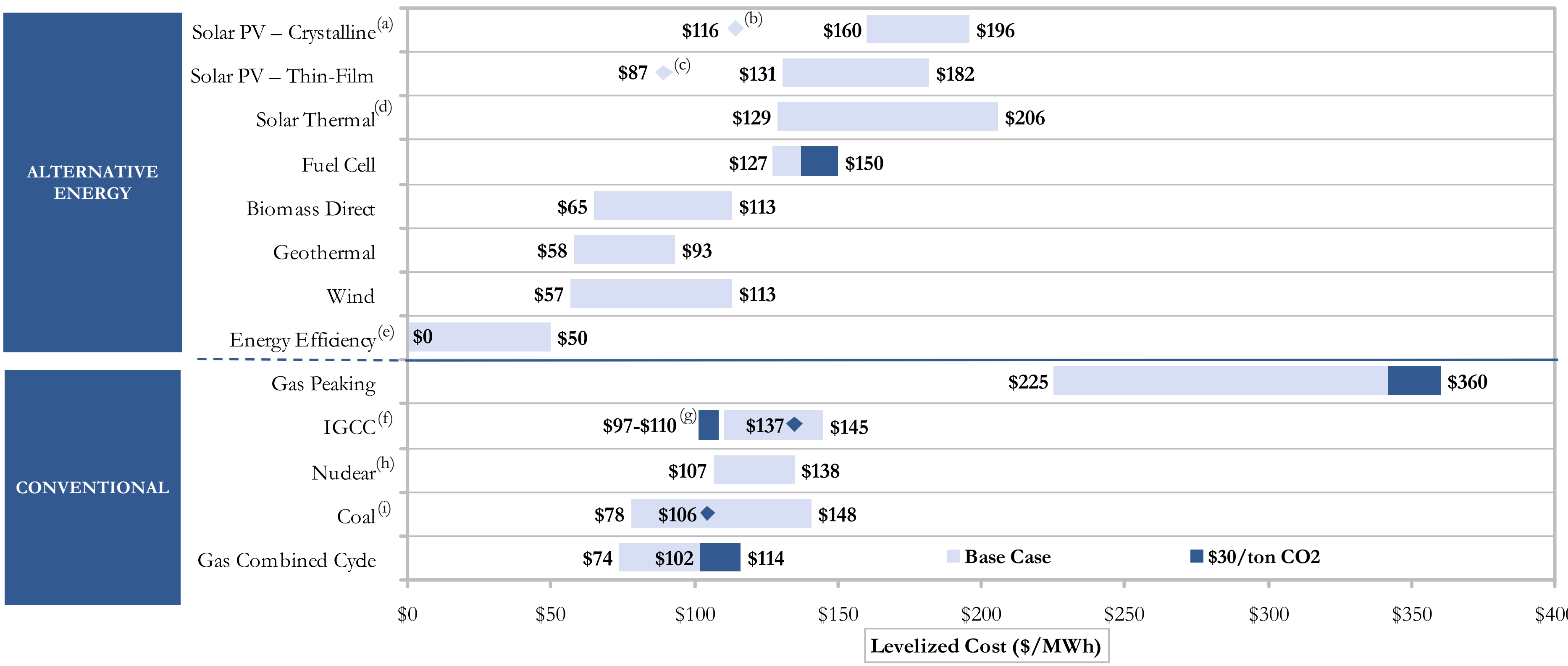
(g) Represents estimated implied levelized cost of energy for Southern Company's proposed IGCC facility in Mississippi that is expected to be in service in 2013, assuming a total system cost of $3.00 per watt and 50% carbon capture, per Southern Company public comments.

(h) Does not reflect decommissioning costs or potential economic impact of federal loan guarantees or other subsidies.

(i) Based on advanced supercritical pulverized coal. High end incorporates 90% carbon capture and compression.

Levelized Cost of Energy – Sensitivity to Carbon Emission Costs

Conventional generation technologies are subject to uncertainty regarding the potential for future carbon emission costs, which would not affect Alternative Energy generation technologies except positively through credit positions or otherwise (n.b., these potential benefits are not reflected below)

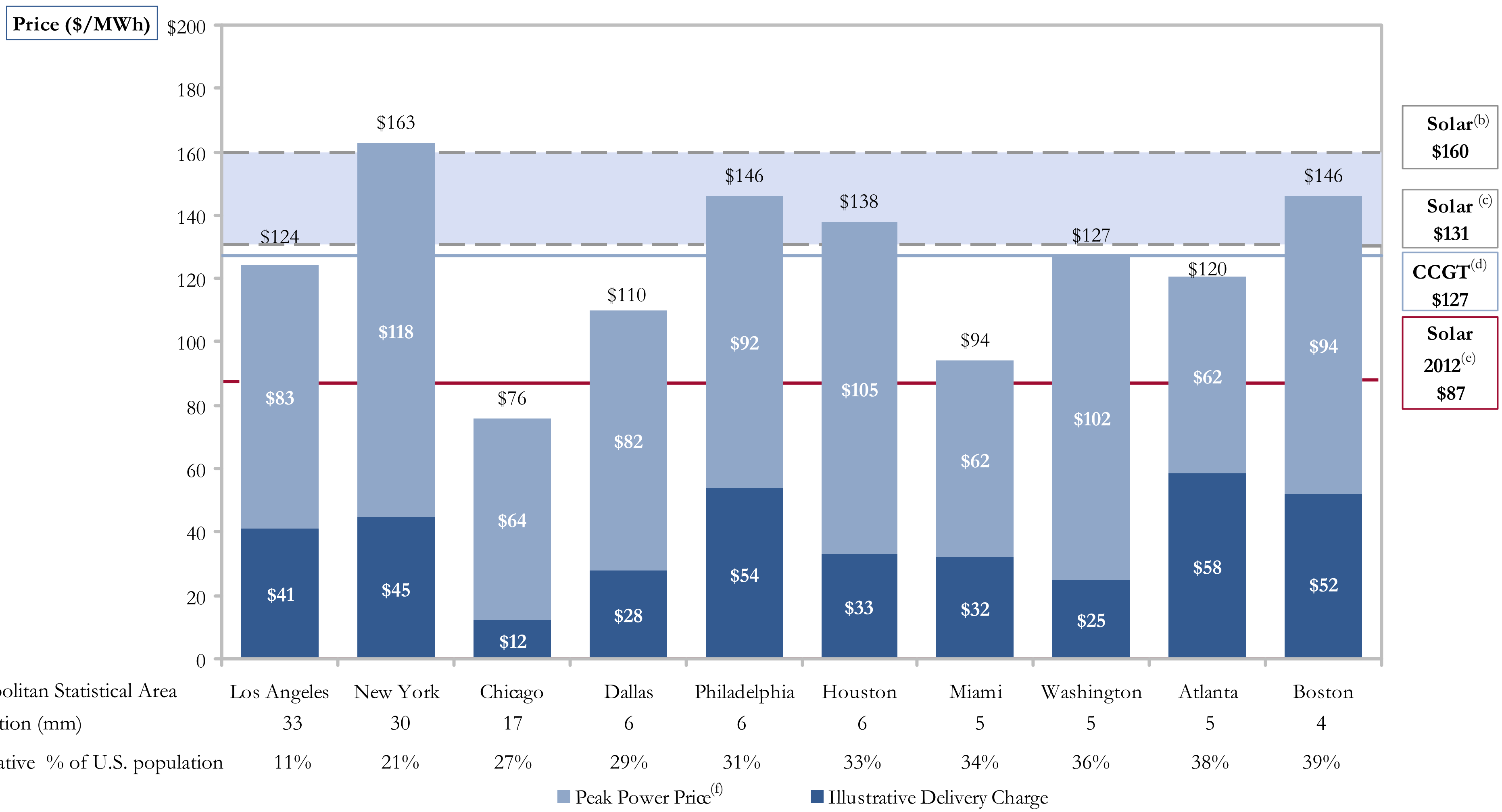


Source: Lazard estimates.

(a) Low end represents single-axis tracking crystalline. High end represents fixed installation.
(b) Represents estimated implied levelized cost of energy in 2012, assuming a total system cost of $3.50 per watt for single-axis tracking crystalline.
(c) Represents a leading thin-film company's targeted implied levelized cost of energy in 2012, assuming a total system cost of $2.00 per watt.
(d) Low end represents solar tower. High end represents solar trough.
(e) Estimates per National Action Plan for Energy Efficiency; actual cost for various initiatives varies widely.
(f) High end of light horizontal bar incorporates 90% carbon capture and compression and a carbon emission cost of $30 per ton. Diamond represents no carbon capture and compression, and a carbon emission cost of $30 per ton.
(g) Represents estimated implied levelized cost of energy for Southern Company's proposed IGCC facility in Mississippi that is expected to be in service in 2013, assuming a total system cost of $3.00 per watt and 50% carbon capture, per Southern Company public comments.
(h) Does not reflect decommissioning costs or potential economic impact of federal loan guarantees or other subsidies.
(i) Based on advanced supercritical pulverized coal. Diamond represents no carbon capture and compression, and a carbon emission cost of $30 per ton.

Peak Pricing for the 10 Largest U.S. Metropolitan Areas[a]

Setting aside the legislatively-mandated demand for solar and other Alternative Energy resources, solar is becoming a more economically viable peaking energy product in many areas of the U.S., and, as pricing declines, could become economically competitive across a broader array of geographies

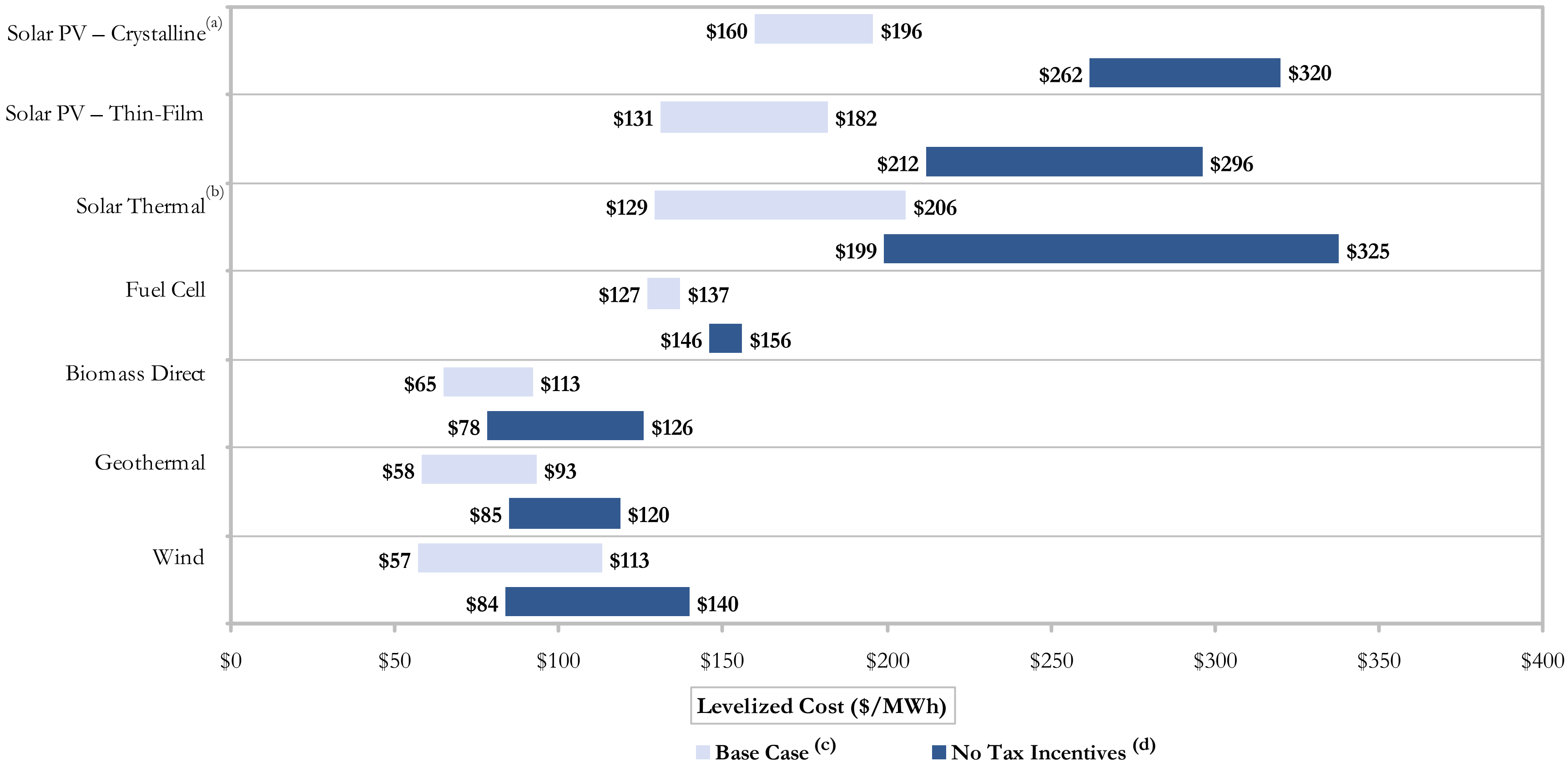


Metropolitan Statistical Area	Los Angeles	New York	Chicago	Dallas	Philadelphia	Houston	Miami	Washington	Atlanta	Boston
Population (mm)	33	30	17	6	6	6	5	5	5	4
Cumulative % of U.S. population	11%	21%	27%	29%	31%	33%	34%	36%	38%	39%

(a) Defined as 10 largest Metropolitan Statistical Areas per the U.S. Census Bureau for a total population of 119 million.
(b) Represents low end of solar PV crystalline.
(c) Represents low end of solar PV thin-film.
(d) Assumes 25% capacity factor.
(e) Represents a leading thin-film company's targeted implied levelized cost of energy in 2012, assuming a total system cost of $2.00 per watt.
(f) Represents the average of the hourly wholesale prices between 12 noon and 6pm for the last 12 months.

Levelized Cost of Energy – Sensitivity to U.S. Federal Tax Incentives

U.S. federal tax subsidies remain an important component of the economics of Alternative Energy generation technologies (and government incentives are important in all regions), notwithstanding high prevailing fossil fuel prices; future cost reductions in technologies such as fuel cells, solar PV and solar thermal have the potential to enable these technologies to approach "grid parity" without tax subsidies (albeit such observation does not take into account issues such as dispatch characteristics or other factors)



Source: Lazard estimates.

Note: Assumes 2008 dollars, 30% debt at 8.0% interest rate, 40% tax equity at 8.5% cost and 30% common equity at 12% cost, 20-year economic life and 40% tax rate. Assumes natural gas price of $8.00 per MMBtu.

(a) Low end represents single-axis tracking crystalline. High end represents fixed installation.

(b) Low end represents solar tower. High end represents solar trough.

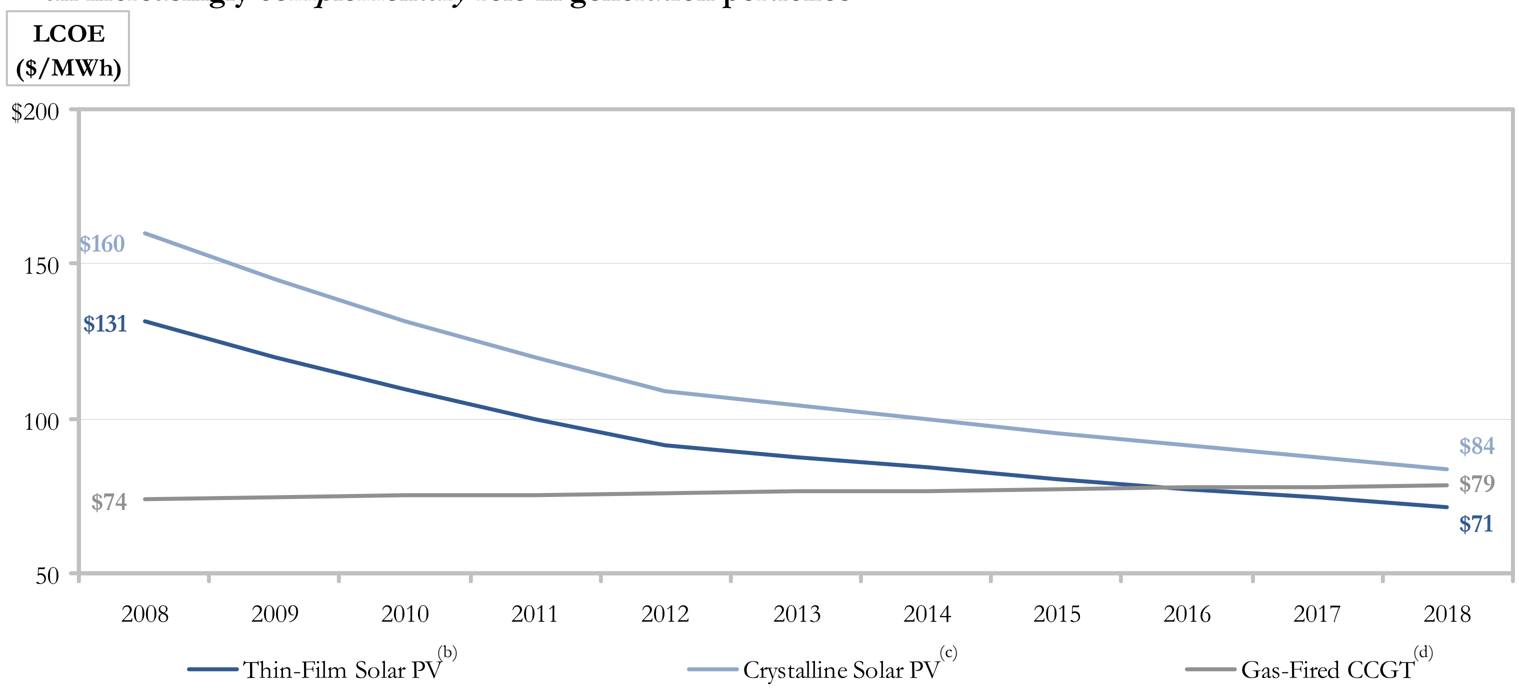
(c) Reflects production tax credit, investment tax credit, and accelerated asset depreciation, as applicable.

(d) Illustrates levelized cost of energy in the absence of U.S. federal tax incentives such as investment tax credits, production tax credits and assuming 20-year tax life.

Levelized Cost of Energy – Sensitivity to Capital Costs[(a)]

An important finding in respect of solar PV technologies is the potential for significant cost reductions over time as manufacturing scale along the entire production value chain increases; by contrast, conventional generation technologies are experiencing capital cost inflation (as well as fuel cost inflation), driven by long-term global demand for conventional generation equipment, where potentially cost-reducing manufacturing improvements for these mature technologies are largely incremental in nature

- **This assessment, however, does not take into account the intermittent nature of solar PV as compared with the dispatchable nature of conventional generation; the key finding in this regard is that solar PV technologies will play an increasingly *complementary* role in generation portfolios**



Source: Lazard estimates.

Note: Reflects investment tax credit and accelerated asset depreciation, as applicable. Assumes 2008 dollars, 20-year economic life and 40% tax rate. Assumes 30% debt at 8.0% interest rate, 40% tax equity at 8.5% cost and 30% common equity at 12% cost for Alternative Energy generation technologies. Assumes 60% debt at 8.0% interest rate and 40% equity at 12% cost for conventional generation technologies. Assumes natural gas price of $8.00 per MMBtu.

(a) Assumes capital costs for thin-film and crystalline solar PV decline by 10% annually through 2012 and 5% annually thereafter. Assumes capital costs for gas-fired CCGT increase by 2.5% annually.

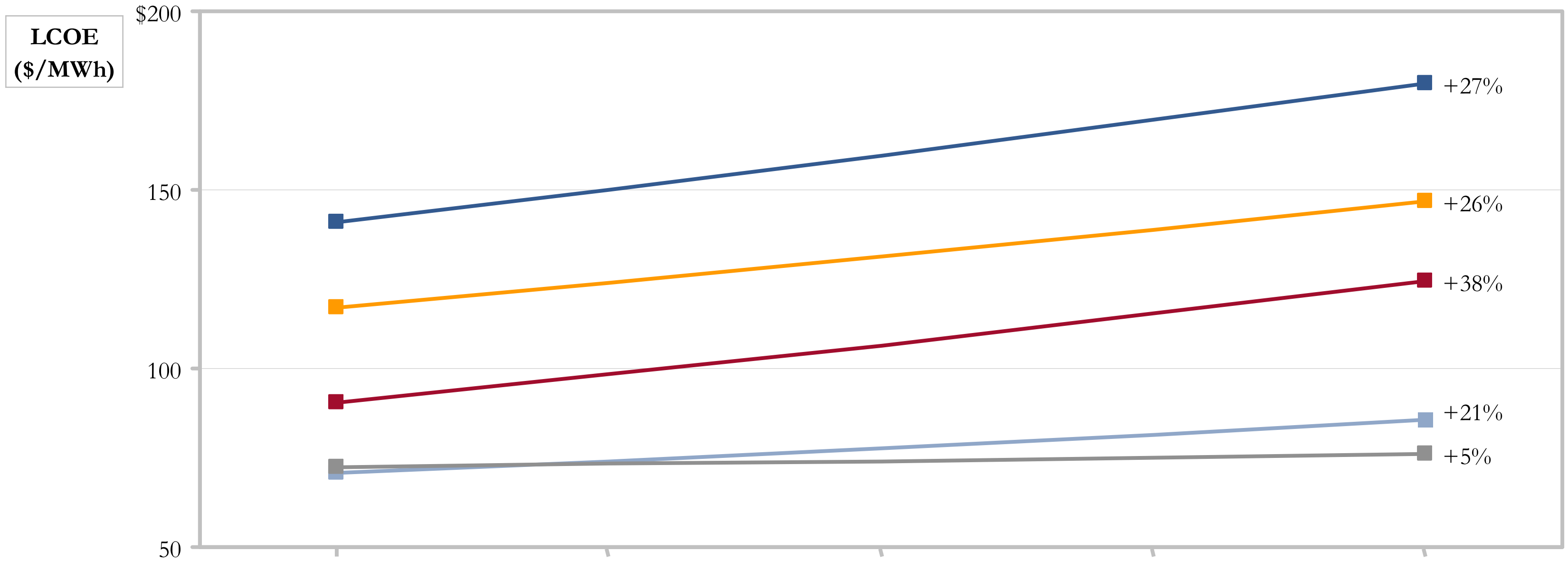
(b) Assumes 23% capacity factor.

(c) Assumes 27% capacity factor based on single-axis tracking.

(d) Assumes 85% capacity factor.

Levelized Cost of Energy – Sensitivity to Cost of Capital

A key issue facing Alternative Energy generation technologies in the currently disrupted capital markets environment is the reduced availability, and increased cost, of capital; these dynamics have a greater relative impact on Alternative Energy generation technologies, whose costs reflect essentially only return on, and of, the capital investment required to build them



After-Tax IRR/WACC[(a)]	6.2%	6.9%	7.7%	8.4%	9.2%
Cost of Equity	10.0%	11.0%	12.0%	13.0%	14.0%
Cost of Debt	6.0%	7.0%	8.0%	9.0%	10.0%

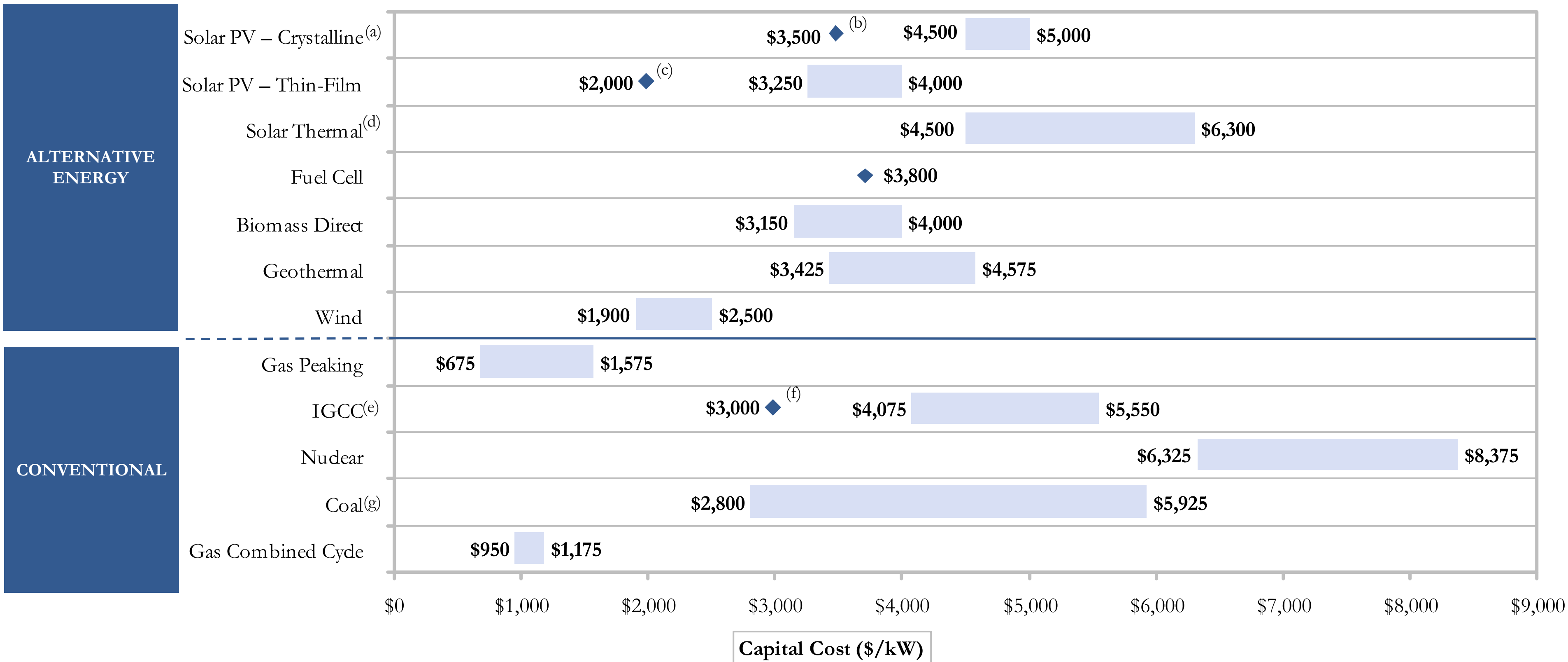
Source: Lazard estimates.

Note: Reflects production tax credit, investment tax credit and accelerated asset depreciation, as applicable. Assumes 2008 dollars, 20-year economic life, 40% tax rate and 5-20 year tax life. Assumes 30% debt at the stated interest rate, 30% common equity at the stated cost and 40% tax equity at 8.5% cost for Alternative Energy generation technologies. Assumes 60% debt at the stated interest rate and 40% equity at the stated cost for conventional generation technologies.Assumes coal price of $2.50 per MMBtu and natural gas price of $8.00 per MMBtu.

(a) Assumes capital structure comprising 60% debt and 40% equity at the stated interest rates and costs.
(b) Assumes 27% capacity factor based on single-axis tracking.
(c) Assumes 23% capacity factor.
(d) Does not reflect decommissioning costs or potential economic impact of federal loan guarantees or other subsidies.
(e) Based on advanced supercritical pulverized coal.

Capital Cost Comparison

While capital costs for a number of Alternative Energy generation technologies (e.g., solar PV, solar thermal) are currently in excess of conventional generation technologies (e.g., gas, coal, nuclear), declining costs for many Alternative Energy generation technologies, coupled with rising long-term construction and fuel costs for conventional generation technologies, are working to close formerly wide gaps in electricity costs. This assessment, however, does not take into account issues such as dispatch characteristics, capacity factors, fuel and other costs needed to compare generation technologies



Source: Lazard estimates.

(a) Low end represents single-axis tracking crystalline. High end represents fixed installation.

(b) Represents estimated implied levelized cost of energy in 2012, assuming a total system cost of $3.50 per watt for single-axis tracking crystalline.

(c) Based on a leading thin-film company's guidance of 2012 total system cost of $2.00 per watt.

(d) Low end represents solar trough. High end represents solar tower.

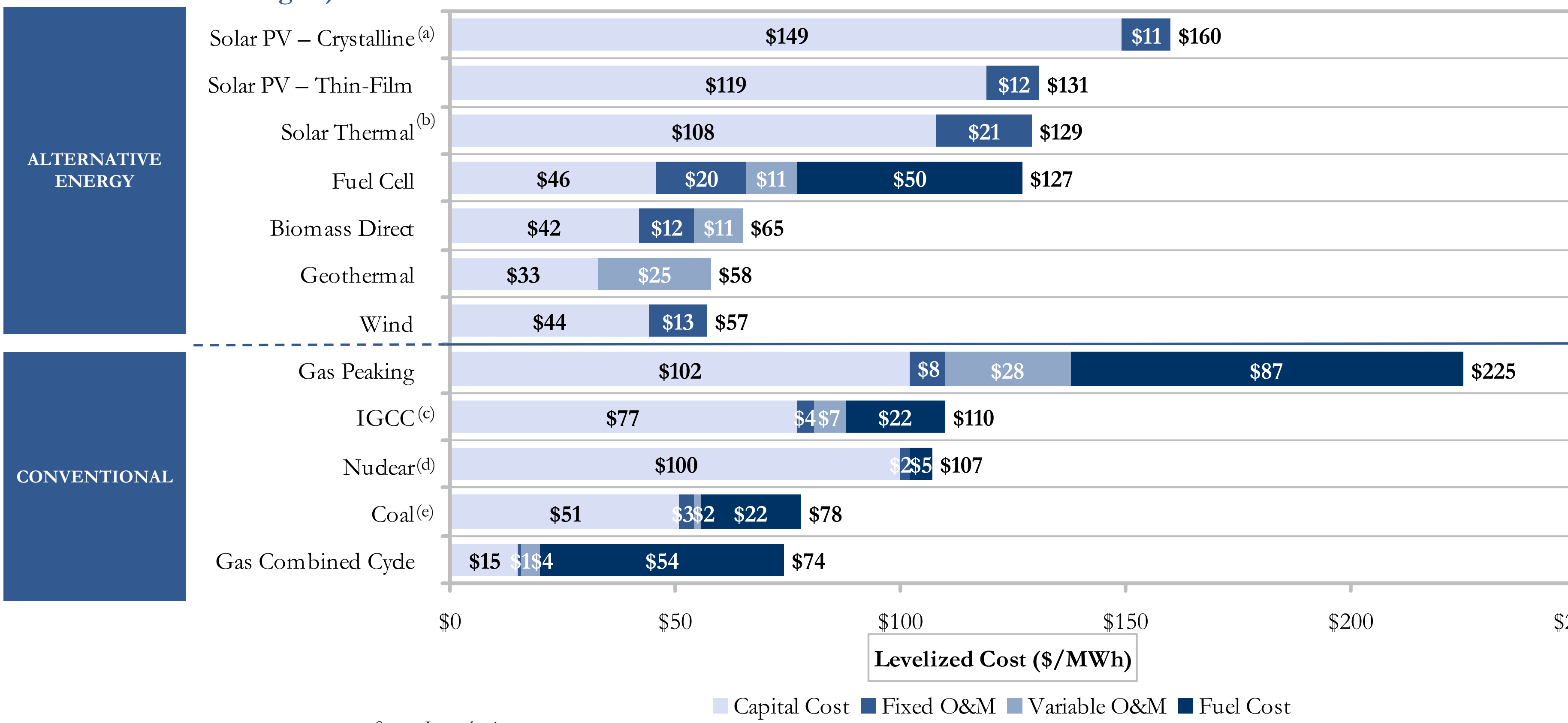
(e) High end incorporates 90% carbon capture and compression.

(f) Based on Southern Company's proposed IGCC facility in Mississippi that is expected to be in service in 2013, assuming a total system cost of $3.00 per watt and 50% carbon capture, per Southern Company public comments.

(g) Based on advanced supercritical pulverized coal. High end incorporates 90% carbon capture and compression.

Levelized Cost of Energy Components – Low End

Certain Alternative Energy generation technologies are already cost-competitive with conventional generation technologies; a key factor regarding the long-term competitiveness of currently more expensive Alternative Energy technologies is the ability of technological development and increased production volumes to materially lower the capital costs of certain Alternative Energy technologies, and their levelized cost of energy, over time (e.g., as is anticipated with solar PV technologies)



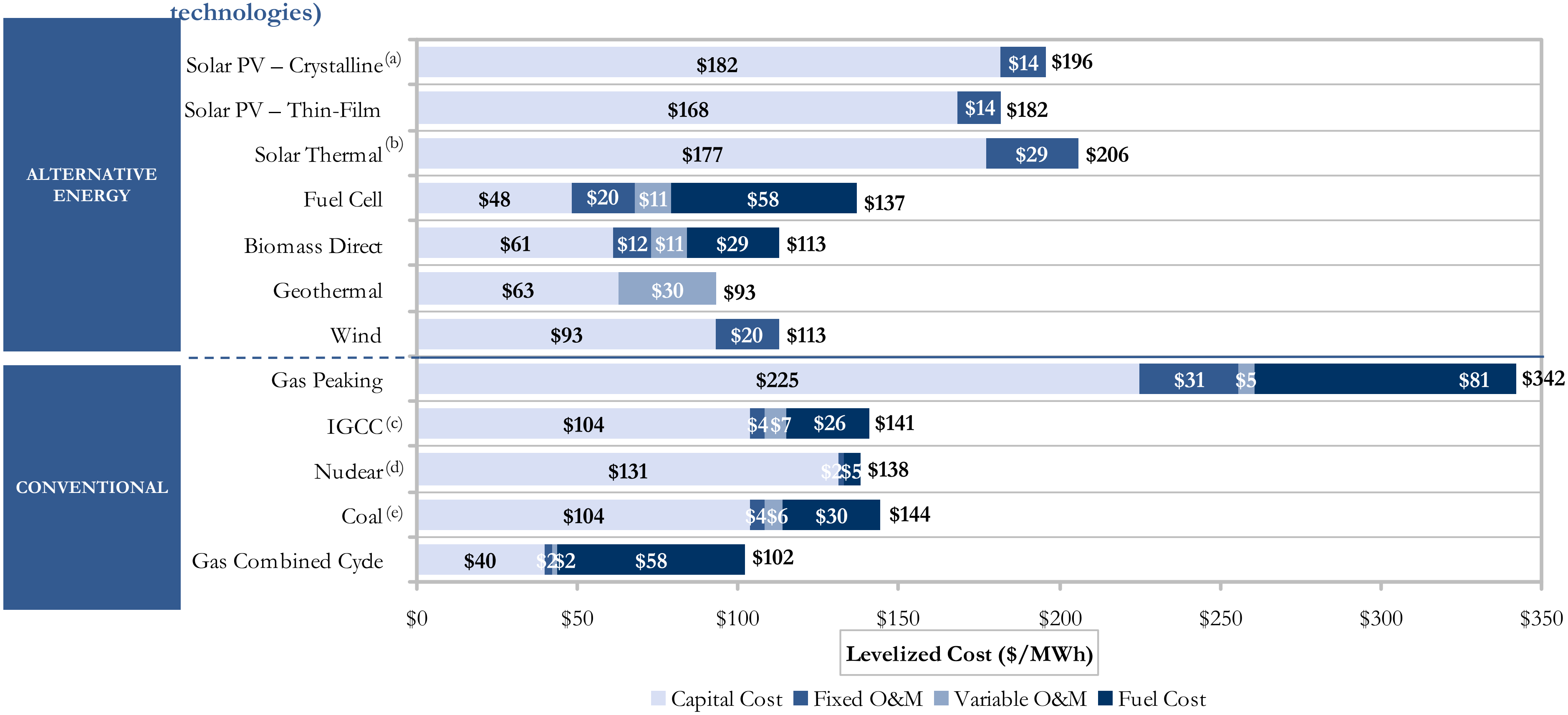
Source: Lazard estimates.

Note: Reflects production tax credit, investment tax credit and accelerated asset depreciation, as applicable. Assumes 2008 dollars, 20-year economic life, 40% tax rate and 5-20 year tax life. Assumes 30% debt at 8.0% interest rate, 40% tax equity at 8.5% cost and 30% common equity at 12% cost for Alternative Energy generation technologies. Assumes 60% debt at 8.0% interest rate and 40% equity at 12% cost for conventional generation technologies. Assumes coal price of $2.50 per MMBtu and natural gas price of $8.00 per MMBtu.

(a) Low end represents single-axis tracking crystalline. High end represents fixed installation.
(b) Low end represents solar tower. High end represents solar trough.
(c) Incorporates no carbon capture and compression.
(d) Does not reflect decommissioning costs or potential economic impact of federal loan guarantees or other subsidies.
(e) Based on advanced supercritical pulverized coal. Incorporates no carbon capture and compression.

Levelized Cost of Energy Components – High End

Certain Alternative Energy generation technologies are already cost-competitive with conventional generation technologies; a key factor regarding the long-term competitiveness of currently more expensive Alternative Energy technologies is the ability of technological development and increased production volumes to materially lower the capital costs of certain Alternative Energy technologies, and their levelized cost of energy, over time (e.g., as is anticipated with solar PV technologies)



Source: Lazard estimates.

Note: Reflects production tax credit, investment tax credit and accelerated asset depreciation, as applicable. Assumes 2008 dollars, 20-year economic life, 40% tax rate and 5-20 year tax life. Assumes 30% debt at 8.0% interest rate, 40% tax equity at 8.5% cost and 30% common equity at 12% cost for Alternative Energy generation technologies. Assumes 60% debt at 8.0% interest rate and 40% equity at 12% cost for conventional generation technologies. Assumes coal price of $2.50 per MMBtu and natural gas price of $8.00 per MMBtu.

(a) Low end represents single-axis tracking crystalline. High end represents fixed installation.
(b) Low end represents solar tower. High end represents solar trough.
(c) Incorporates 90% carbon capture and compression.
(d) Does not reflect decommissioning costs or potential economic impact of federal loan guarantees or other subsidies.
(e) Based on advanced supercritical pulverized coal. Incorporates 90% carbon capture and compression.

Energy Resources: Matrix of Applications

While the levelized cost of energy for Alternative Energy generation technologies is becoming increasingly competitive with conventional generation technologies, direct comparisons must take into account issues such as location (e.g., central station vs. customer-located), dispatch characteristics (e.g., baseload and/or dispatchable intermediate load vs. peaking or intermittent technologies), and contingencies such as carbon pricing

					LOCATION			DISPATCH			
		LEVELIZED COST OF ENERGY	CARBON NEUTRAL/ REC POTENTIAL	STATE OF TECHNOLOGY	CUSTOMER LOCATED	CENTRAL STATION	GEOGRAPHY	INTERMITTENT	PEAKING	LOAD-FOLLOWING	BASE-LOAD
ALTERNATIVE ENERGY	FUEL CELL	$127-137	? (a)	Emerging/ Commercial	✓		Universal				✓
	SOLAR PV	$131-196	✓	Newly Commercial	✓	✓	Universal	✓	✓		
	SOLAR THERMAL	$129-206	✓	Emerging		✓	Southwest	✓	✓	✓	
	BIOMASS DIRECT	$65-113	✓	Mature		✓	Universal			✓	✓
	WIND	$57-113	✓	Mature		✓	Varies	✓			
	GEOTHERMAL	$58-93	✓	Commercial/ Evolving		✓	Varies				✓
CONVENTIONAL	GAS PEAKING	$225-342	✗	Mature	✓	✓	Universal		✓		
	IGCC	$110-141	✗ (b)	Emerging (c)		✓	Co-located or rural				✓
	NUCLEAR	$107-138	✓	Mature/ Emerging		✓	Co-located or rural				✓
	COAL	$78-144	✗ (b)	Mature (c)		✓	Co-located or rural				✓
	GAS COMBINED CYCLE	$74-102	✗	Mature	✓	✓	Universal			✓	✓

Source: Lazard estimates.
(a) Qualification for RPS requirements varies by location.
(b) Could be considered carbon neutral technology, assuming carbon capture and compression.
(c) Carbon capture and compression technologies are in emerging stage.

Levelized Cost of Energy – Key Assumptions

		Solar PV		Solar Thermal	
	Units	Thin-Film Utility[b]	Crystalline Utility[c]	Trough-No Storage[d]	Tower[e]
Net Facility Output	MW	10	10	200	100
EPC Cost	$/kW	$3,250 - $4,000	$5,000 - $4,500	$4,500 - $5,800	$5,000 - $6,300
Owner's Cost	$/kW	included	included	included	included
Total Capital Cost[a]	$/kW	$3,250 - $4,000	$5,000 - $4,500	$4,500 - $5,800	$5,000 - $6,300
Fixed O&M	$/kW-yr	$25.00	$25.00	$66.00	$70.00
Variable O&M	$/MWh	—	—	—	—
Heat Rate	Btu/kWh	—	—	—	—
Capacity Factor	%	23% - 20%	27% - 20%	29% - 26%	35% - 38%
Fuel Price	$/MMBtu	—	—	—	—
Construction Time	Months	12	12	24	24
Facility Life	Years	20	20	20	20
CO_2 Equivalent Emissions	Tons/MWh	—	—	—	—
Investment Tax Credit	%	30%	30%	30%	30%
Production Tax Credit	$/MWh	—	—	—	—
Levelized Cost of Energy	$/MWh	$\boxed{\$131}$ - $182	$160 - $\boxed{\$196}$	$150 - $\boxed{\$206}$	$\boxed{\$129}$ - $169

Source: Lazard estimates.

Note: Reflects production tax credit, investment tax credit and accelerated asset depreciation, as applicable. Assumes 2008 dollars, 20-year economic life, 40% tax rate and 5-20 year tax life. Assumes 2.5% annual escalation for production tax credit, O&M costs and fuel prices. Assumes 30% debt at 8.0% interest rate, 40% tax equity at 8.5% cost and 30% common equity at 12% cost for Alternative Energy generation technologies. Assumes 60% debt at 8.0% interest rate and 40% equity at 12% cost for conventional generation technologies. Assumes coal price of $2.50 per MMBtu and natural gas price of $8.00 per MMBtu.

(a) Includes capitalized financing costs during construction for generation types with over 24 months construction time.
(b) An illustrative manufacturer of Thin-Film PV would be FirstSolar.
(c) Left side represents single-axis tracking crystalline; right side represents fixed installation. An illustrative manufacturer of high-efficiency Crystalline PV would be SunPower.
(d) Left side represents wet-cooled; right side represents dry-cooled. Illustrative manufacturers/developers of Trough Solar Thermal would be Abengoa Solar, Flagsol, SkyFuel, Solar Millennium, Solargenix and Solel.
(e) Represents a range of solar thermal tower estimates. Illustrative manufacturers/developers of Solar Thermal Tower would be BrightSource Energy, eSolar and SolarReserve.

Levelized Cost of Energy – Key Assumptions (cont'd)

	Units	IGCC[b]	Gas Combined Cycle	Gas Peaking[c]	Coal[d]	Nuclear[e]	Fuel Cell[f]
Net Facility Output	MW	580	550	150	600	1,100	2.3
EPC Cost	$/kW	$2,500 - $3,375	$700 - $875	$500 - $1,150	$1,825 - $3,825	$3,750 - $5,250	$3,000
Owner's Cost	$/kW	$1,575 - $2,175	$250 - $300	$175 - $425	$975 - $2,100	$2,575 - $3,125	$800
Total Capital Cost[a]	$/kW	$4,075 - $5,550	$950 - $1,175	$675 - $1,575	$2,800 - $5,925	$6,325 - $8,375	$3,800
Fixed O&M	$/kW-yr	$26.40 - $28.20	$5.50 - $6.20	$6.80 - $27.00	$20.40 - $31.60	$12.80	$169.00
Variable O&M	$/MWh	$6.80	$2.00 - $3.50	$28.00 - $4.70	$2.00 - $5.60	$11.00	$11.00
Heat Rate	Btu/kWh	8,800 - 10,520	6,800 - 7,220	10,880 - 10,200	8,870 - 11,900	10,450	6,240 - 7,260
Capacity Factor	%	80%	85% - 40%	10%	85%	90%	95%
Fuel Price	$/MMBtu	$2.50	$8.00	$8.00	$2.50	$0.50	$8.00
Construction Time	Months	57 - 63	36	25	60 - 66	69	3
Facility Life	Years	20	20	20	20	20	20
CO_2 Equivalent Emissions	Tons/MWh	0.93 - 0.11	0.40 - 0.42	0.40 - 0.42	0.94 - 0.13	—	0.36 - 0.42
Investment Tax Credit	%	—	—	—	—	—	30%
Production Tax Credit	$/MWh	—	—	—	—	—	—
Levelized Cost of Energy	$/MWh	$110 - $141	$74 - $102	$225 - $342	$78 - $144	$107 - $138	$127 - $137

Source: Lazard estimates.

Note: Reflects production tax credit, investment tax credit and accelerated asset depreciation, as applicable. Assumes 2008 dollars, 20-year economic life, 40% tax rate and 5-20 year tax life. Assumes 2.5% annual escalation for production tax credit, O&M costs and fuel prices. Assumes 30% debt at 8.0% interest rate, 40% tax equity at 8.5% cost and 30% common equity at 12% cost for Alternative Energy generation technologies. Assumes 60% debt at 8.0% interest rate and 40% equity at 12% cost for conventional generation technologies. Assumes coal price of $2.50 per MMBtu and natural gas price of $8.00 per MMBtu.

(a) Includes capitalized financing costs during construction for generation types with over 24 months construction time.
(b) High end incorporates 90% carbon capture and compression.
(c) Low end represents assumptions regarding GE 7FA. High end represents assumptions regarding GE LM6000PC.
(d) Based on advanced supercritical pulverized coal. High end incorporates 90% carbon capture and compression.
(e) Does not reflect decommissioning costs or potential economic impact of federal loan guarantees or other subsidies.
(f) Low end incorporates illustrative economic and efficiency benefits of combined heat and power ("CHP") applications.

Levelized Cost of Energy – Key Assumptions (cont'd)

	Units	Biomass Direct	Wind	Geothermal	Landfill Gas	Biomass Cofiring[b]
Net Facility Output	MW	35	100	30	5	2% - 20%[c]
EPC Cost	$/kW	$2,750 - $3,500	$1,900 - $2,500	$3,000 - $4,000	$1,500 - $2,000	$50 - $500
Owner's Cost	$/kW	400 - 500	included	$425 - $575	included	included
Total Capital Cost[a]	$/kW	$3,150 - $4,000	$1,900 - $2,500	$3,425 - $4,575	$1,500 - $2,000	$50 - $500
Fixed O&M	$/kW-yr	$83.00	$40.00 - $50.00	—	—	$10.00 - $20.00
Variable O&M	$/MWh	$11.00	—	$25.00 - $30.00	$17.00	—
Heat Rate	Btu/kWh	14,500	—	—	13,500	10,000
Capacity Factor	%	80%	36% - 28%	80% - 70%	80%	80%
Fuel Price	$/MMBtu	$0.00 - $2.00	—	—	$1.50 - $3.00	$0.00 - $2.00
Construction Time	Months	36	12	36	12	12
Facility Life	Years	20	20	20	20	20
CO_2 Equivalent Emissions	Tons/MWh	—	—	—	—	—
Investment Tax Credit	%	—	—	—	—	—
Production Tax Credit	$/MWh	$10	$20	$20	$10	—
Levelized Cost of Energy	$/MWh	$65 - $113	$57 - $113	$58 - $93	$55 - $87	$3 - $37

Source: Lazard estimates.

Note: Reflects production tax credit, investment tax credit and accelerated asset depreciation, as applicable. Assumes 2008 dollars, 20-year economic life, 40% tax rate and 5-20 year tax life. Assumes 2.5% annual escalation for production tax credit, O&M costs and fuel prices. Assumes 30% debt at 8.0% interest rate, 40% tax equity at 8.5% cost and 30% common equity at 12% cost for Alternative Energy generation technologies. Assumes 60% debt at 8.0% interest rate and 40% equity at 12% cost for conventional generation technologies. Assumes coal price of $2.50 per MMBtu and natural gas price of $8.00 per MMBtu.

(a) Includes capitalized financing costs during construction for generation types with over 24 months construction time.
(b) Represents retrofit cost of host coal plant.
(c) Additional output to a coal facility.

Summary Considerations

Lazard has conducted this study comparing the levelized cost of energy for various conventional and Alternative Energy generation technologies in order to understand which Alternative Energy generation technologies may be cost-competitive with conventional generation technologies, either now or in the future, and under various operating assumptions, as well as to understand which technologies are best suited for various applications based on locational requirements, dispatch characteristics and other factors. We find that Alternative Energy technologies are complementary to conventional generation technologies, and believe that their use will be increasingly prevalent for a variety of reasons, including government subsidies, RPS requirements, and continuously improving economics as underlying technologies improve and production volumes increase.

In this study, Lazard's approach was to determine the levelized cost of energy, on a $/MWh basis, that would provide an after-tax IRR to equity holders equal to an assumed cost of equity capital. Certain assumptions (e.g., required debt and equity returns, capital structure, and economic life) were identical for all technologies, in order to isolate the effects of key differentiated inputs such as investment costs, capacity factors, operating costs, fuel costs (where relevant) and U.S. federal tax incentives on the levelized cost of energy. These inputs were developed with a leading consulting and engineering firm to the Power & Energy Industry, augmented with Lazard's commercial knowledge where relevant.

Lazard has not manipulated capital costs or capital structure for various technologies, as the goal of the study was to compare the current state of various generation technologies, rather than the benefits of financial engineering. The results contained in this study would be altered by different assumptions regarding capital structure (e.g., increased use of leverage) or capital costs (e.g., a willingness to accept lower returns than those assumed herein).

Key sensitivities examined included fuel costs and illustrative carbon emission costs. Other factors would also have a potentially significant effect on the results contained herein, but have not been examined in the scope of this current analysis. These additional factors, among others, could include scale benefits or detriments, the value of Renewable Energy Credits ("RECs") or carbon emissions offsets, the impact of transmission costs, and the economic life of the various assets examined.