

APPENDIX A – Development: energy production correlations for wind and solar power

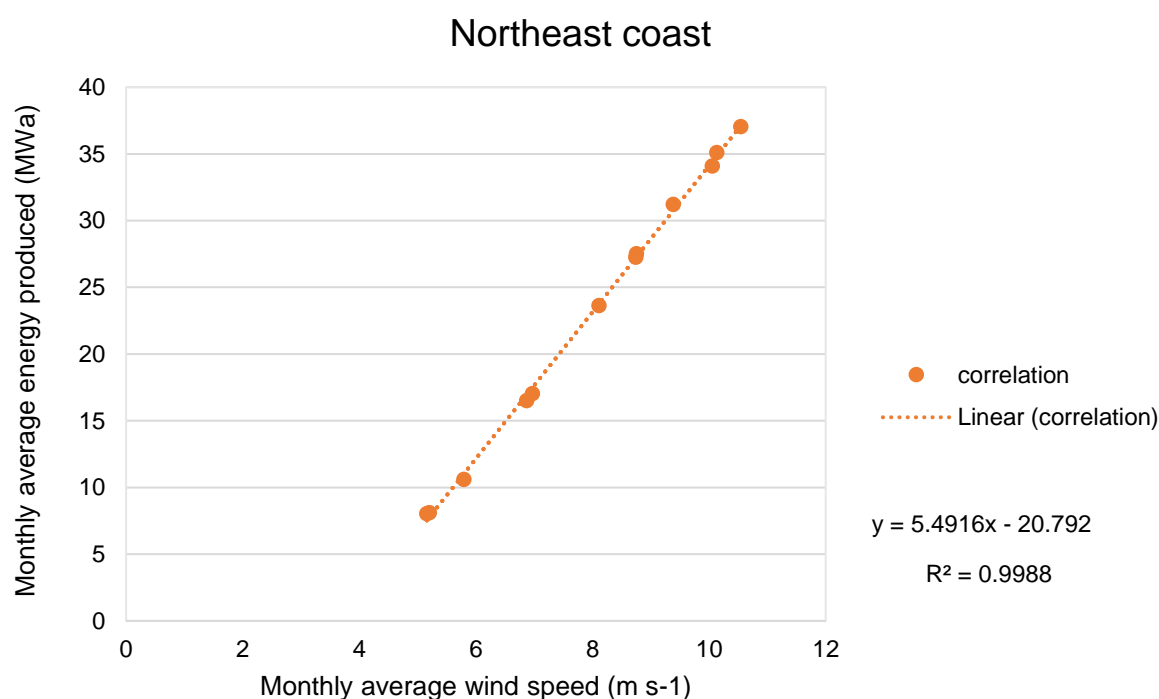


Figure A-1 – Correlation between monthly average wind speed and monthly average energy produced in the Northeast coast spot.

Table A-1 – Capacity factor season average comparison between VWF model results, historical results from ONS, and RCP results from CORDEX data for wind farm spot in the Northeast coast region for the year 2019.

Northeast coast - historical year 2019					
	VWF model	ONS (historical)	RCP 2.6	RCP 4.5	RCP 8.5
summer	0.379	0.387	0.265	0.182	0.183
autumn	0.226	0.183	0.207	0.031	0.026
winter	0.595	0.473	0.776	0.423	0.544
spring	0.706	0.753	0.883	0.818	0.844

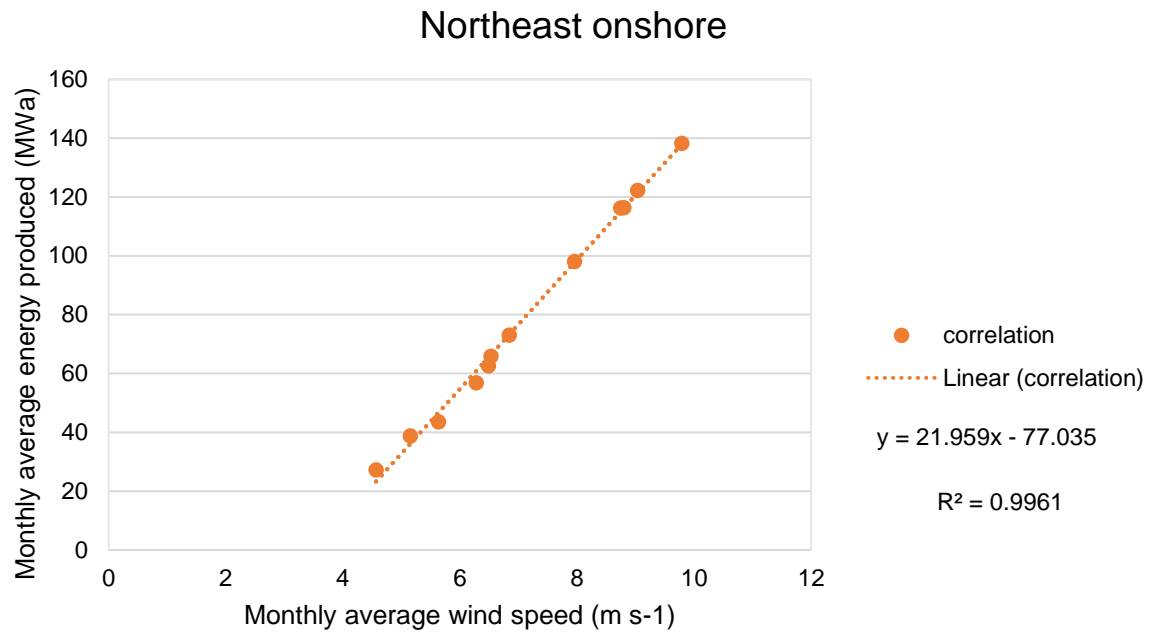


Figure A-2 – Correlation between monthly average wind speed and monthly average energy produced in the Northeast onshore spot.

Table A-2 - Capacity factor season average comparison between VWF model results, historical results from ONS, and RCP results from CORDEX data for wind farm spot in the Northeast onshore region for the year 2019.

Northeast onshore - historical year 2019					
	VWF model	ONS (historical)	RCP 2.6	RCP 4.5	RCP 8.5
summer	0.244	0.300	0.067	0.003	0.008
autumn	0.236	0.373	0.203	0.071	0.102
winter	0.613	0.670	0.610	0.614	0.570
spring	0.467	0.523	0.538	0.452	0.498

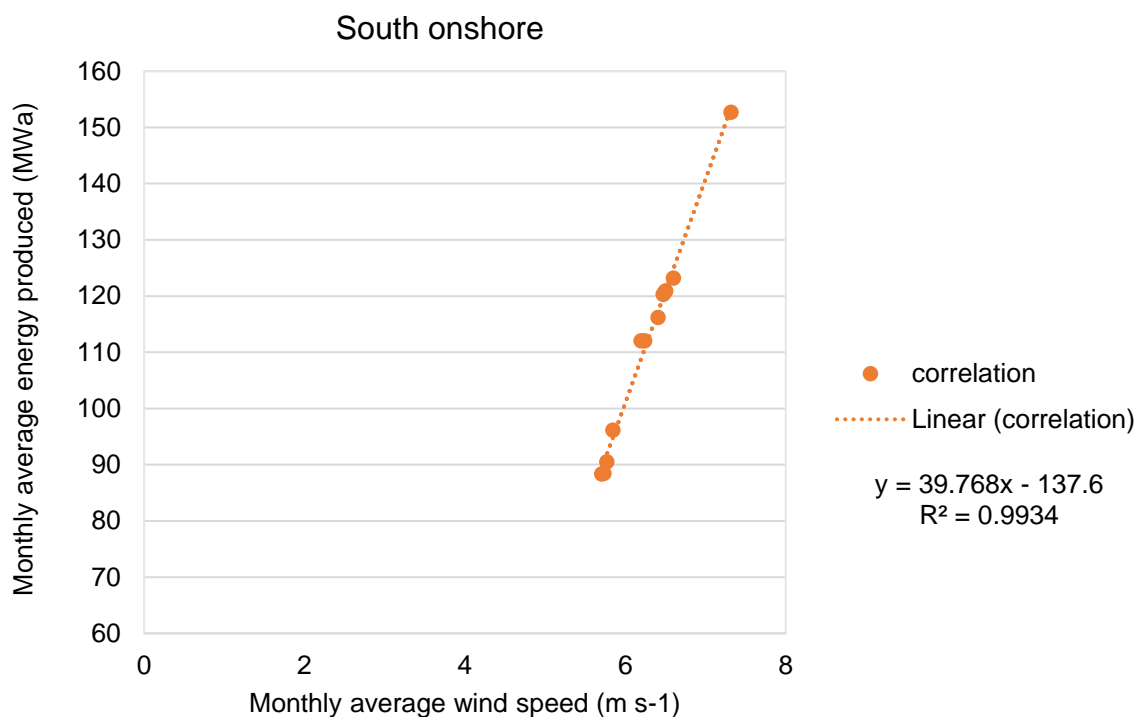


Figure A-3 - Correlation between monthly average wind speed and monthly average energy produced in the South onshore spot.

Table A-3 - Capacity factor season average comparison between VWF model results, historical results from ONS, and RCP results from CORDEX data for wind farm spot in the South onshore region for the year 2019

South onshore - historical year 2019					
	VWF model	ONS (historical)	RCP 2.6	RCP 4.5	RCP 8.5
summer	0.291	0.270	0.433	0.461	0.360
autumn	0.271	0.207	0.262	0.293	0.320
winter	0.287	0.280	0.316	0.244	0.267
spring	0.342	0.347	0.515	0.438	0.539

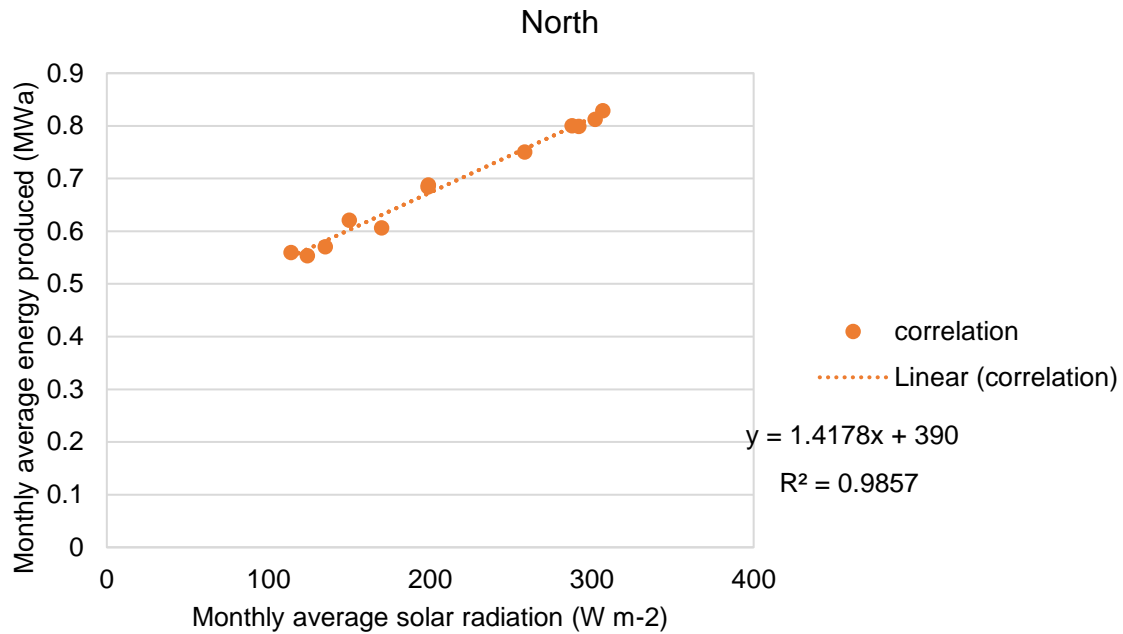


Figure A-4 - Correlation between monthly average solar radiation and monthly average energy produced in the North region spot.

Table A-4 – Capacity factor season average comparison between GSEE model results, and RCP results from CORDEX data for solar power plant spot in the North region for the year 2019.

North - historical year 2019					
	GSEE model	ONS (historical)	RCP 2.6	RCP 4.5	RCP 8.5
summer	0.21	n.a.	0.24	0.24	0.24
autumn	0.19	n.a.	0.23	0.23	0.22
winter	0.23	n.a.	0.24	0.24	0.24
spring	0.26	n.a.	0.25	0.25	0.26

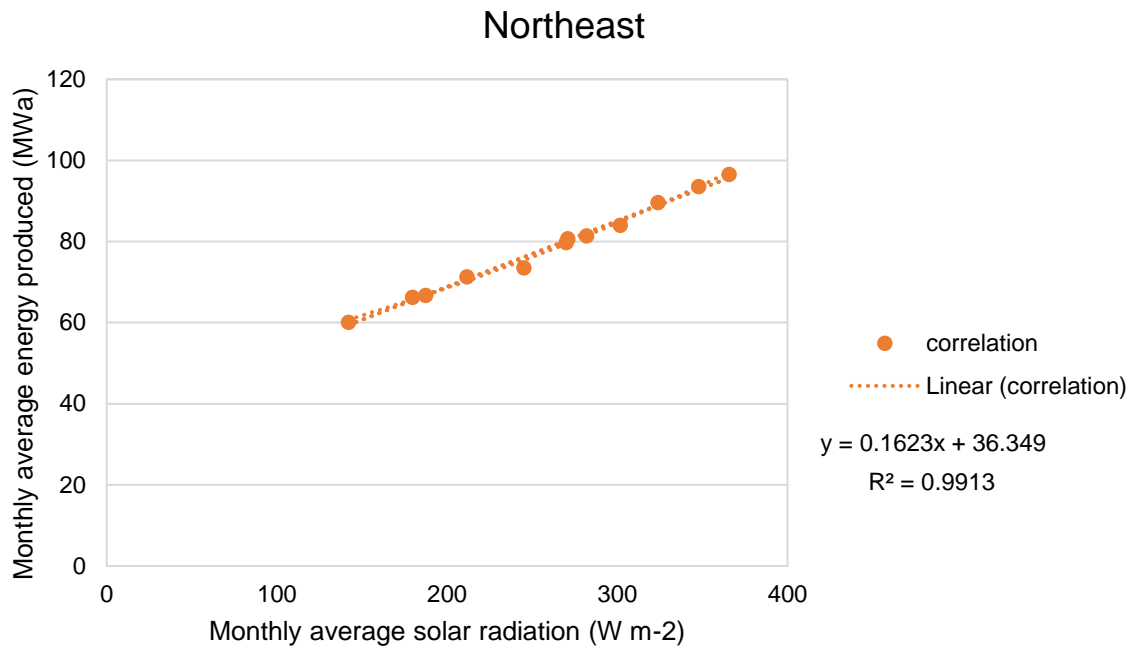


Figure A-5 - Correlation between monthly average solar radiation and monthly average energy produced in the Northeast region spot.

Table A-5 - Capacity factor season average comparison between GSEE model results, historical results from ONS, and RCP results from CORDEX data for solar power plant spot in the Northeast region for the year 2019.

Northeast - historical year 2019					
	GSEE model	ONS (historical)	RCP 2.6	RCP 4.5	RCP 8.5
summer	0.244	0.250	0.239	0.224	0.236
autumn	0.237	0.253	0.251	0.226	0.229
winter	0.296	0.307	0.264	0.260	0.265
spring	0.308	0.293	0.295	0.289	0.296

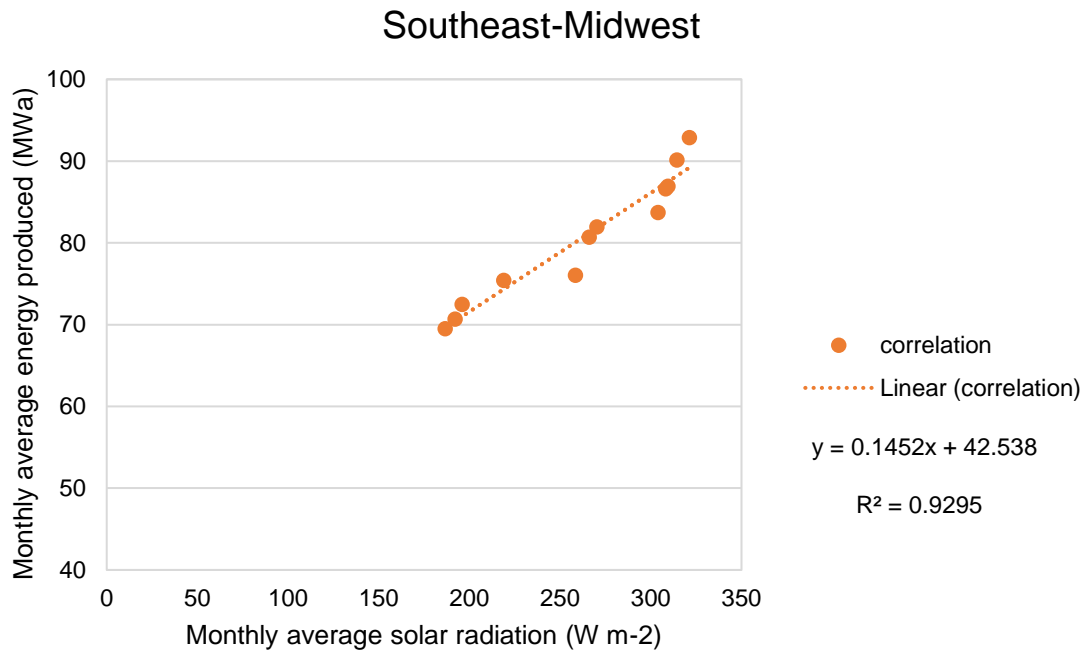


Figure A-6 - Correlation between monthly average solar radiation and monthly average energy produced in the Southeast/Midwest region spot.

Table A-6 - Capacity factor season average comparison between GSEE model results, historical results from ONS, and RCP results from CORDEX data for solar power plant spot in the Southeast/Midwest region for the year 2019.

Southeast/ Midwest - historical year 2019					
	GSEE model	ONS (historical)	RCP 2.6	RCP 4.5	RCP 8.5
summer	0.251	0.287	0.267	0.255	0.255
autumn	0.234	0.245	0.243	0.241	0.235
winter	0.267	0.255	0.233	0.234	0.232
spring	0.252	0.253	0.259	0.255	0.258

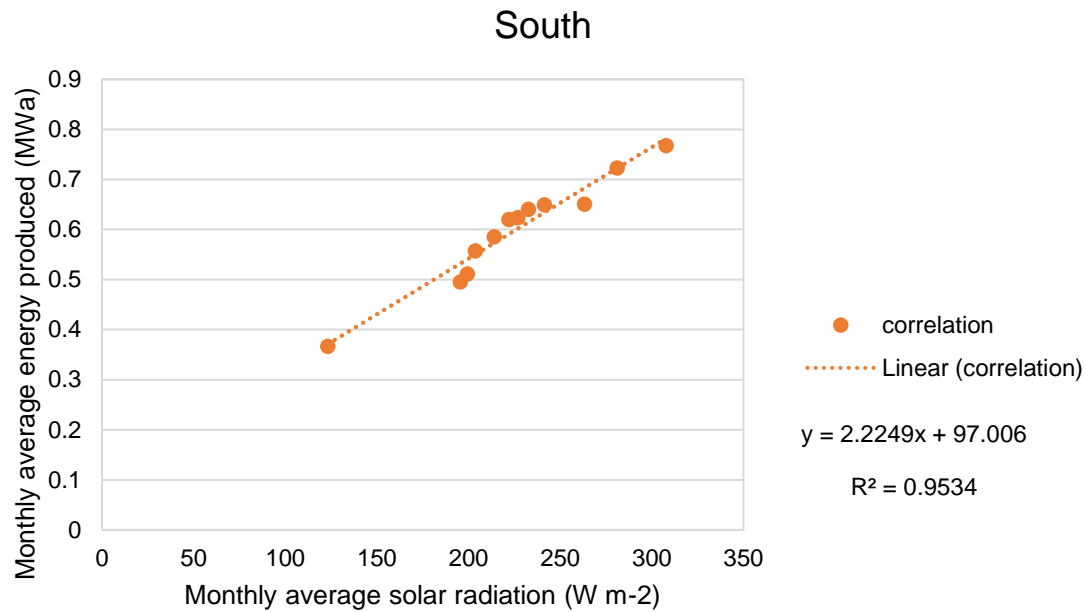


Figure A-7 - Correlation between monthly average solar radiation and monthly average energy produced in the South region spot.

Table A-7 - Capacity factor season average comparison between GSEE model results, and RCP results from CORDEX data for solar power plant spot in the South region for the year 2019.

South - historical year 2019					
	GSEE model	ONS (historical)	RCP 2.6	RCP 4.5	RCP 8.5
summer	0.262	n.a.	0.269	0.256	0.256
autumn	0.198	n.a.	0.183	0.197	0.189
winter	0.211	n.a.	0.172	0.182	0.177
spring	0.251	n.a.	0.261	0.261	0.245