

1 Appendices

2 Appendix A: Model structure

3 A linear optimisation model of a combined India-GCC power system was developed using
 4 OSeMOSYS, an **open-source** energy system modelling tool. The model scope was as
 5 follows:

6 Geographic scope (14 regions):

7 Bahrain, Kuwait, Oman, Qatar, Saudi Arabia (4 regions), UAE

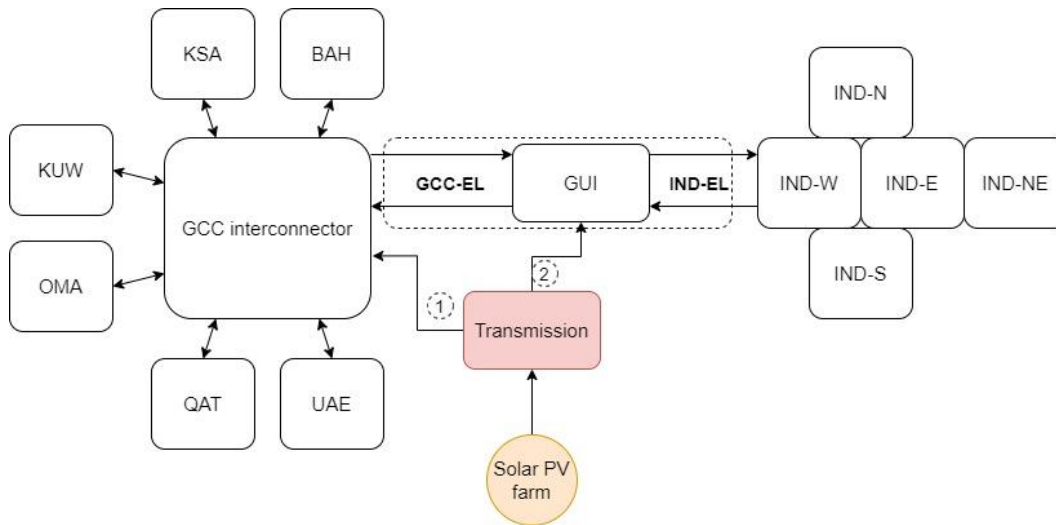
8 India (5 regions)

9 Powerplant technologies (14 types): Coal, Natural Gas, Oil, Diesel, Waste, Biomass,
 10 Hydro, Geothermal, Wind, Solar photovoltaics, Concentrating Solar Power, Wind, Wave,
 11 and Nuclear

12 Time resolution (96 representative 'time slices'): 24 hours, 4 seasons

13 Model horizon: 2015-2050

14 A simplified structure of the model is shown below.



15 **Figure 1. Simplified model structure**

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17 Appendix B: Scenario table

18 **Table 1.** Summary of twenty-five 'samples' covering the ranges of cost variables

Sample	CapitalCost	DiscountRate	DiscountRateIdv	FixedCostPercent
0	507	5.78%	5.07%	1.5%
1	1703	7.78%	6.03%	1.7%
2	1548	6.13%	9.12%	1.6%
3	1396	8.87%	8.04%	2.0%
4	921	5.30%	7.64%	1.6%
5	1445	5.85%	6.57%	1.8%
6	1573	8.61%	9.23%	1.5%
7	1301	8.22%	7.00%	1.3%

8	1981	6.84%	7.57%	1.4%
9	963	9.25%	6.94%	1.4%
10	1043	9.57%	9.89%	1.5%
11	565	8.44%	9.46%	1.6%
12	1192	5.41%	8.26%	1.9%
13	801	7.19%	5.72%	1.9%
14	602	8.18%	5.39%	1.7%
15	1655	6.50%	8.50%	1.3%
16	1911	7.36%	6.72%	1.8%
17	1808	9.08%	6.21%	1.2%
18	642	9.67%	9.67%	1.3%
19	1094	6.26%	5.83%	2.0%
20	1333	5.02%	5.55%	1.3%
21	1247	9.86%	8.86%	2.0%
22	863	7.92%	7.39%	2.1%
23	1843	6.71%	8.69%	2.0%
24	721	7.59%	7.84%	1.8%

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20 **Appendix C: Risk Sensitivity**

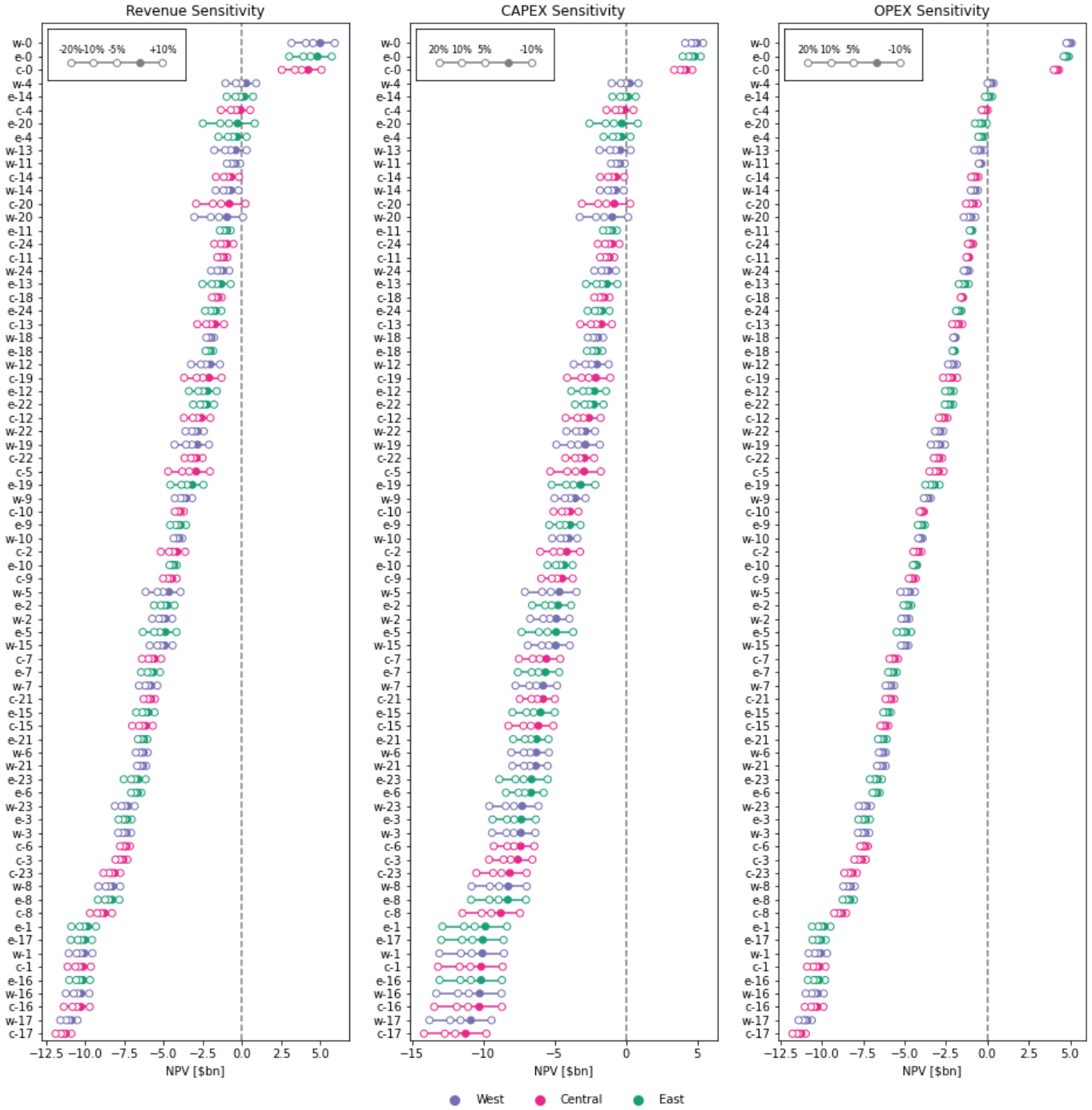


Figure 2: NPV impairment due to interdiction of CAPEX, OPEX, and revenue

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