The Costs of Scottish Independence – The Economic Implications of Scottish Electricity Companies: A Case Study of SSE and Scottish Power

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BACKGROUND

Scottish Independence would probably stop BETTA. The consequences for SSE and Scottish Power:

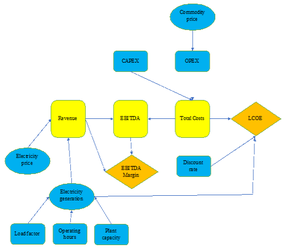
1. renewable subsidy would be stopped, and
2. market size would be mitigated.

Research objectives:

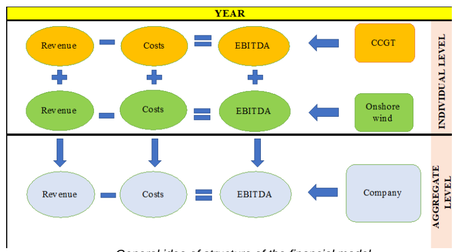
to understand the following issues:

1. The key potential of economic implications of SI to financial performance of SSE and SP.
2. The costs of SI towards financial performance of SSE and SP.
3. The policies of SSE and SP under SI as anticipation to maximize their profits.
4. The role of vertical integration under SI.

METHODOLOGY & DATA



Model influence diagram



General idea of structure of the financial model

Variable Inputs Assumptions	CCGT	Wind
Total Capacity (MWh) - SSE	4,790	1,654
Total Capacity (MWh) - SP	1,999	1,319
Number of power plants - SSE	6	16
Number of power plants - SP	4	9

Summary of power generation profiles of SSE and SP

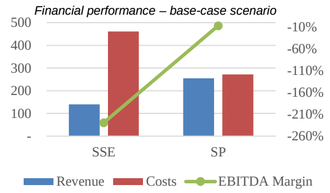
	Electricity price (£/MWh)	Percentage from revenue		Additional transmission network costs (£/year)
		SSE	SP	
BETTA	97	100%	100%	-
Base case scenario	70	20%	56%	154k
Alternative scenario	70	42%	39%	154k

Basic assumptions

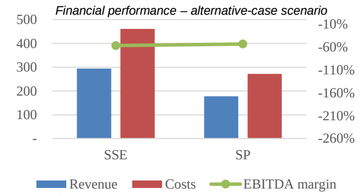
RESULTS

Profitability analysis

Financial performance – base-case scenario



Financial performance – alternative-case scenario



EBITDA breakdown comparison in 2020 – base-case scenario

	Base Case	Remained UK	Decrease	%
SSE (£ million)				
CCGT	(305)	9	(314)	-3508%
Onshore wind	(16)	341	(357)	-105%
Total	**(321)**	**350**	**(671)**	**-192%**
SP (£ million)				
CCGT	(89)	8	(97)	-1188%
Onshore wind	71	262	(191)	-73%
Total	**(18)**	**270**	**(288)**	**-107%**

EBITDA breakdown comparison in 2020 – alter.-case scenario

	Alternative case	Remained UK	Decrease	%
SSE (£ million)				
CCGT	(217)	9	(226)	-2495%
Onshore wind	50	341	(291)	-85%
Total	**(167)**	**350**	**(517)**	**-148%**
SP (£ million)				
CCGT	(127)	8	(135)	-1649%
Onshore wind	32	262	(230)	-88%
Total	**(95)**	**270**	**(365)**	**-135%**

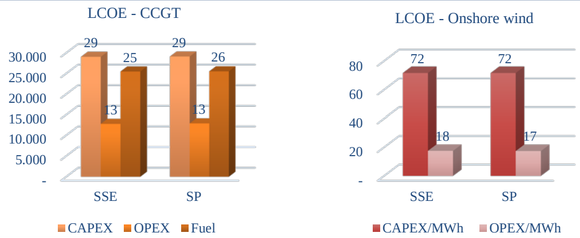
Estimated effect on aggregate EBITDA – base-case scenario

	Total costs of SI in 2020[1]	Estimated Aggregate EBITDA remained UK[2]	Estimated Aggregate EBITDA under SI[3=1+2]	Change[4=1:2]
EBITDA SSE	(671)	212	(459)	-317%
EBITDA SP	(288)	17	(271)	-1675%

Estimated effect on aggregate EBITDA – alter-case scenario

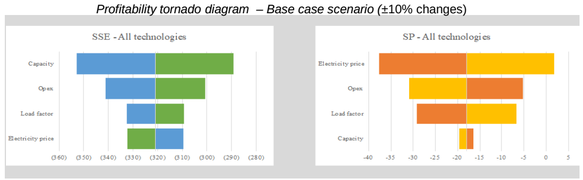
	Total costs of SI in 2020[1]	Estimated Aggregate EBITDA remained UK[2]	Estimated Aggregate EBITDA under SI[3=1+2]	Change[4=1:2]
EBITDA SSE	(517)	212	(305)	-244%
EBITDA SP	(365)	17	(348)	-2121%

LCOE analysis

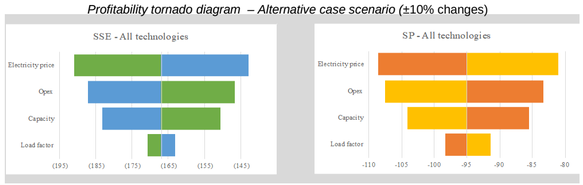


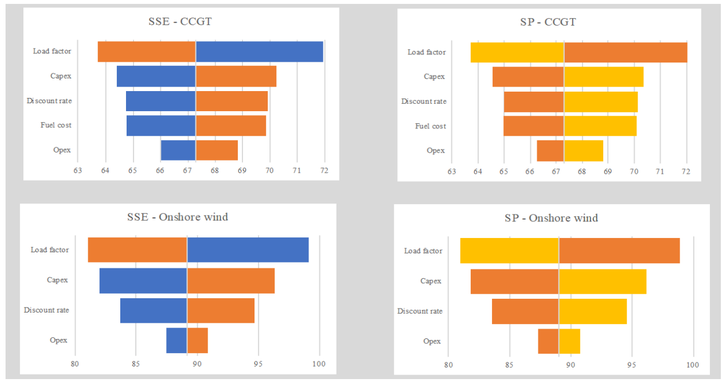
Sensitivity analysis

Profitability tornado diagram – Base case scenario (±10% changes)



Profitability tornado diagram – Alternative case scenario (±10% changes)





Tornado diagram – LCOE analysis (±10% changes to key parameters)

Market analysis

Description	SSE	SP
Demand (in MWh)[(1)]	10,816,215	10,816,215
Supply (in MWh)[2]	4,274,267	3,328,450
Deficit supply (in MWh)[(3)=(1)-(2)]	6,541,948	7,487,765
Current installed capacity (in MW)[(4)]	1,654	1,319
Proportion deficit supply to current supply[(5)=(3)/(2)]	1.53	2.25
Required new installed capacity (in MW)[(6)=(4)x(5)]	2,532	2,967

Electricity supply and demand forecast in 2020

CONCLUSION

- SI generates losses for SSE and SP under both scenarios.
- At the generation business level, SSE is affected more than SP.
- At the aggregate level of all business, SP is burdened more costs.
- Profitability of onshore wind projects are more sensitive to SI.
- LCOE both companies is higher than electricity price under SI.
- In the future, both companies could improve their LCOE components through inventiveness as vertically integrated firms by engaging long-term contract and optimizing capacity through technological innovation.

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