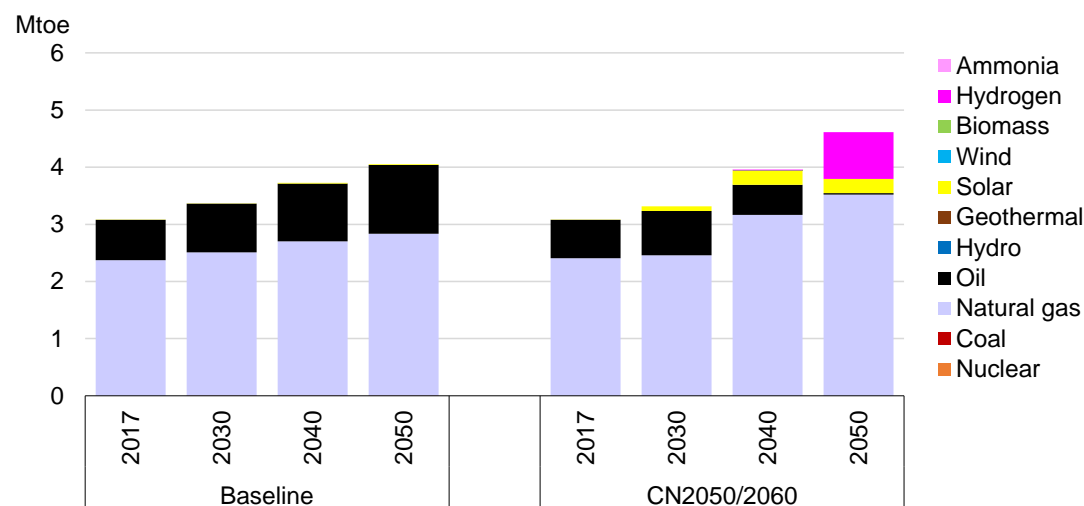


Appendix

1. Brunei Darussalam

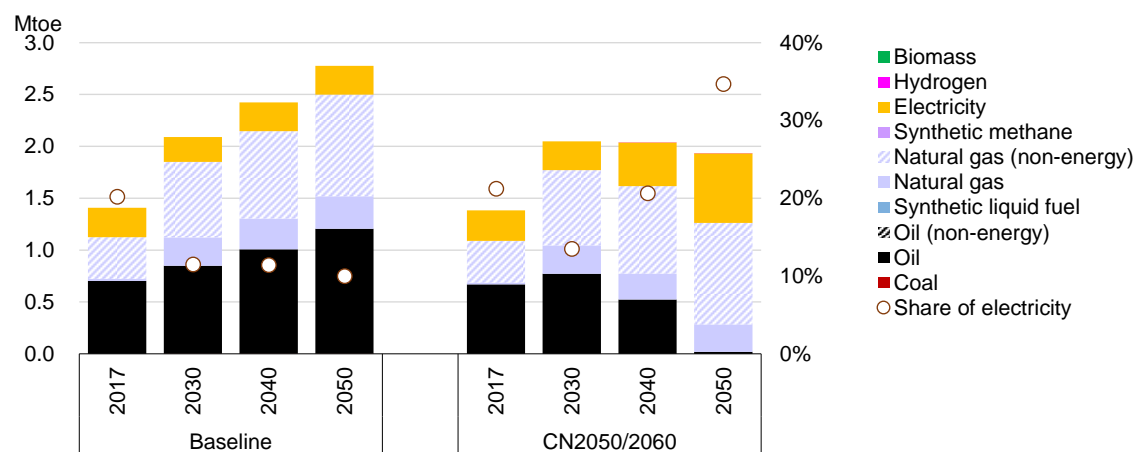
(a) CN2050/2060

Figure A.1. Primary Energy Supply (BRN-CN2050/2060)



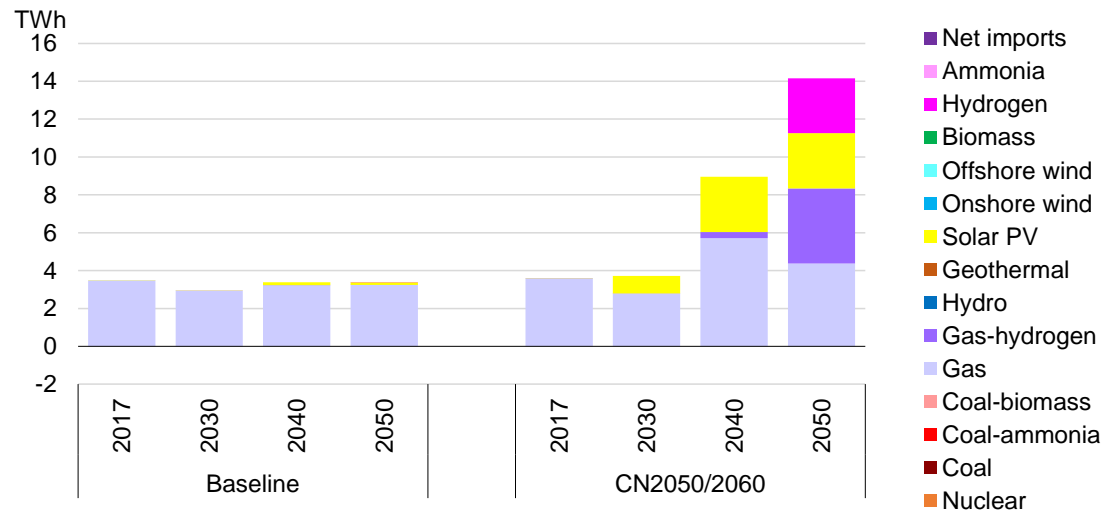
BRN = Brunei Darussalam, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.2. Final Energy Consumption (BRN-CN2050/2060)



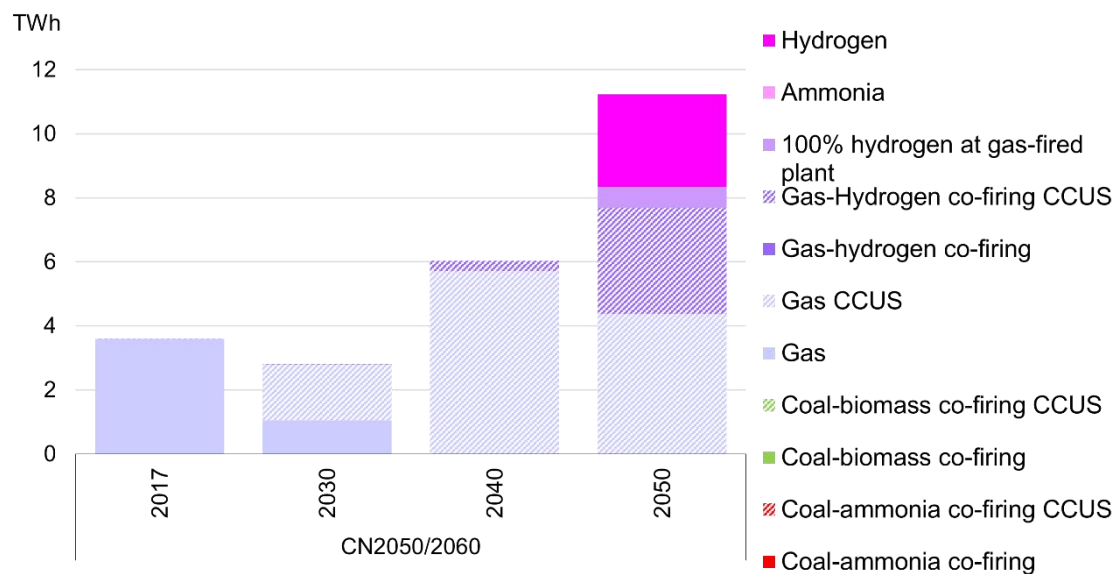
BRN = Brunei Darussalam, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.3. Power Generation (BRN-CN2050/2060)



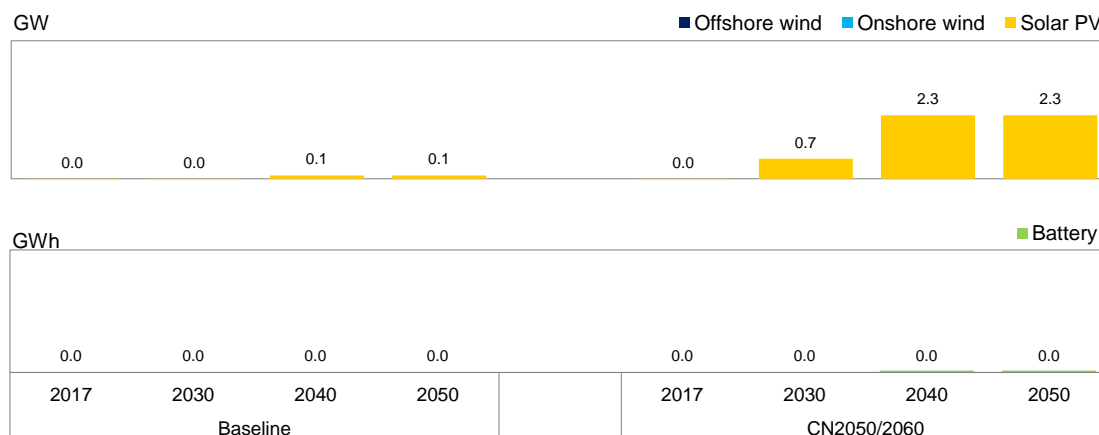
BRN = Brunei Darussalam, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

Figure A.4. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (BRN-CN2050/2060)



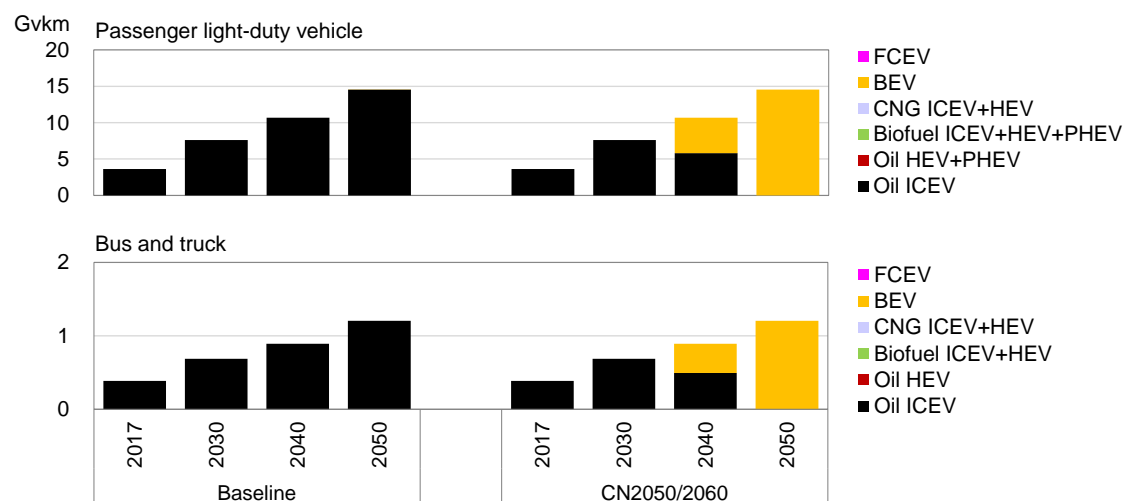
BRN = Brunei Darussalam; CCUS = carbon dioxide capture, utilisation, and storage; TWh = terawatt-hour.
Source: Author.

Figure A.5. Variable Renewable Energy and Battery (BRN-CN2050/2060)



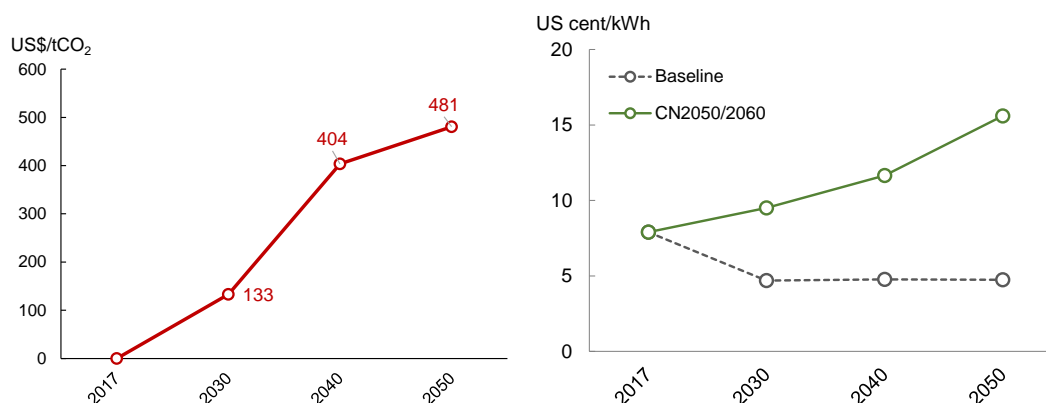
BRN = Brunei Darussalam, GW = gigawatt, GWh = gigawatt-hour, PV = photovoltaic.
Source: Author.

Figure A.6. Travel Distance by Vehicle Technology (BRN-CN2050/2060)



BEV = battery electric vehicle, BRN = Brunei Darussalam, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, PHEV = plug-in hybrid electric vehicle.
Source: Author.

**Figure A.7. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(BRN-CN2050/2060)**



BRN = Brunei Darussalam, kWh = kilowatt-hour, tCO₂ = tonne of carbon dioxide.
Source: Author.

**Table A.1. Carbon Dioxide Emission Baseline and with Carbon Sink Scenarios
(BRN-CN2050/2060)**

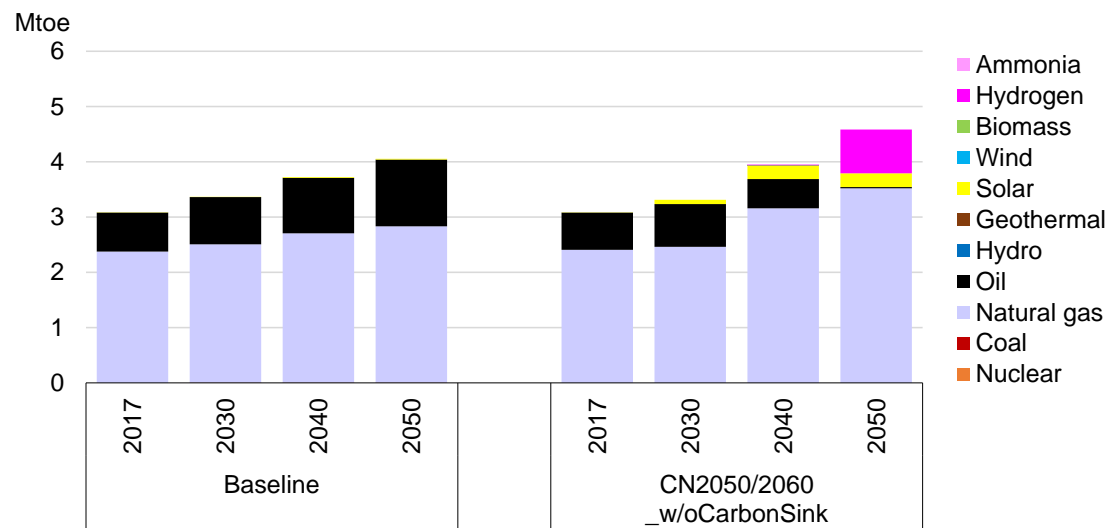
	Baseline (MtCO ₂)					BRN-CN2050/2060 (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	2.46	1.41	1.54	1.48	1.26	2.54	0.58	0.27	0.32	0.33
Industry	0.41	0.39	0.40	0.41	0.42	0.41	0.14	0.04	0.04	0.04
Transport	1.56	2.28	2.73	3.30	4.38	1.45	2.28	1.54	0.06	0.03
Other end use	0.17	0.50	0.55	0.59	0.66	0.17	0.50	0.55	0.58	0.64
Other including DACCS	2.14	2.14	2.14	2.14	2.14	2.14	2.14	0.42	-0.99	-1.04
LULUCF						0.00	0.00	0.00	0.00	0.00
Energy-related CO₂ emissions	6.73	6.72	7.37	7.93	8.85	6.71	5.64	2.82	0.00	0.00

BRN = Brunei Darussalam, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.

Source: Author.

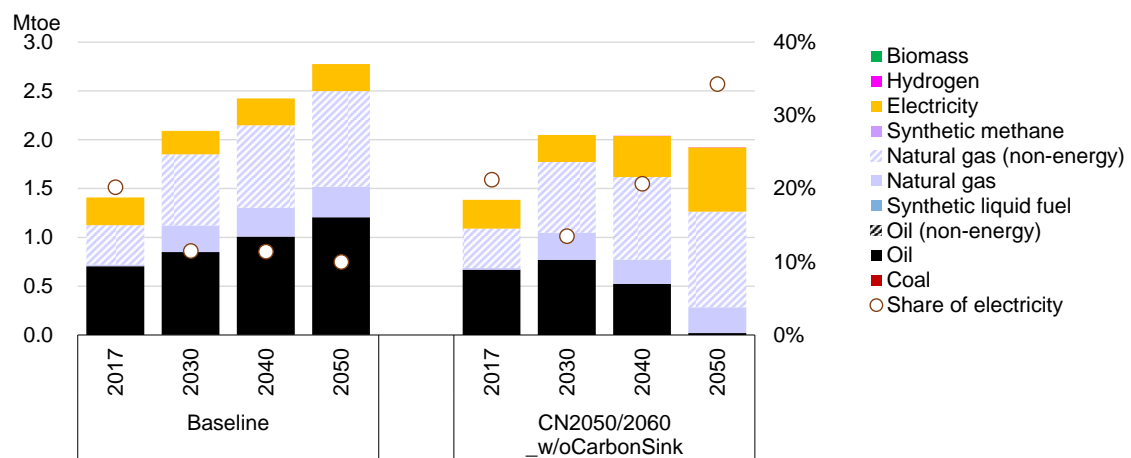
(b) CN2050/2060_w/oCarbonSink

Figure A.8. Primary Energy Supply (BRN-CN2050/2060_w/oCarbonSink)



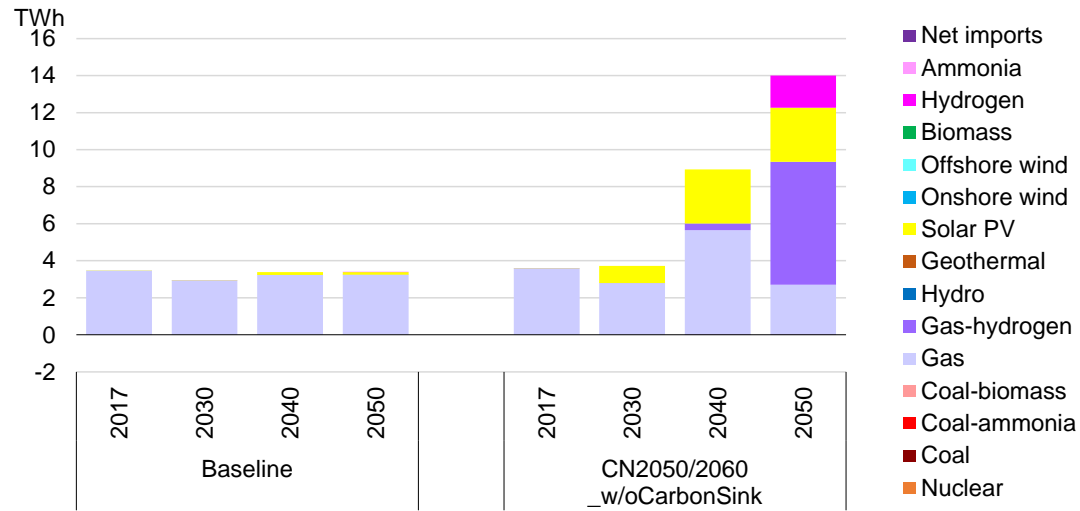
BRN = Brunei Darussalam, Mtoe = million tonnes of oil equivalent .
Source: Author.

Figure A.9. Final Energy Consumption (BRN-CN2050/2060_w/oCarbonSink)



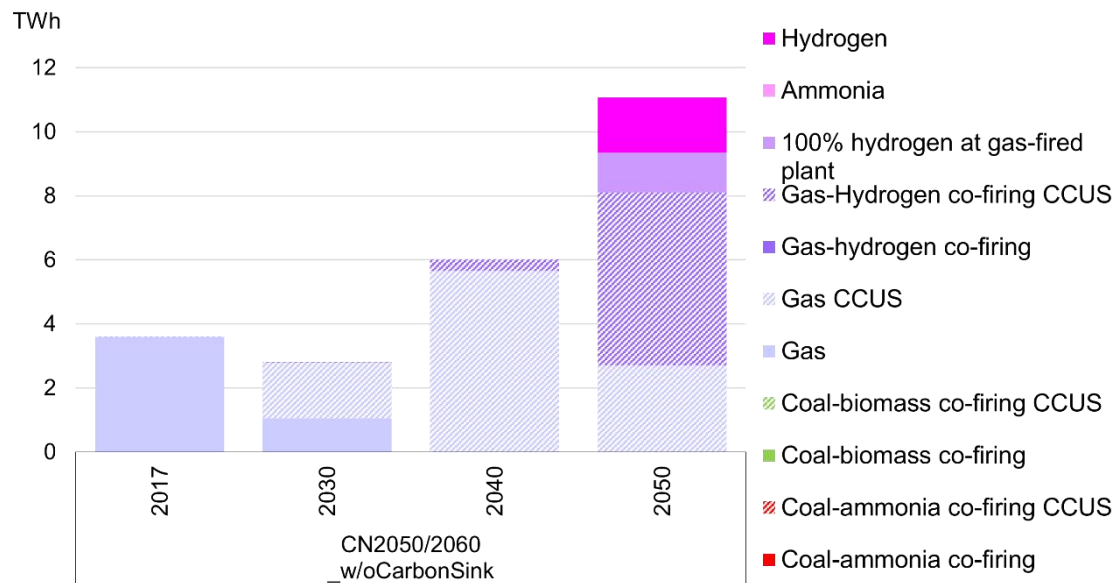
BRN = Brunei Darussalam, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.10. Power Generation (BRN-CN2050/2060_w/oCarbonSink)



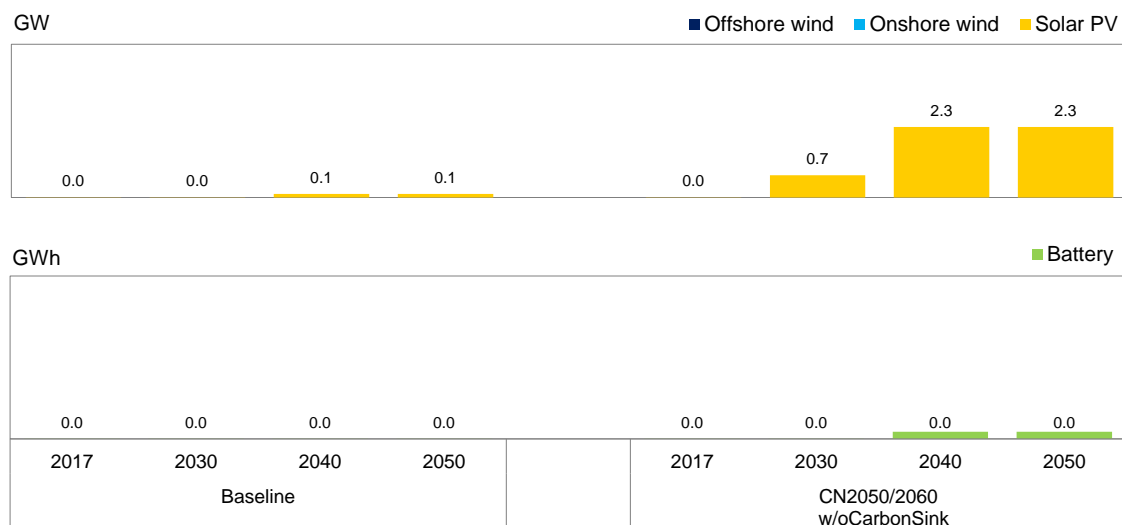
BRN = Brunei Darussalam, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

Figure A.11. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (BRN-CN2050/2060_w/oCarbonSink)



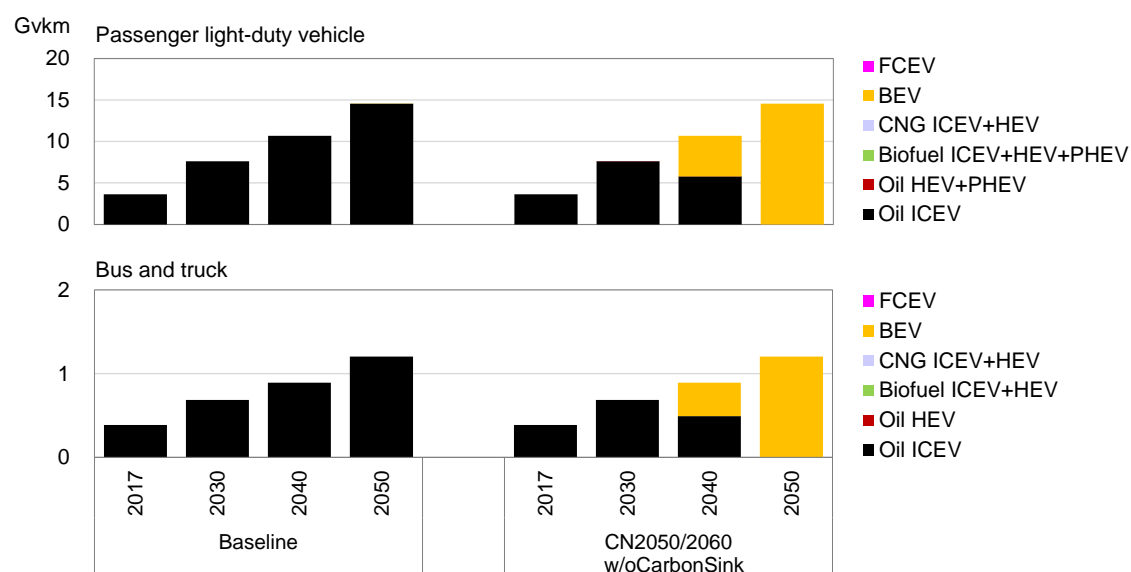
BRN = Brunei Darussalam; CCUS = carbon dioxide capture, utilisation, and storage; TWh = terawatt-hour.
Source: Author.

Figure A.12. Variable Renewable Energy and Battery (BRN-CN2050/2060_w/oCarbonSink)



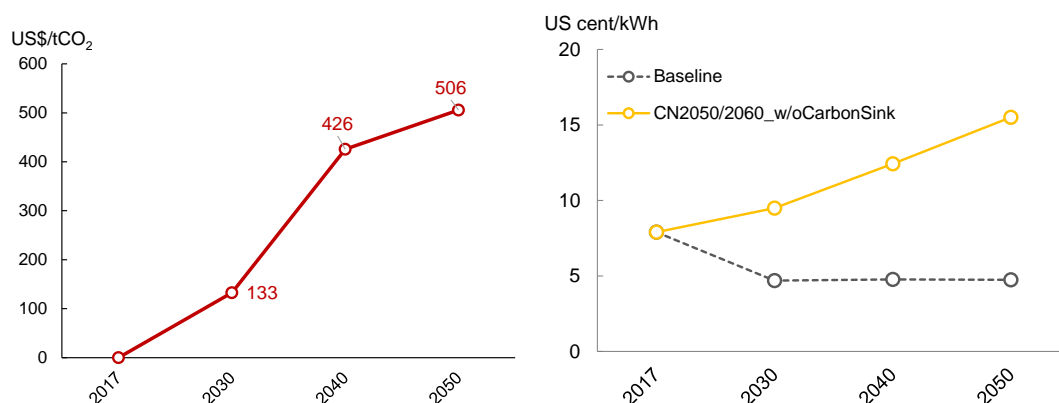
BRN = Brunei Darussalam, GW = gigawatt, GWh = gigawatt-hour, PV = photovoltaic.
Source: Author.

Figure A.13. Travel Distance by Vehicle Technology (BRN-CN2050/2060_w/oCarbonSink)



BEV = battery electric vehicle, BRN = Brunei Darussalam, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, PHEV = plug-in hybrid electric vehicle.
Source: Author.

**Figure A.14. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(BRN-CN2050/2060_w/oCarbonSink)**



BRN = Brunei Darussalam, kWh = kilowatt-hour, tCO₂ = tonne of carbon dioxide.
Source: Author.

**Table A.2. Carbon Dioxide Emission Baseline and without Carbon Sink Scenarios
(BRN-CN2050/2060_w/oCarbonSink)**

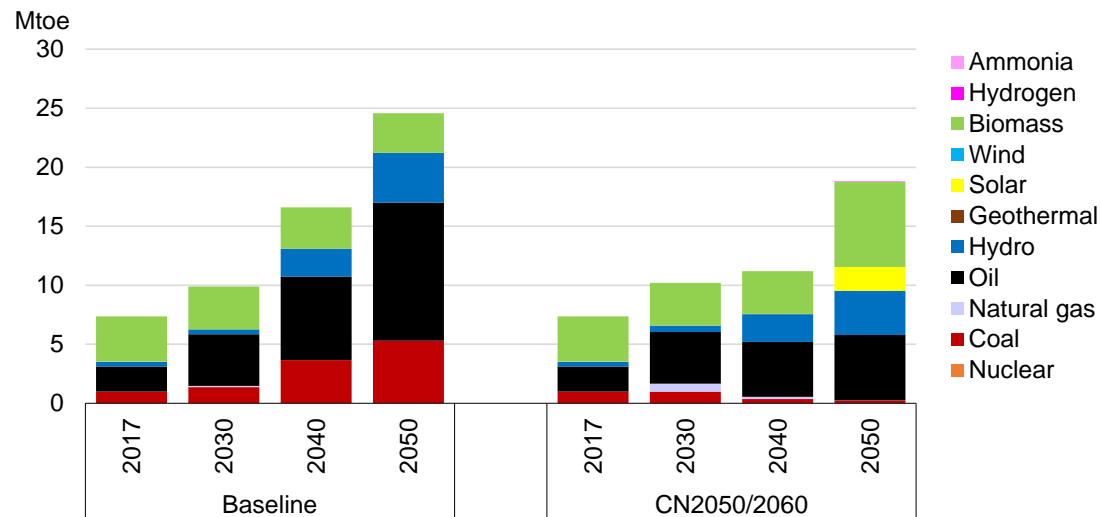
	Baseline (MtCO ₂)					BRN-CN2050/2060_w/oCarbonSink (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	2.46	1.41	1.54	1.48	1.26	2.54	0.58	0.27	0.32	0.24
Industry	0.41	0.39	0.40	0.41	0.42	0.41	0.14	0.04	0.04	0.08
Transport	1.56	2.28	2.73	3.30	4.38	1.45	2.28	1.54	0.06	0.03
Other end use	0.17	0.50	0.55	0.59	0.66	0.17	0.50	0.55	0.58	0.64
Other including DACCS	2.14	2.14	2.14	2.14	2.14	2.14	2.14	0.43	-0.99	-0.99
LULUCF										
Energy-related CO ₂ emissions	6.73	6.72	7.37	7.93	8.85	6.71	5.64	2.82	0.00	0.00

BRN = Brunei Darussalam, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

2. Cambodia

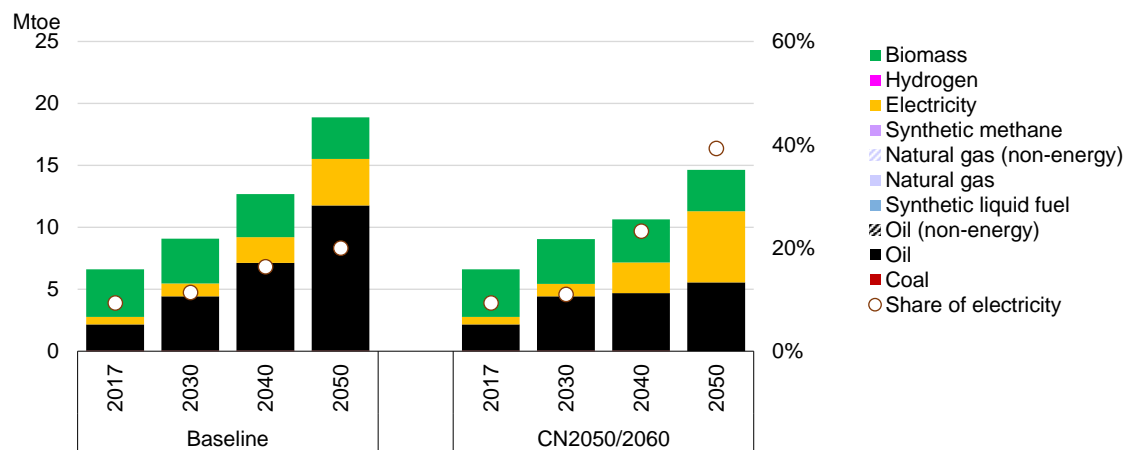
(a) CN2050/2060

Figure A.15. Primary energy supply (KHM-CN2050/2060)



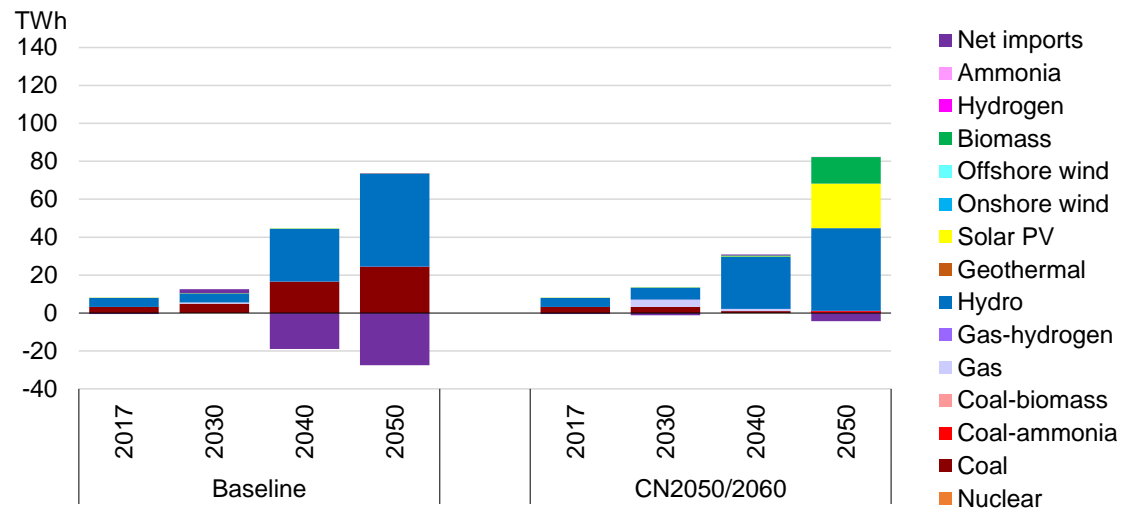
KHM = Cambodia.
Source: Author.

Figure A.16. Final Energy Consumption (KHM-CN2050/2060)



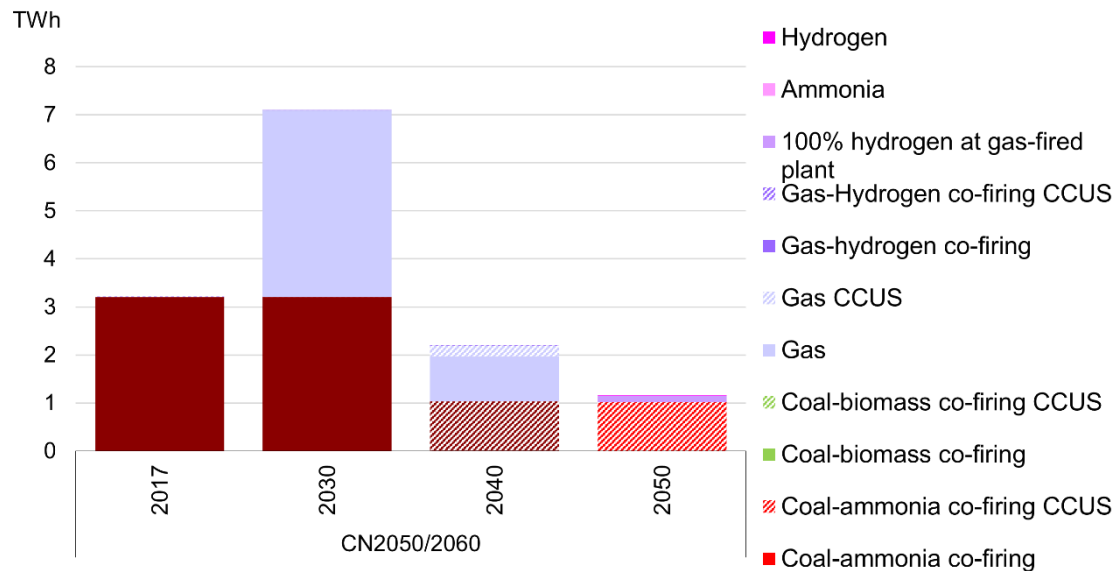
KHM = Cambodia, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.17. Power Generation (KHM-CN2050/2060)



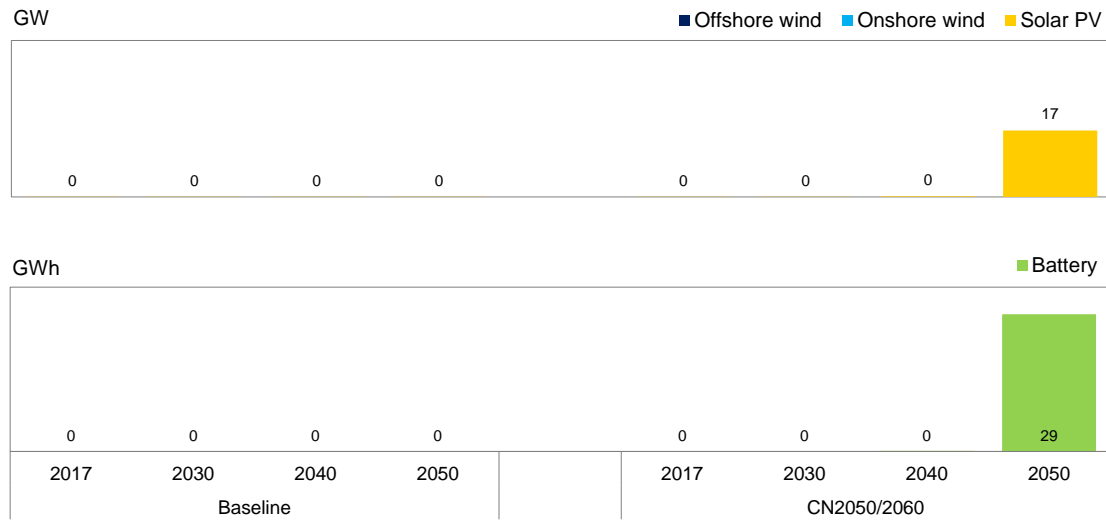
KHM = Cambodia, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

Figure A.18. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (KHM-CN2050/2060)



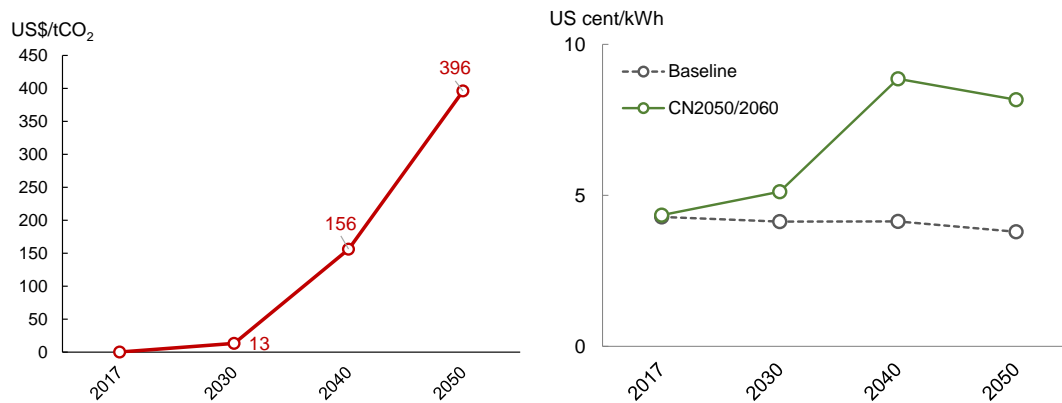
CCUS = carbon dioxide capture, utilisation, and storage; KHM = Cambodia; TWh = terawatt-hour.
Source: Author.

Figure A.19. Variable Renewable Energy and Battery (KHM-CN2050/2060)



GW = gigawatt, GWh = gigawatt-hour, KHM = Cambodia, PV = photovoltaic.
Source: Author.

Figure A.20. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right) (KHM-CN2050/2060)



KHM = Cambodia, kWh = kilowatt-hour, tCO₂ = tonne of carbon dioxide.
Source: Author.

**Table A.3. Carbon Dioxide Emission Baseline and with Carbon Sink Scenarios
(KHM-CN2050/2060)**

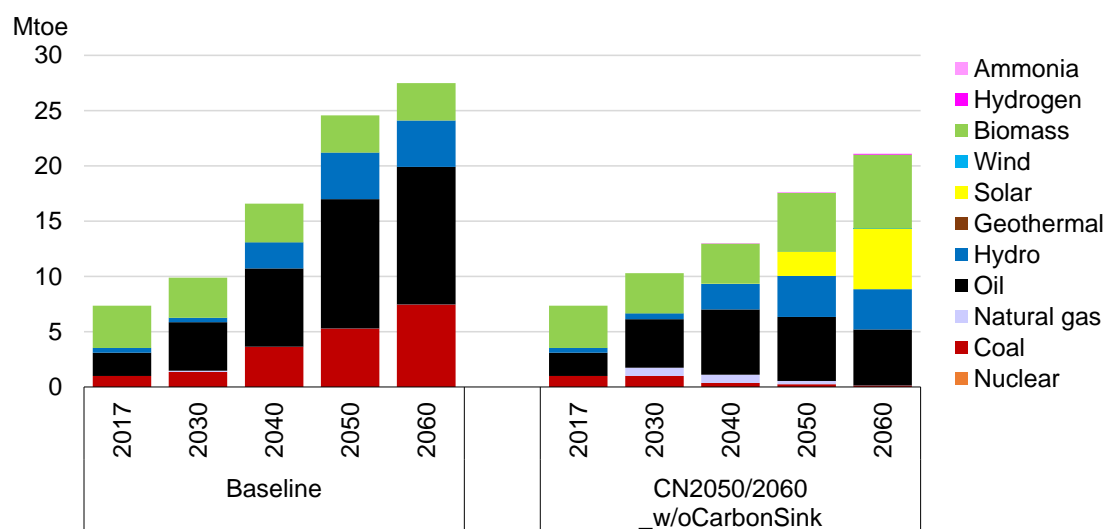
Baseline (MtCO ₂)						KHM-CN2050/2060 (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	3.77	5.47	14.28	20.79	29.38	3.77	5.31	-0.15	-16.16	-15.99
Industry	0.62	4.02	10.10	21.48	25.15	0.62	3.99	1.84	4.22	5.23
Transport	5.42	8.09	9.25	10.47	8.43	5.42	8.09	9.25	10.39	8.43
Other end use	0.55	1.65	2.88	4.88	5.67	0.55	1.65	2.88	1.55	2.33
Other including DACCS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LULUCF						0.00	0.00	0.00	0.00	0.00
Energy-related CO ₂ emissions	10.37	19.23	36.51	57.61	68.64	10.37	19.04	13.81	0.00	0.00

KHM = Cambodia, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.

Source: Author.

(b) CN2050/2060_w/oCarbonSink

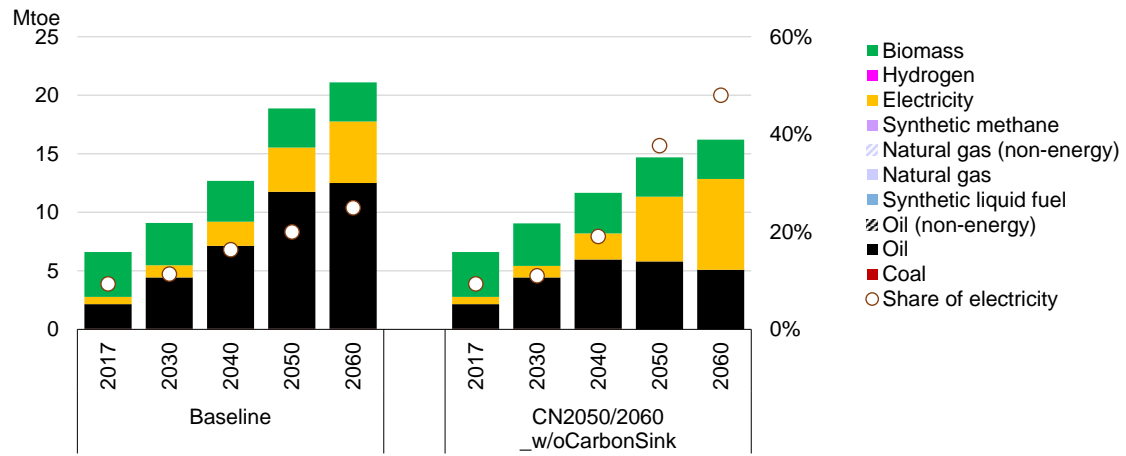
Figure A.21. Primary Energy Supply (KHM-CN2050/2060_w/oCarbonSink)



KHM = Cambodia, Mtoe = million tonnes of oil equivalent.

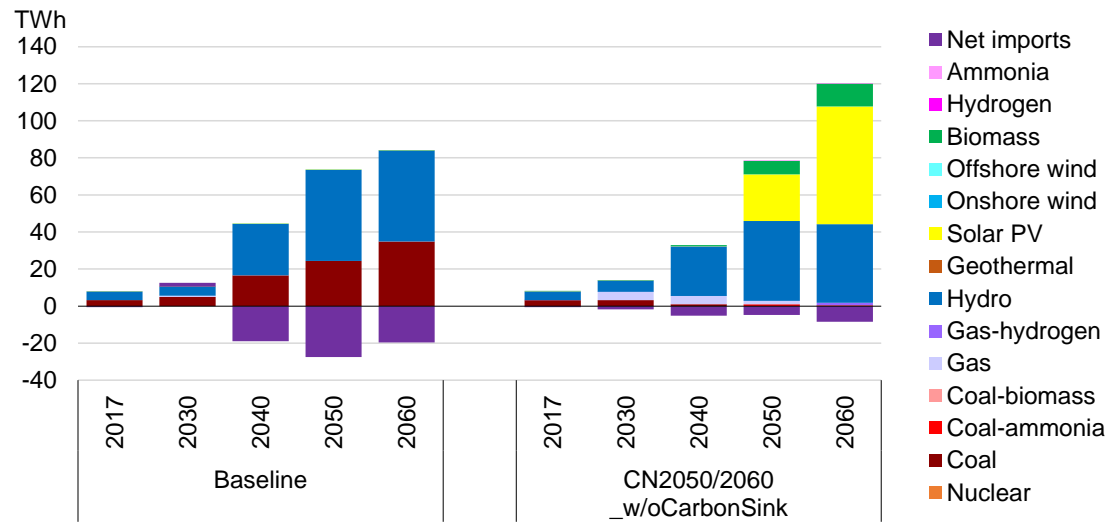
Source: Author.

Figure A.22. Final Energy Consumption (KHM-CN2050/2060_w/oCarbonSink)



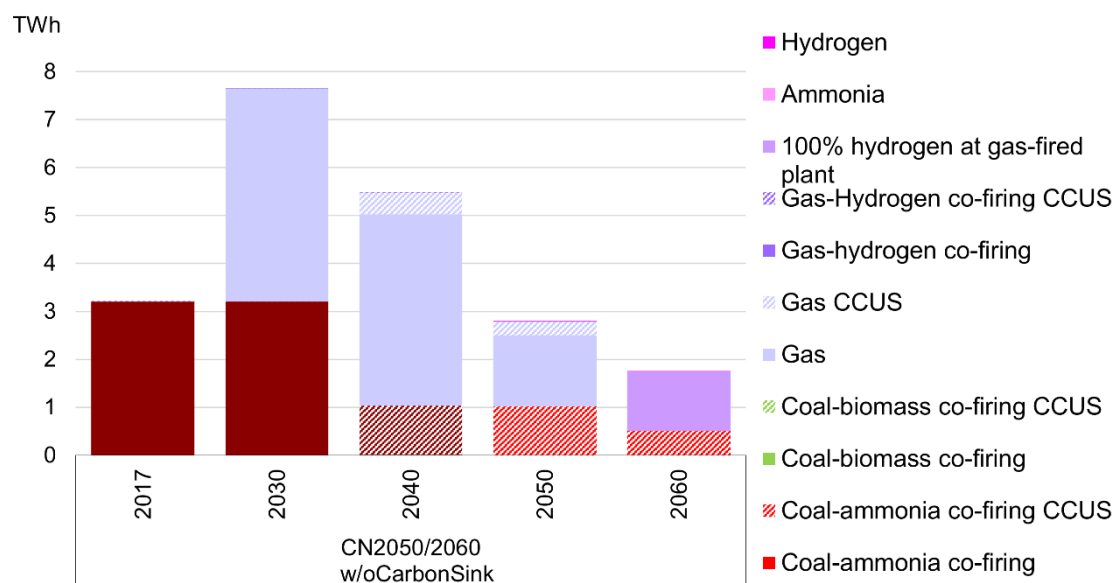
KHM = Cambodia, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.23. Power Generation (KHM-CN2050/2060_w/oCarbonSink)



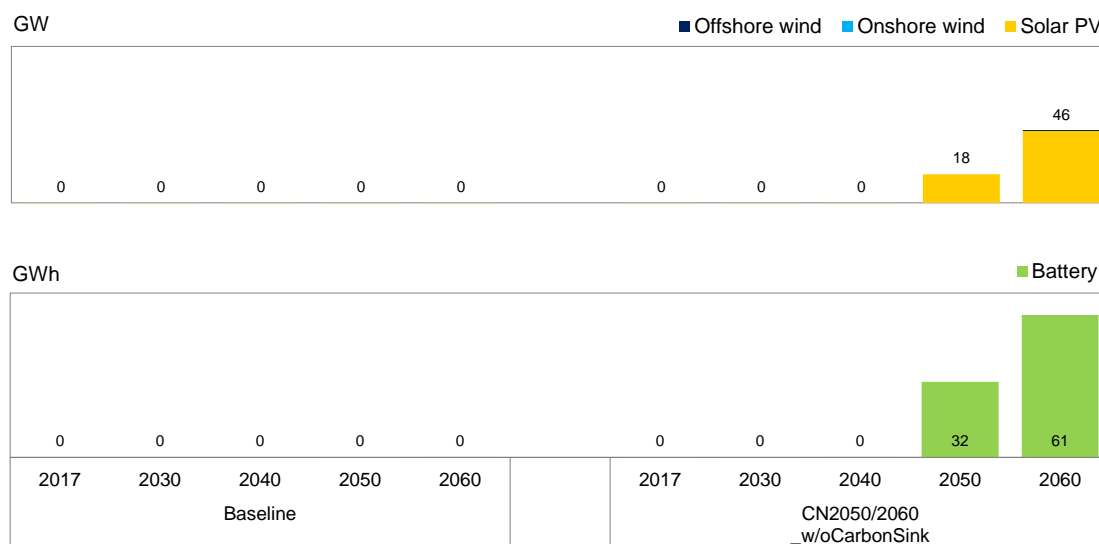
KHM = Cambodia, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

**Figure A.24. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen
(KHM-CN2050/2060_w/oCarbonSink)**



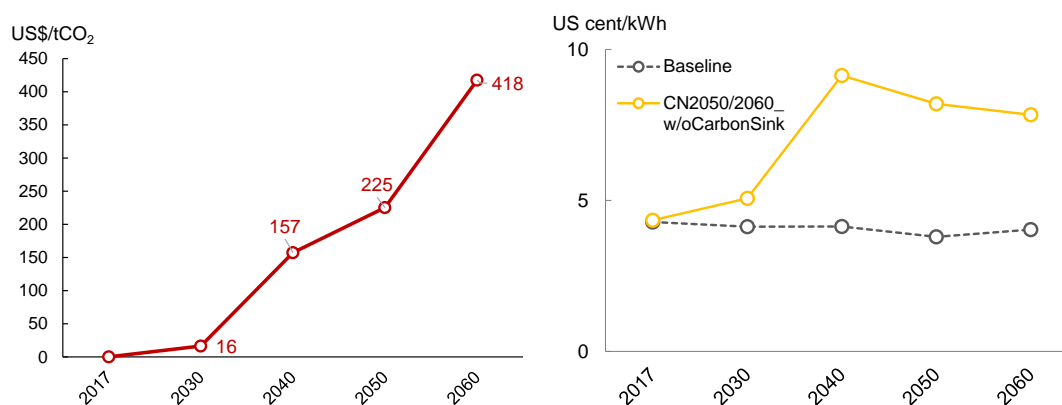
CCUS = carbon dioxide capture, utilisation, and storage; KHM = Cambodia; TWh = terawatt-hour.
Source: Author.

Figure A.25. Variable Renewable Energy and Battery (KHM-CN2050/2060_w/oCarbonSink)



GW = gigawatt, GWh = gigawatt-hour, KHM = Cambodia, PV = photovoltaic.
Source: Author.

**Figure A.26. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(KHM-CN2050/2060_w/oCarbonSink)**



KHM = Cambodia, tCO₂ = tonne of carbon dioxide.
Source: Author.

**Table A.4. Carbon Dioxide Emission Baseline and without Carbon Sink Scenarios
(KHM-CN2050/2060_w/oCarbonSink)**

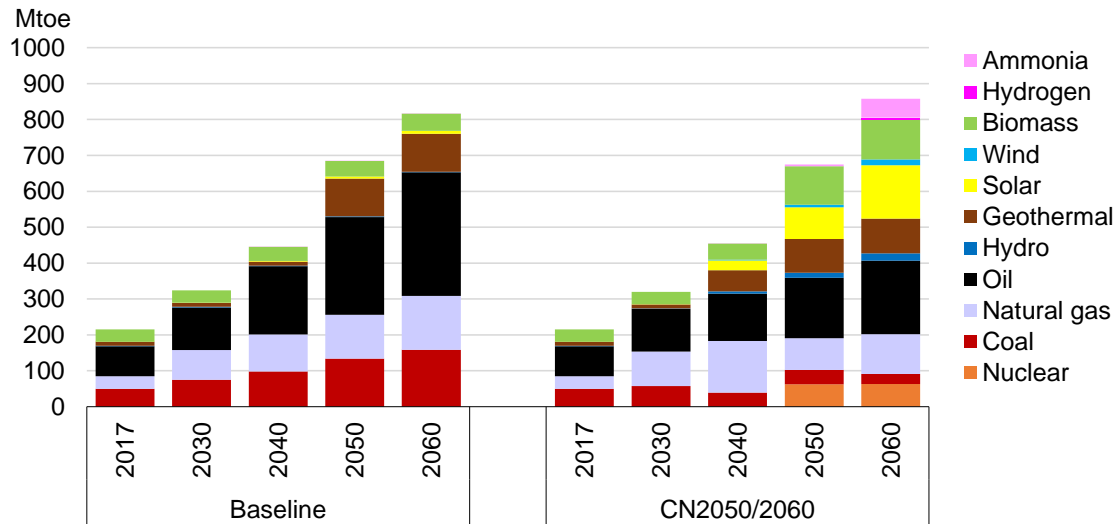
	Baseline (MtCO ₂)					KHM-CN2050/2060_w/oCarbonSink (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	3.77	5.47	14.28	20.79	29.38	3.77	5.52	1.07	-7.73	-14.12
Industry	0.62	4.02	10.10	21.48	25.15	0.62	3.77	5.21	4.22	5.22
Transport	5.42	8.09	9.25	10.47	8.43	5.42	8.09	9.25	10.47	7.89
Other end use	0.55	1.65	2.88	4.88	5.67	0.55	1.65	2.88	2.24	1.01
Other including DACCS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LULUCF										
Energy-related CO ₂ emissions	10.37	19.23	36.51	57.61	68.64	10.37	19.04	18.41	9.20	0.00

KHM = Cambodia, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

3. Indonesia

(a) CN2050/2060

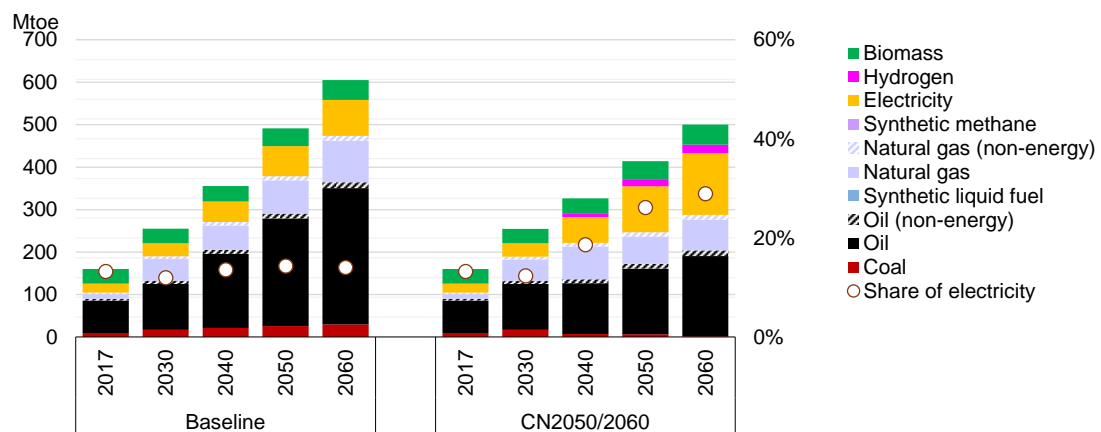
Figure A.27. Primary Energy Supply (IDN-CN2050/2060)



IDN = Indonesia, Mtoe = million tonnes of oil equivalent.

Source: Author.

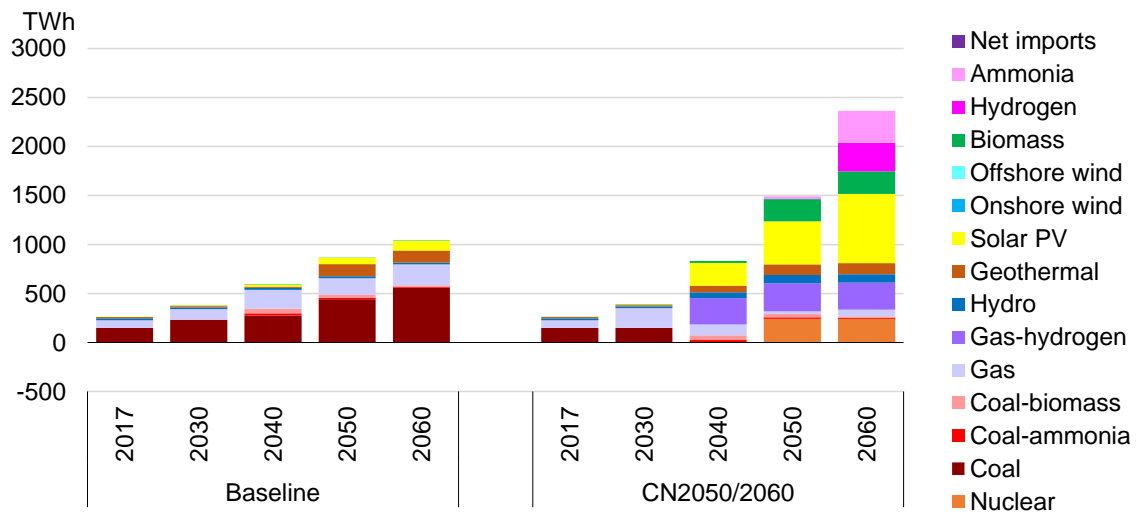
Figure A.28. Final Energy Consumption (IDN-CN2050/2060)



IDN = Indonesia, Mtoe = million tonnes of oil equivalent.

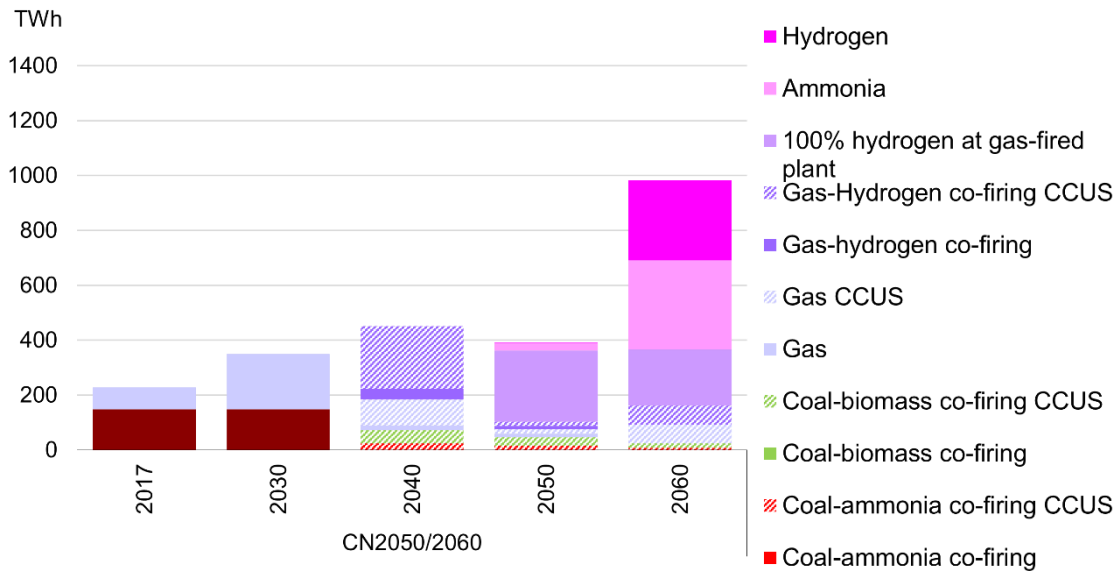
Source: Author.

Figure A.29. Power Generation (IDN-CN2050/2060)



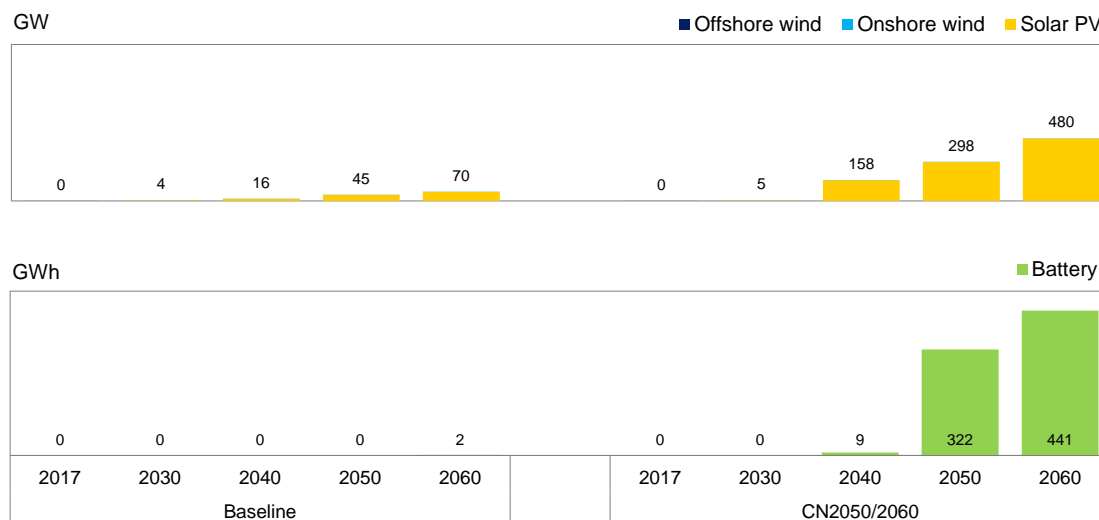
IDN = Indonesia, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

Figure A.30. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (IDN-CN2050/2060)



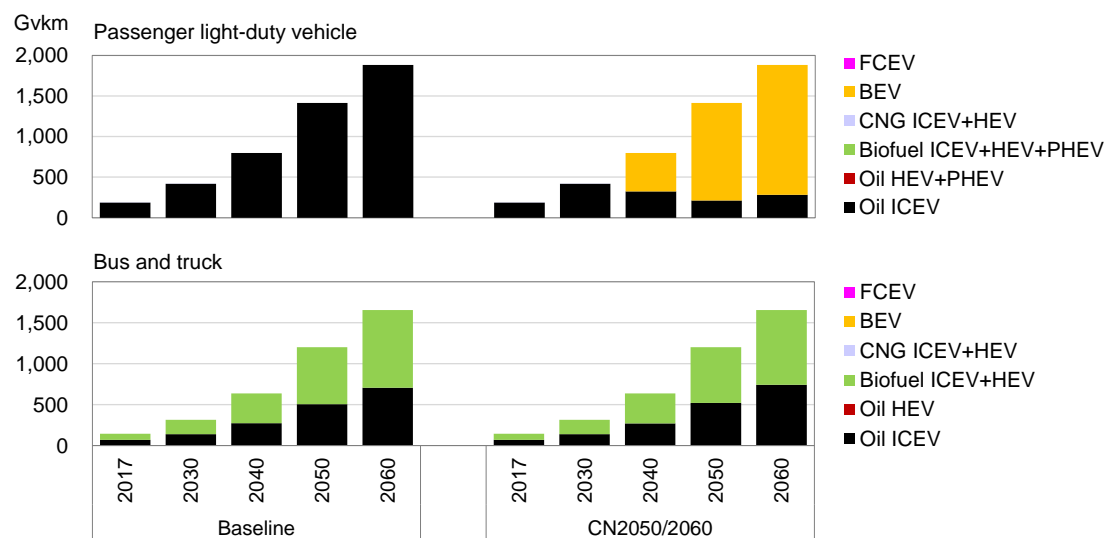
CCUS = CCUS = carbon dioxide capture, utilisation, and storage; IDN = Indonesia; TWh = terawatt-hour.
Source: Author.

Figure A.31. Variable Renewable Energy and Battery (IDN-CN2050/2060)



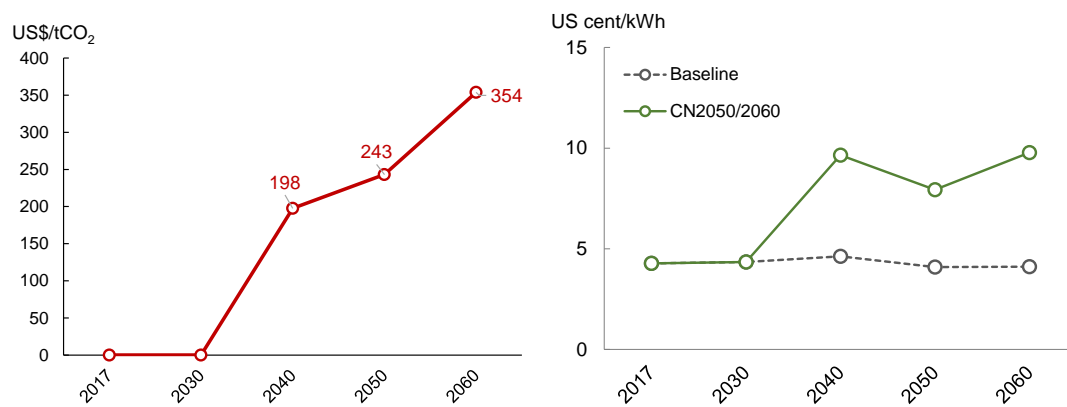
GW = gigawatt, GWh = gigawatt-hour, IDN = Indonesia, PV = photovoltaic.
Source: Author.

Figure A.32. Travel Distance by Vehicle Technology (IDN-CN2050/2060)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, IDN = Indonesia, Gvkm = 10^9 vehicle-km, PHEV = plug-in hybrid electric vehicle.
Source: Author.

**Figure A.33. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(IDN-CN2050/2060)**



IDN = Indonesia, kWh = kilowatt-hour, tCO₂ = tonne of carbon dioxide.
Source: Author.

**Table A.5. Carbon Dioxide Emission Baseline and with Carbon Sink Scenarios
(IDN-CN2050/2060)**

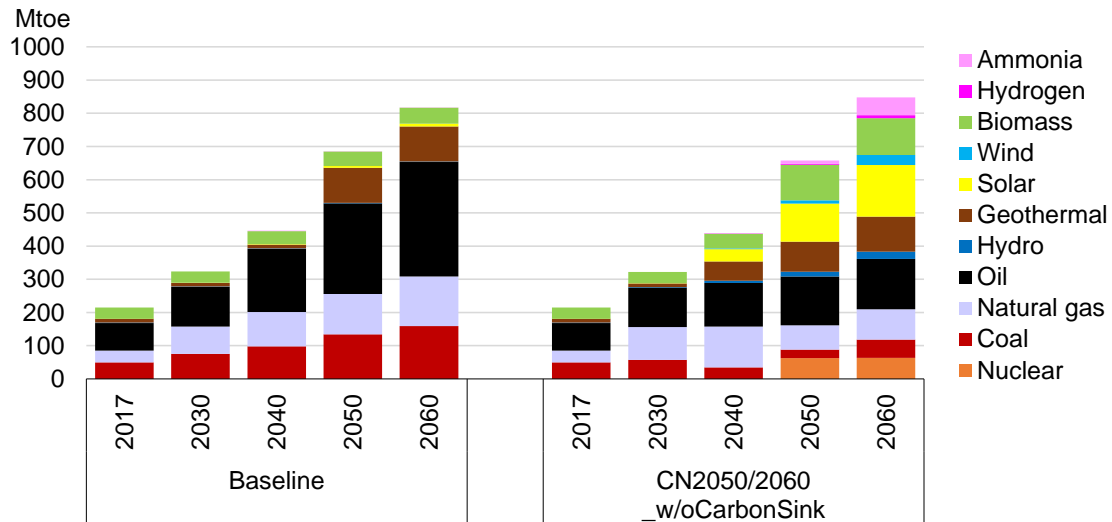
Baseline (MtCO₂)						IDN-CN2050/2060 (MtCO₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	178.60	259.32	359.23	470.06	566.66	178.60	224.50	0.31	-259.26	-262.19
Industry	91.13	145.48	222.11	298.24	381.68	91.13	142.50	143.55	137.60	127.46
Transport	120.26	242.29	400.13	630.51	828.88	120.26	242.29	310.79	418.17	552.03
Other end use	81.58	128.91	127.33	127.04	111.64	81.58	128.88	118.45	92.18	74.23
Other including DACCS	39.36	40.31	54.69	63.38	73.16	39.36	38.67	40.44	40.84	-246.04
LULUCF						635.50	-130.00	-240.00	-300.00	-300.00
Energy-related CO₂ emissions	510.93	816.30	1,163.48	1,589.24	1,962.02	510.93	776.84	613.55	429.53	245.50

IDN = Indonesia, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.

Source: Author.

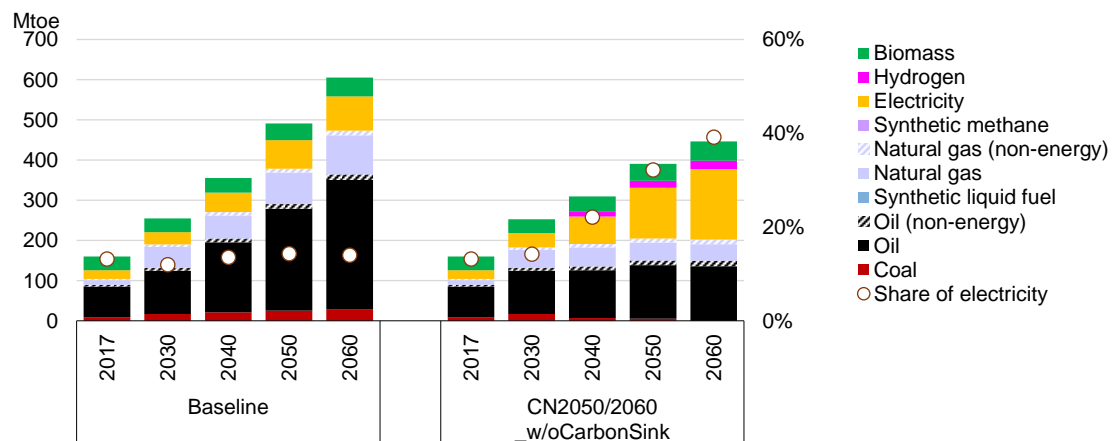
(b) CN2050/2060_w/oCarbonSink

Figure A.34. Primary Energy Supply (IDN-CN2050/2060_w/oCarbonSink)



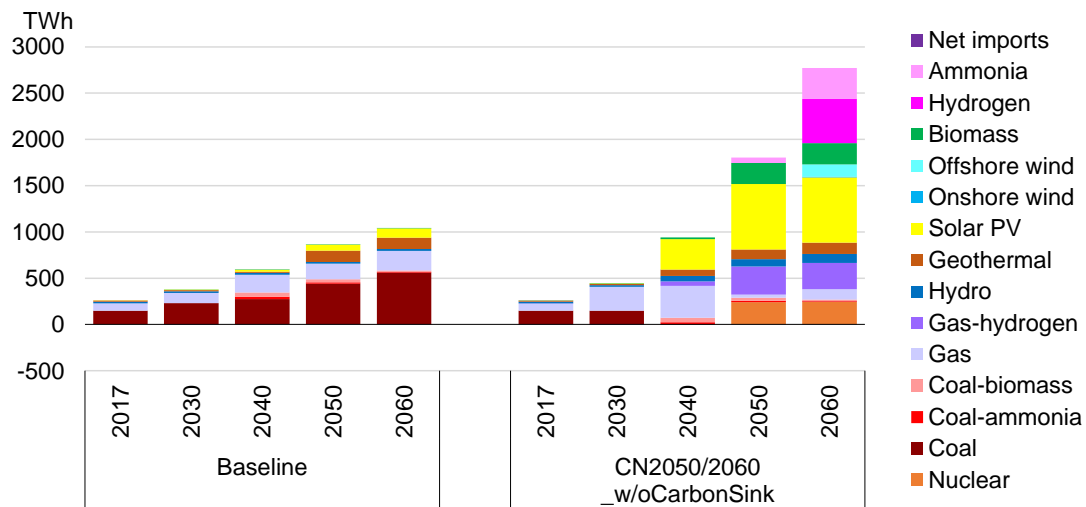
IDN = Indonesia, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.35. Final Energy Consumption (IDN-CN2050/2060_w/oCarbonSink)



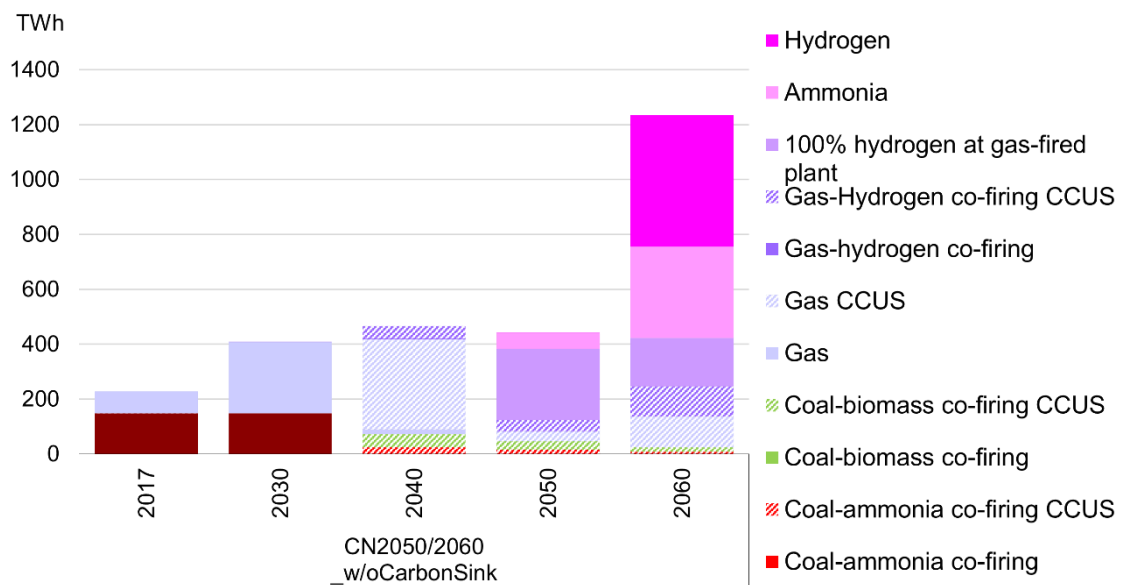
IDN = Indonesia, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.36. Power Generation (IDN-CN2050/2060_w/oCarbonSink)



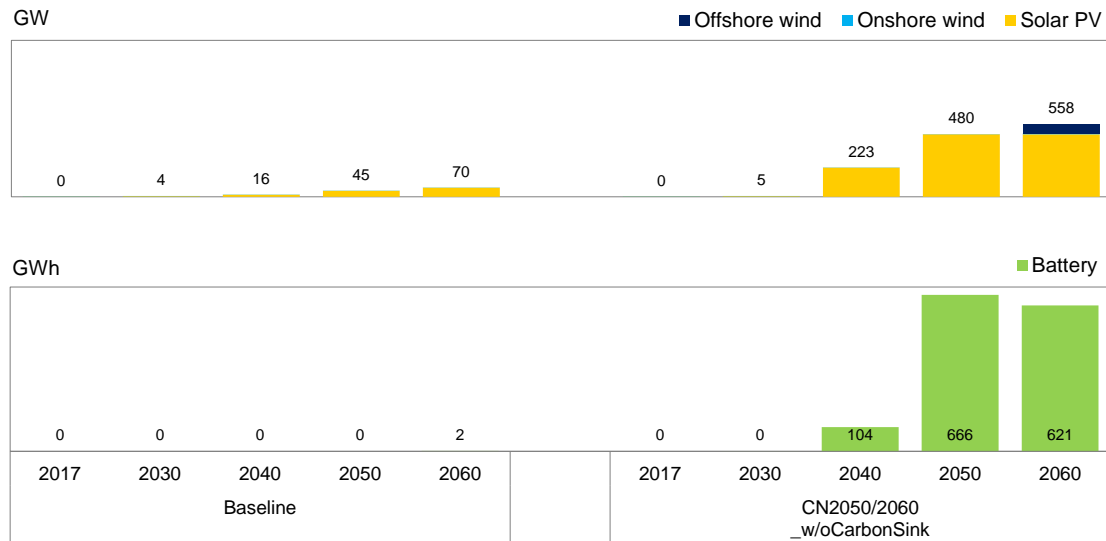
IDN = Indonesia, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

Figure A.37. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (IDN-CN2050/2060_w/oCarbonSink)



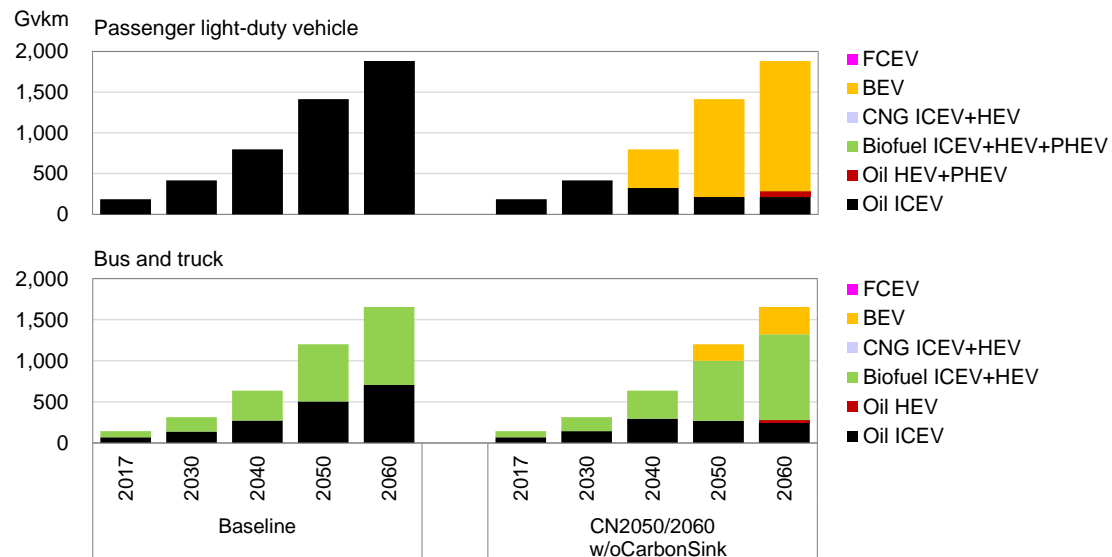
CCUS = carbon dioxide capture, utilisation, and storage; IDN = Indonesia; TWh = terawatt-hour.
Source: Author.

Figure A.38. Variable Renewable Energy and Battery (IDN-CN2050/2060_w/oCarbonSink)



GW = gigawatt, GWh = gigawatt-hour, IDN = Indonesia, PV = photovoltaic.
Source: Author.

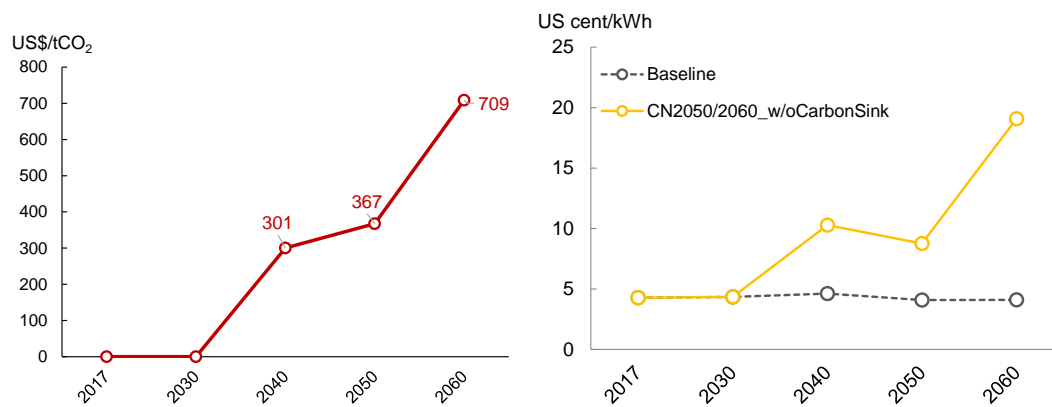
Figure A.39. Travel Distance by Vehicle Technology (IDN-CN2050/2060_w/oCarbonSink)



BEV = battery electric vehicle, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, IDN = Indonesia, Gvkm = 10⁹ vehicle-km, PHEV = plug-in hybrid electric vehicle.

Source: Author.

Figure A.40. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(IDN-CN2050/2060_w/oCarbonSink)



IDN = Indonesia, kWh = kilowatt-hour, tCO₂ = tonne of carbon dioxide.
 Source: Author.

Table A.6. Carbon Dioxide Emission Baseline and without Carbon Sink Scenarios
(IDN-CN2050/2060_w/oCarbonSink)

Baseline (MtCO₂)						IDN-CN2050/2060_w/oCarbonSink (MtCO₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	178.60	259.32	359.23	470.06	566.66	178.62	245.89	-7.75	-265.61	-259.34
Industry	91.13	145.48	222.11	298.24	381.68	91.13	142.51	99.67	86.81	51.81
Transport	120.26	242.29	400.13	630.51	828.88	120.26	242.29	297.92	354.62	387.99
Other end use	81.58	128.91	127.33	127.04	111.64	81.58	113.98	103.94	91.57	73.63
Other including DACCS	39.36	40.31	54.69	63.38	73.16	39.36	38.67	37.94	-1.53	-254.09
LULUCF										
Energy-related CO₂ emissions	510.93	816.30	1,163.48	1,589.24	1,962.02	510.95	783.34	531.72	265.86	0.00

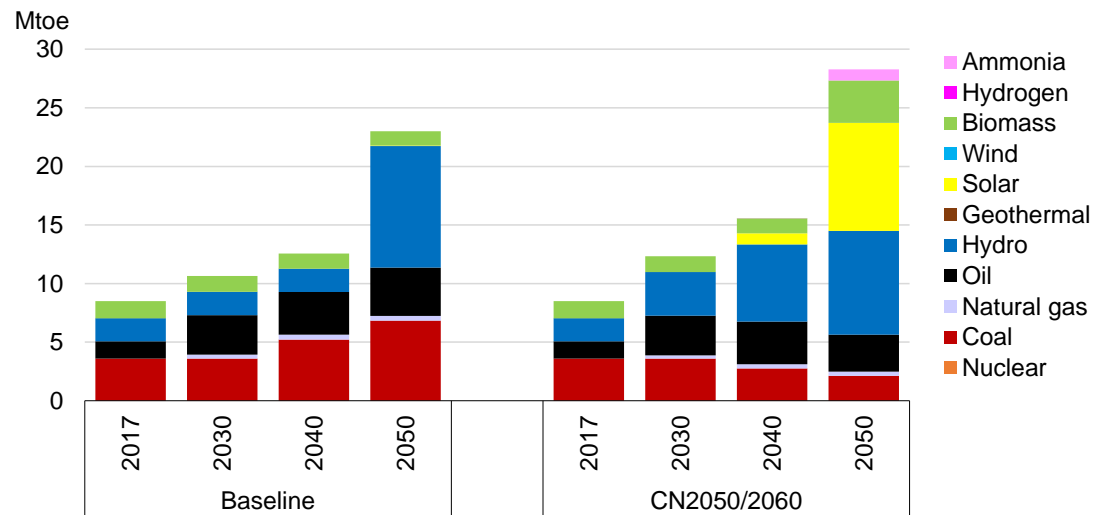
IDN = Indonesia, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.

Source: Author.

4. Lao People's Democratic Republic

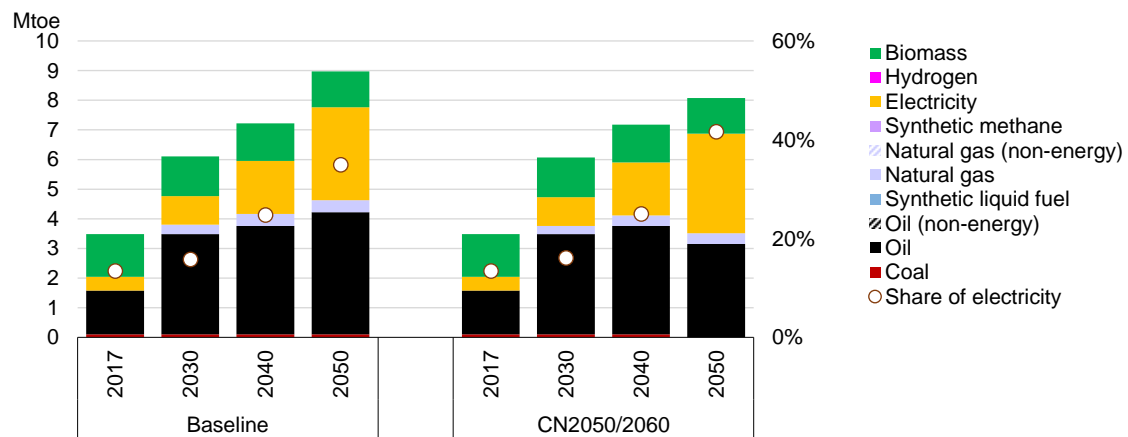
(a) CN2050/2060

Figure A.41. Primary Energy Supply (LAO-CN2050/2060)



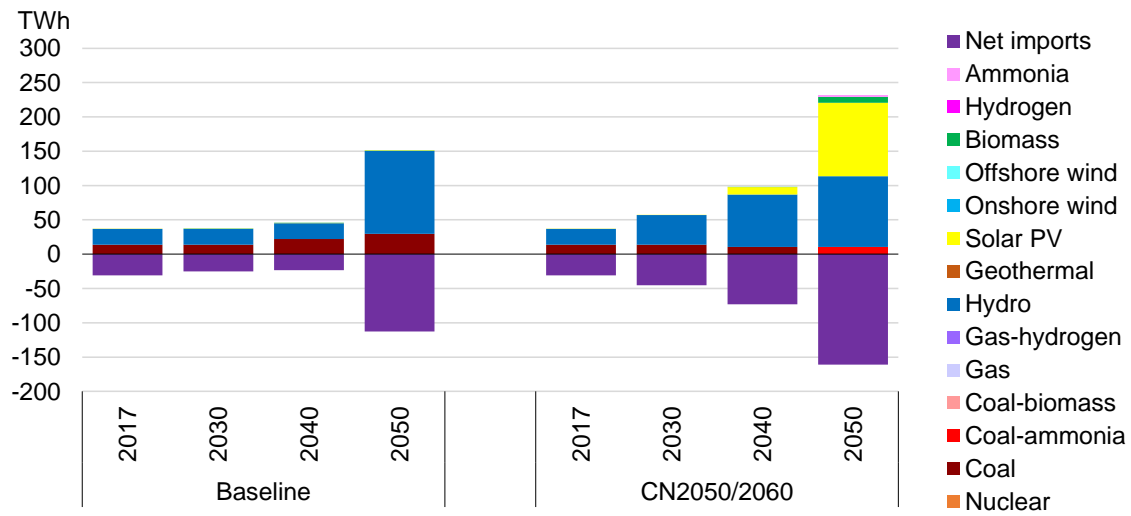
LAO = Lao People's Democratic Republic, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.42. Final Energy Consumption (LAO-CN2050/2060)



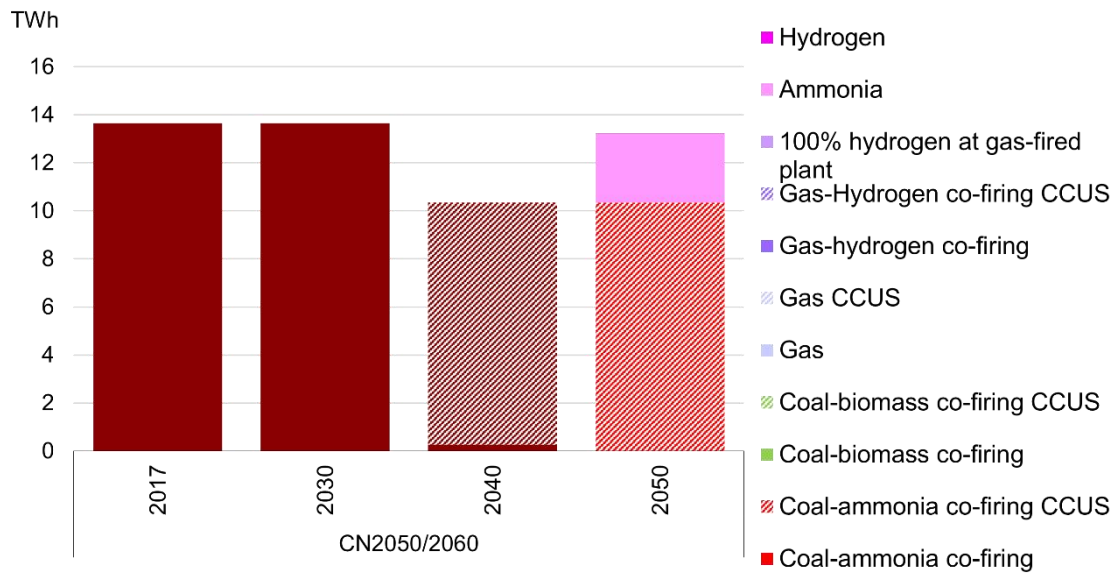
LAO = Lao People's Democratic Republic, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.43. Power Generation (LAO-CN2050/2060)



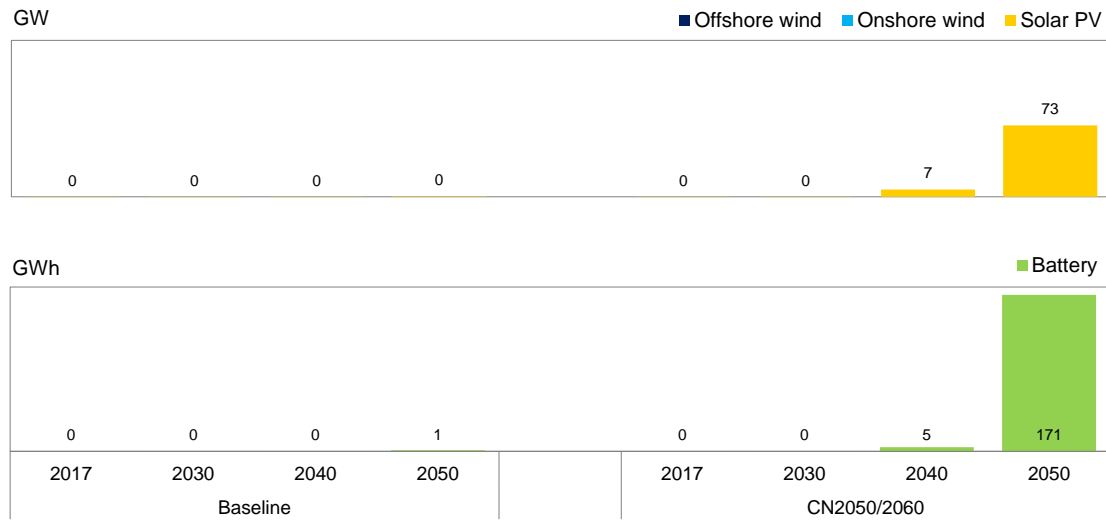
LAO = Lao People's Democratic Republic, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

Figure A.44. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (LAO-CN2050/2060)



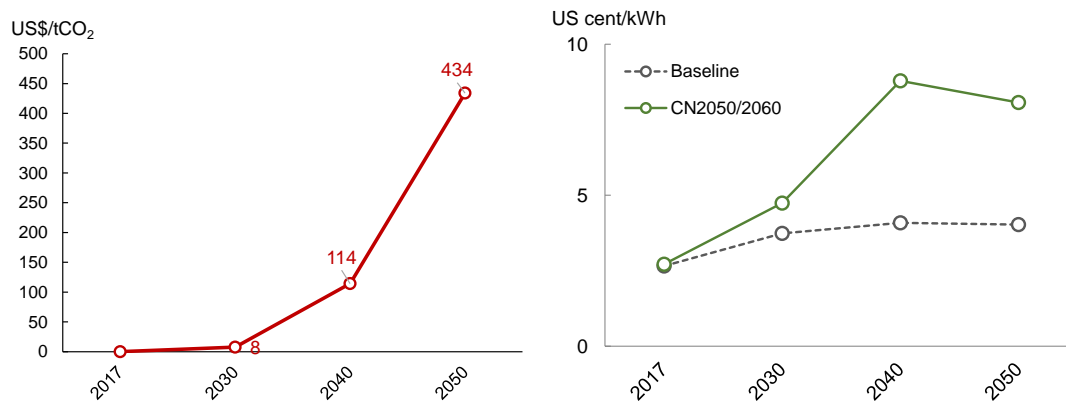
CCUS = carbon dioxide capture, utilisation, and storage; LAO = Lao People's Democratic Republic; TWh = terawatt-hour.
Source: Author.

Figure A.45. Variable Renewable Energy and Battery (LAO-CN2050/2060)



GW = gigawatt, GWh = gigawatt-hour, LAO = Lao People's Democratic Republic, PV = photovoltaic.
Source: Author.

Figure A.46. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right) (LAO-CN2050/2060)



LAO = Lao People's Democratic Republic, tCO₂ = tonne of carbon dioxide.
Source: Author.

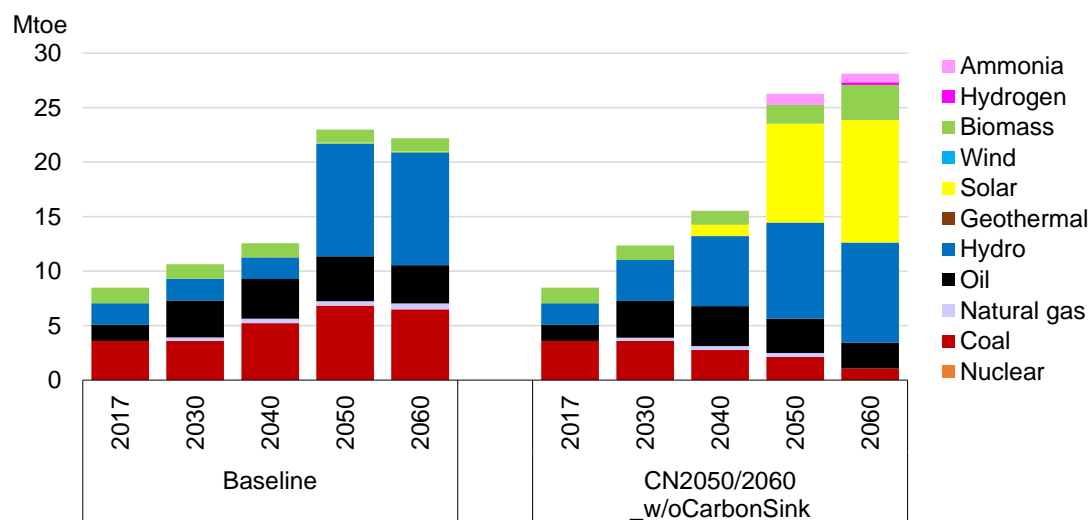
**Table A.7. Carbon Dioxide Emission Baseline and with Carbon Sink Scenarios
(LAO-CN2050/2060)**

Baseline (MtCO ₂)						LAO-CN2050/2060 (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	13.84	13.84	20.27	26.63	25.30	13.84	13.84	1.26	-9.32	-8.29
Industry	0.59	1.73	2.94	5.08	5.86	0.59	1.59	2.47	1.25	1.48
Transport	3.15	4.50	4.61	4.69	3.78	3.15	4.50	4.61	4.39	3.78
Other end use	1.23	5.46	5.26	4.57	3.15	1.23	5.35	5.14	4.46	3.04
Other including DACCS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.77	0.00
LULUCF						0.00	0.00	0.00	0.00	0.00
Energy-related CO ₂ emissions	18.80	25.54	33.07	40.98	38.09	18.80	25.28	13.47	0.00	0.00

Lao PDR = Lao People's Democratic Republic, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

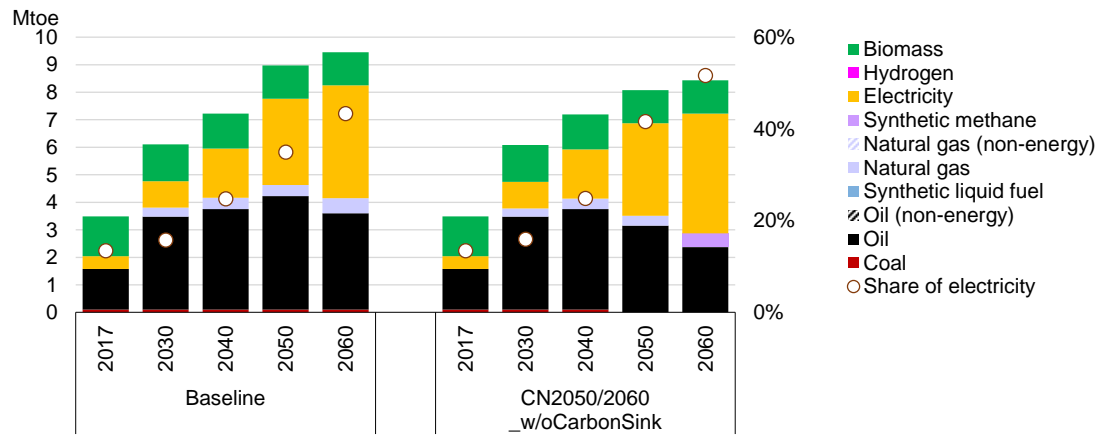
(b) CN2050/2060_w/oCarbonSink

Figure A.47. Primary Energy Supply (LAO-CN2050/2060_w/oCarbonSink)



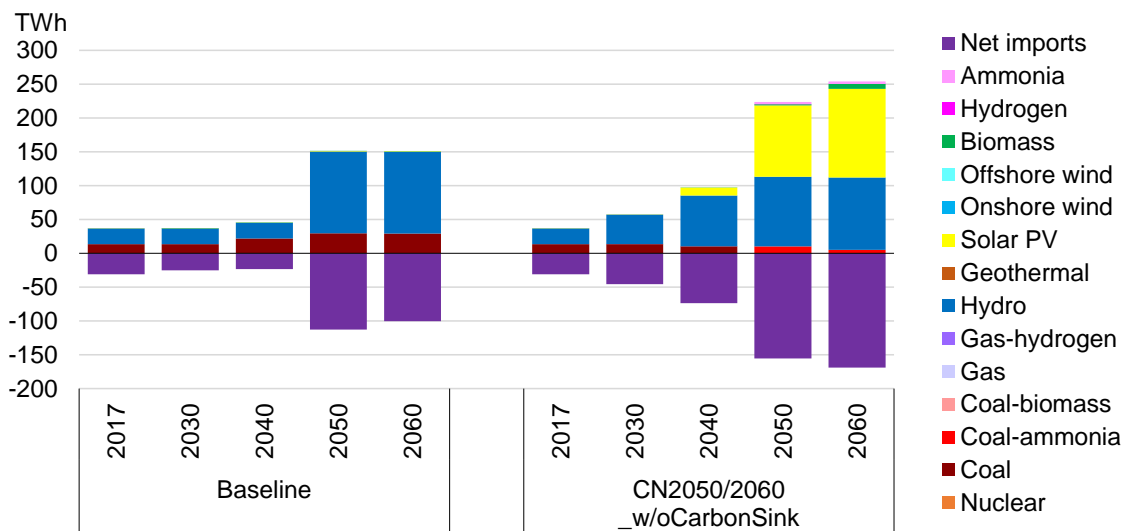
LAO = Lao People's Democratic Republic, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.48. Final Energy Consumption (LAO-CN2050/2060_w/oCarbonSink)



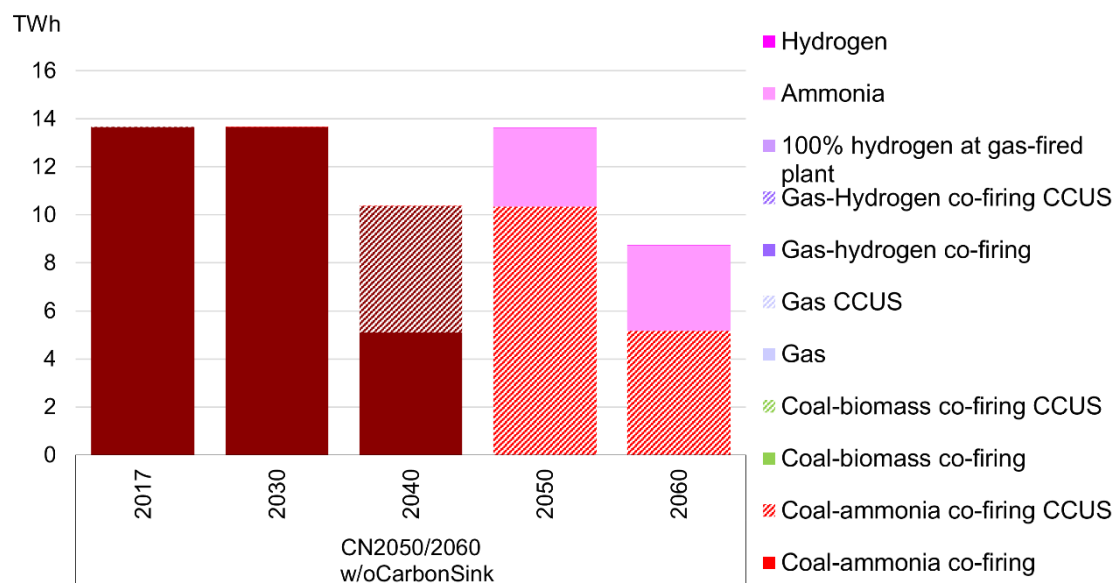
LAO = Lao People's Democratic Republic, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.49. Power Generation (LAO-CN2050/2060_w/oCarbonSink)



LAO = Lao People's Democratic Republic, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

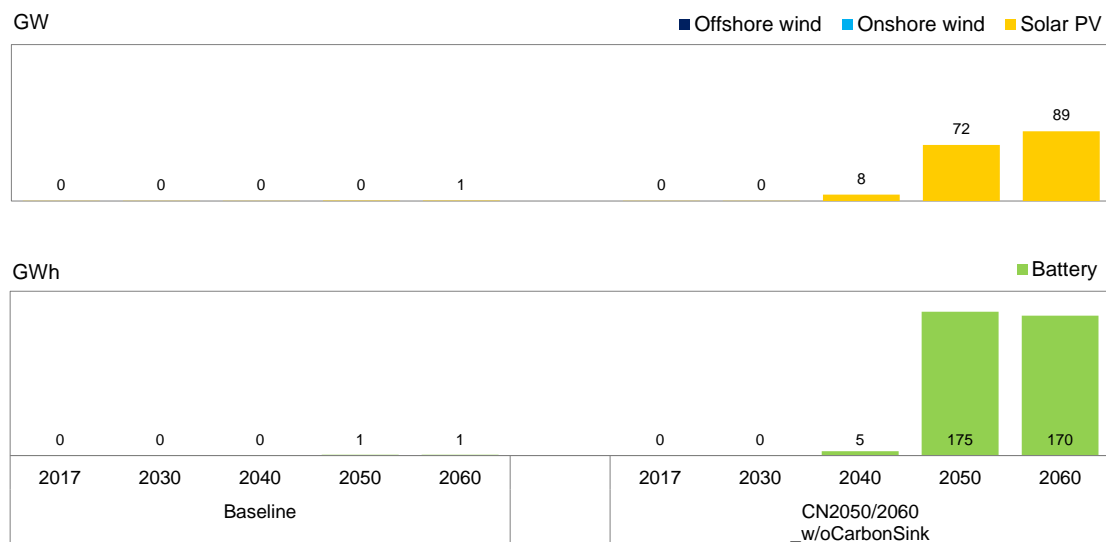
**Figure A.50. Generated Electricity from coal, Gas, Ammonia, and Hydrogen
(LAO-CN2050/2060_w/oCarbonSink)**



CCUS = carbon dioxide capture, utilisation, and storage; LAO = People's Democratic Republic; TWh = terawatt-hour.

Source: Author.

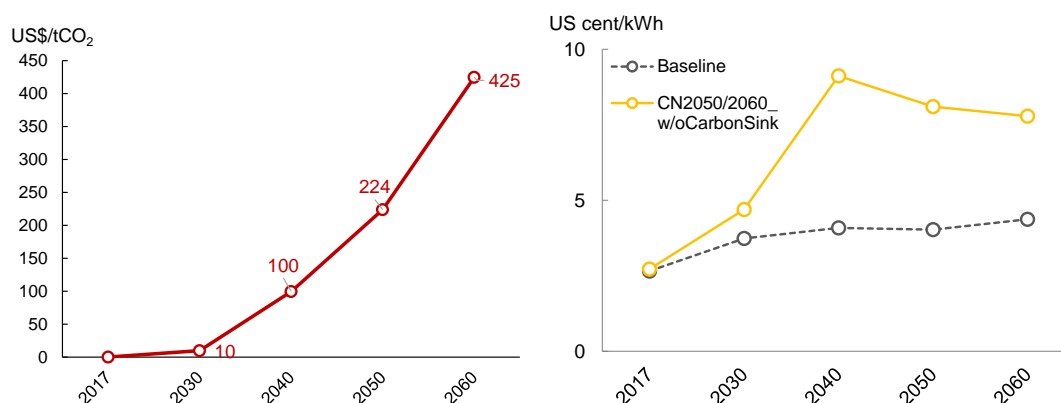
Figure A.51. Variable Renewable Energy and Battery (LAO-CN2050/2060_w/oCarbonSink)



GW = gigawatt, GWh = gigawatt-hour, LAO = Lao People's Democratic Republic, PV = photovoltaic.

Source: Author.

**Figure A.52. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(LAO-CN2050/2060_w/oCarbonSink)**



kWh = kilowatt-hour, LAO = Lao People's Democratic Republic, tCO₂ = tonne of carbon dioxide.
Source: Author.

**Table A.8. Carbon Dioxide Emission Baseline and without Carbon Sink Scenarios
(LAO-CN2050/2060_w/oCarbonSink)**

	Baseline (MtCO ₂)					LAO-CN2050/2060_w/oCarbonSink (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	13.84	13.84	20.27	26.63	25.30	13.84	13.84	5.70	-1.42	-8.01
Industry	0.59	1.73	2.94	5.08	5.86	0.59	1.55	2.47	1.25	1.46
Transport	3.15	4.50	4.61	4.69	3.78	3.15	4.50	4.61	4.69	3.53
Other end use	1.23	5.46	5.26	4.57	3.15	1.23	5.39	5.19	4.47	3.03
Other including DACCS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02
LULUCF										
Energy-related CO₂ emissions	18.80	25.54	33.07	40.98	38.09	18.80	25.28	17.96	8.98	0.00

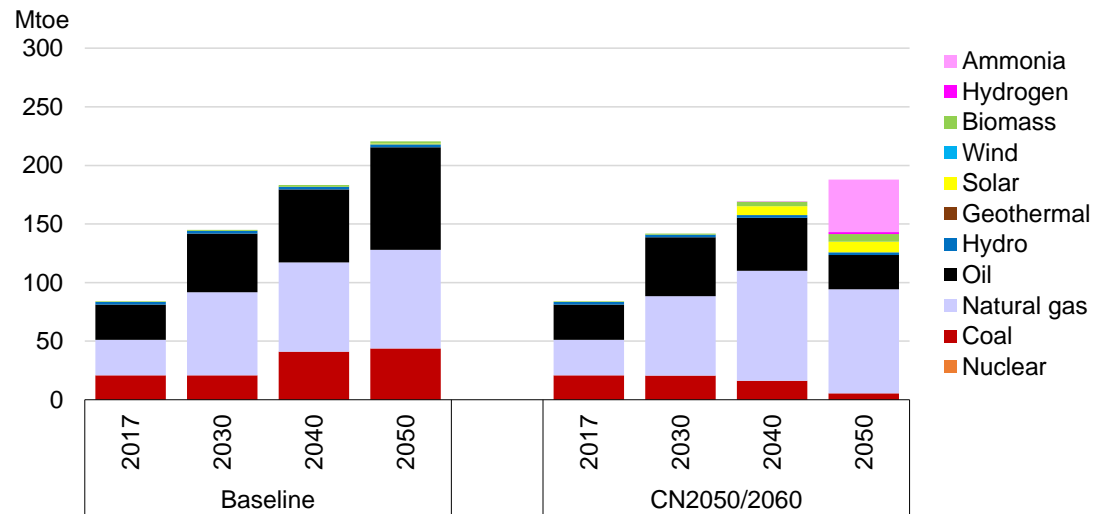
Lao PDR = Lao People's Democratic Republic, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.

Source: Author.

5. Malaysia

(a) CN2050/2060

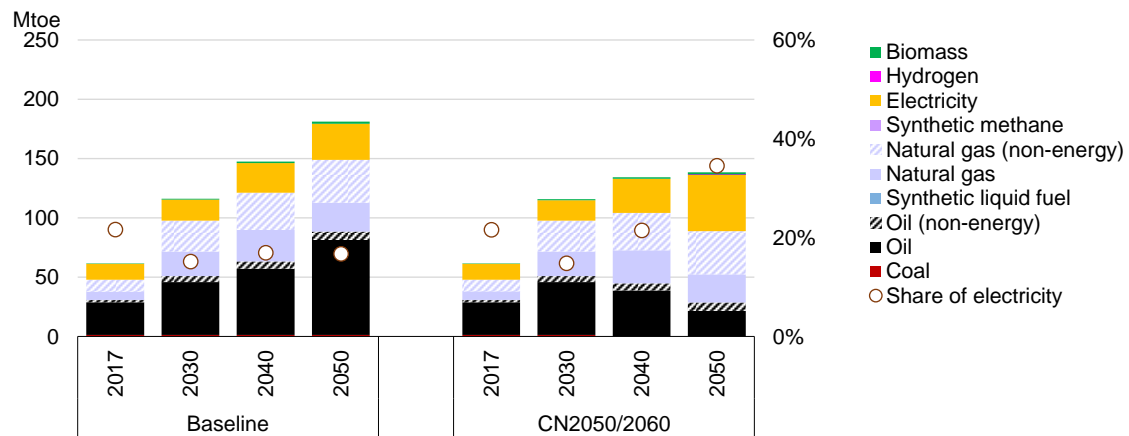
Figure A.53. Primary Energy Supply (MYS-CN2050/2060)



Mtoe = million tonnes of oil equivalent, MYS = Malaysia.

Source: Author.

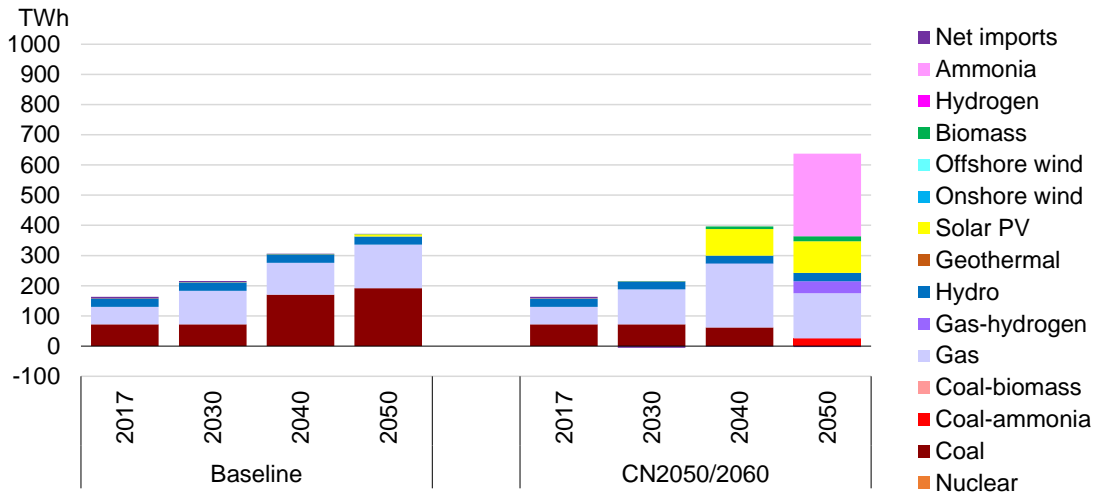
Figure A.54. Final Energy Consumption (MYS-CN2050/2060)



Mtoe = million tonnes of oil equivalent, MYS = Malaysia.

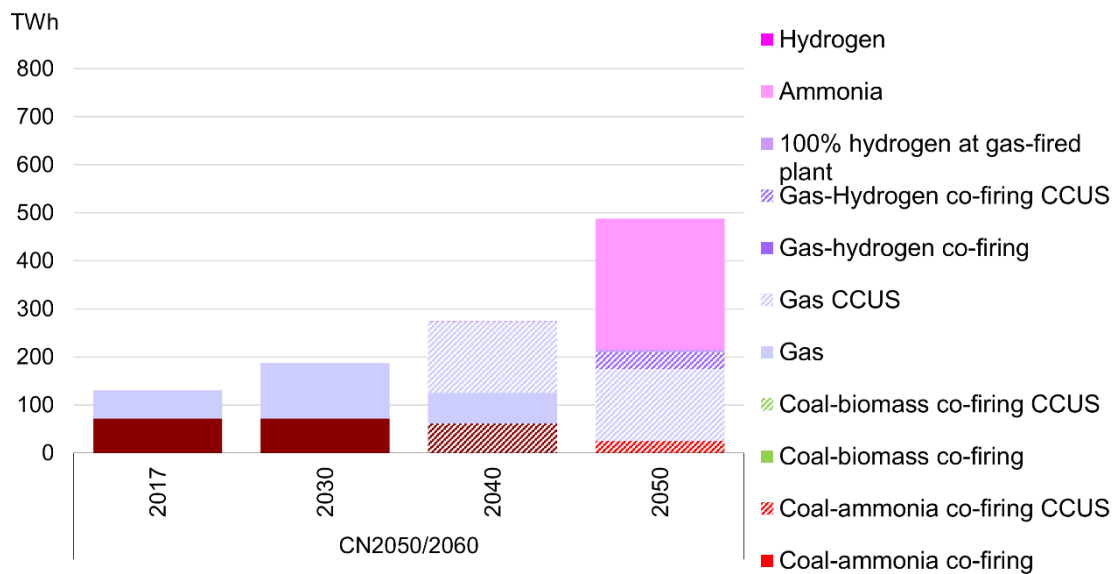
Source: Author.

Figure A.55. Power Generation (MYS-CN2050/2060)



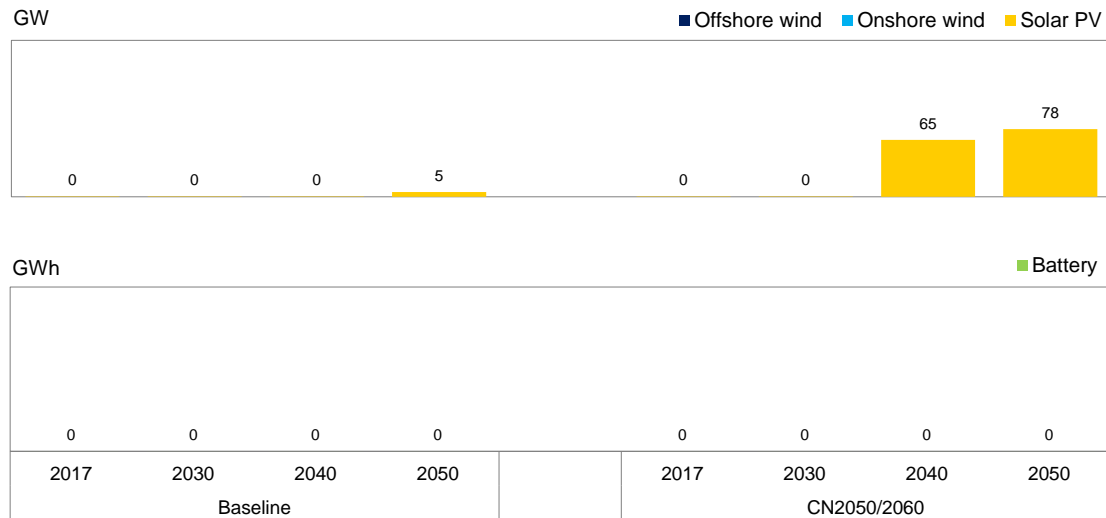
MYS = Malaysia, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

Figure A.56. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (MYS-CN2050/2060)



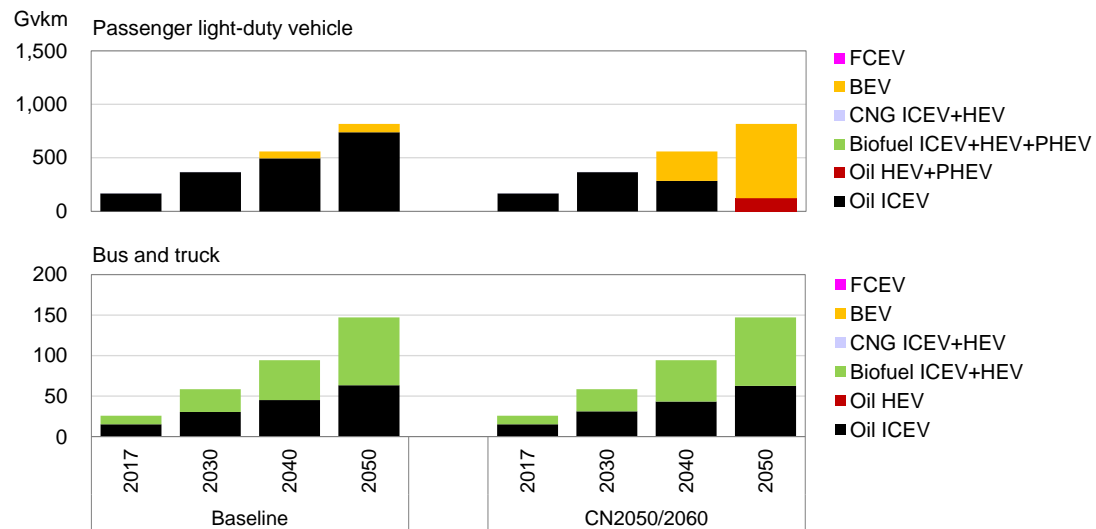
MYS = Malaysia; CCUS = carbon dioxide capture, utilisation, and storage; TWh = terawatt-hour.
Source: Author.

Figure A.57. Variable Renewable Energy and Battery (MYS-CN2050/2060)



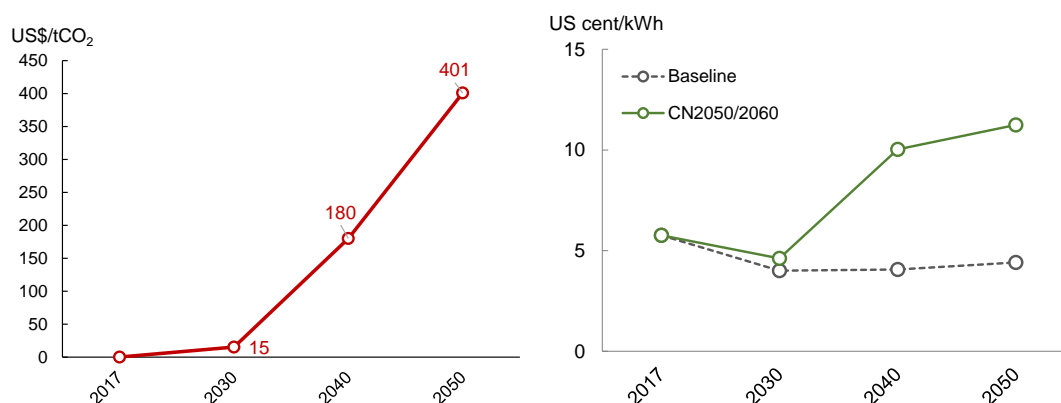
GW = gigawatt, GWh = gigawatt-hour, MYS = Malaysia, PV = photovoltaic.
Source: Author.

Figure A.58. Travel Distance by Vehicle Technology (MYS-CN2050/2060)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, MYS = Malaysia, PHEV = plug-in hybrid electric vehicle.
Source: Author.

**Figure A.59. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(MYS-CN2050/2060)**



kWh = kilowatt-hour, MYS = Malaysia, tCO₂ = tonne of carbon dioxide.
Source: Author.

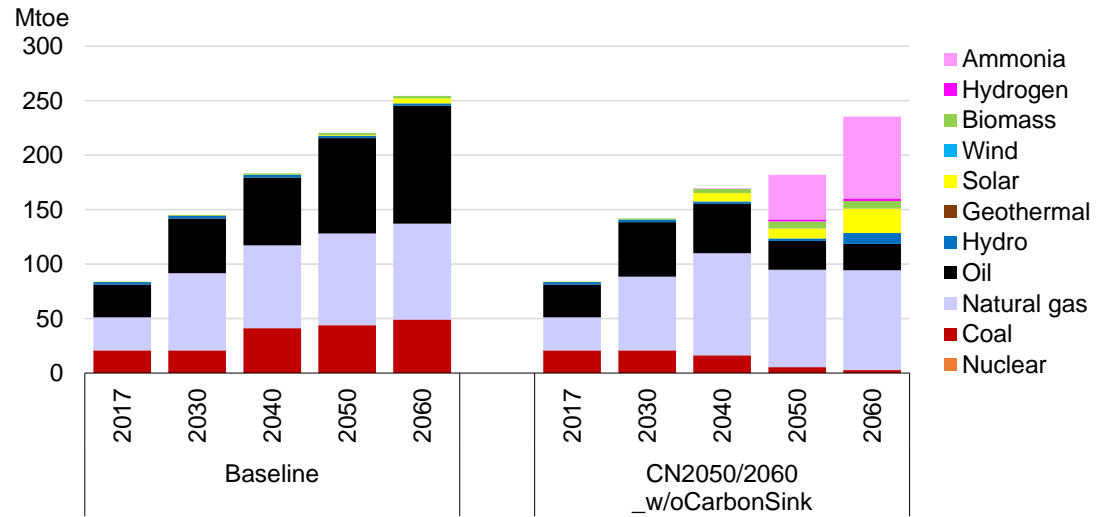
**Table A.9. Carbon Dioxide Emission Baseline and with Carbon Sink Scenarios
(MYS-CN2050/2060)**

	Baseline (MtCO ₂)					MYS-CN2050/2060 (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	104.75	130.24	196.17	220.09	240.03	104.75	130.24	196.17	220.09	240.03
Industry	29.94	41.97	54.04	68.22	82.53	29.94	41.97	54.04	68.22	82.53
Transport	67.38	123.07	153.51	204.83	252.19	67.38	123.07	153.51	204.83	252.19
Other end use	5.81	20.17	25.07	27.16	23.74	5.81	20.17	25.07	27.16	23.74
Other including DACCS	5.29	5.29	5.29	5.29	5.29	5.29	5.29	5.29	5.29	5.29
LULUCF										
Energy-related CO ₂ emissions	213.17	320.74	434.06	525.60	603.78	213.17	320.74	434.06	525.60	603.78

MYS = Malaysia, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

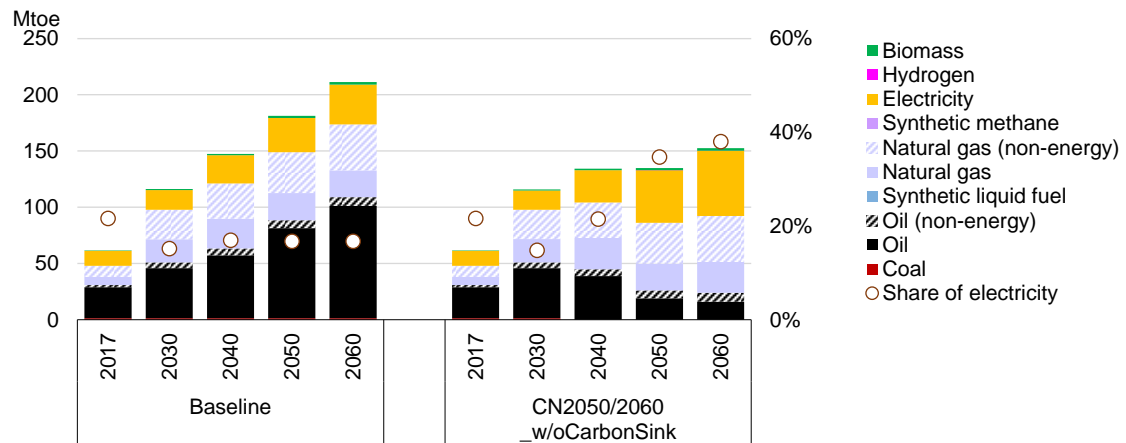
(b) CN2050/2060_w/oCarbonSink

Figure A.60. Primary Energy Supply (MYS-CN2050/2060_w/oCarbonSink)



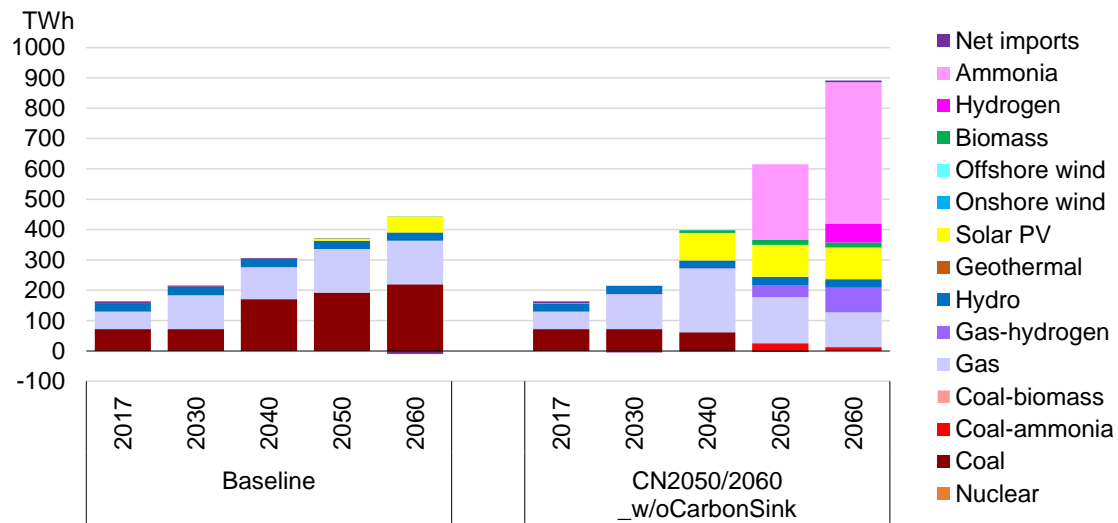
Mtoe = million tonnes of oil equivalent, MYS = Malaysia.
Source: Author.

Figure A.61. Final Energy Consumption (MYS-CN2050/2060_w/oCarbonSink)



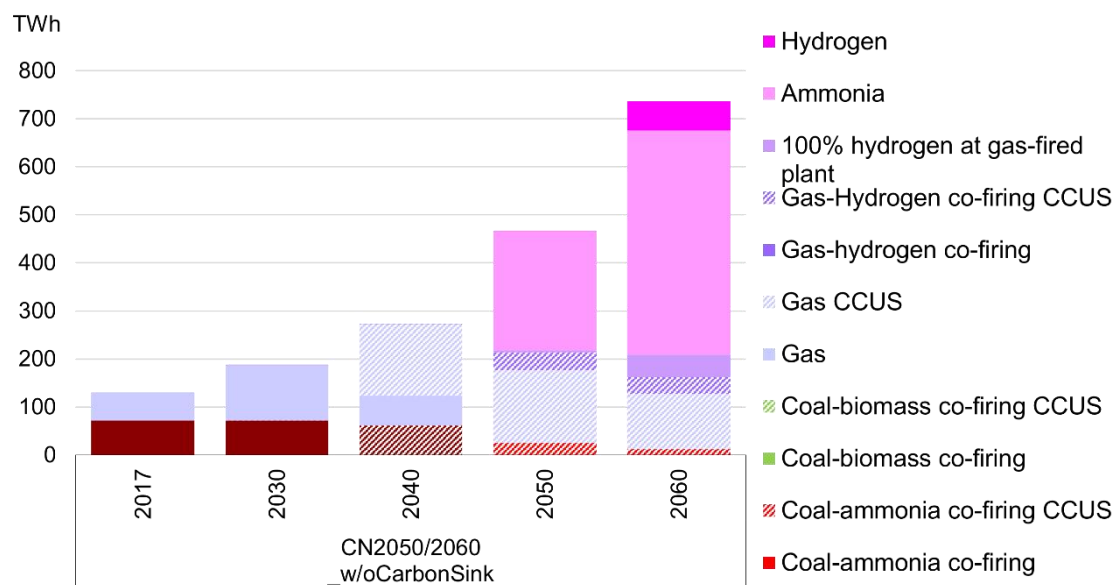
Mtoe = million tonnes of oil equivalent, MYS = Malaysia.
Source: Author.

Figure A.62. Power Generation (MYS-CN2050/2060_w/oCarbonSink)



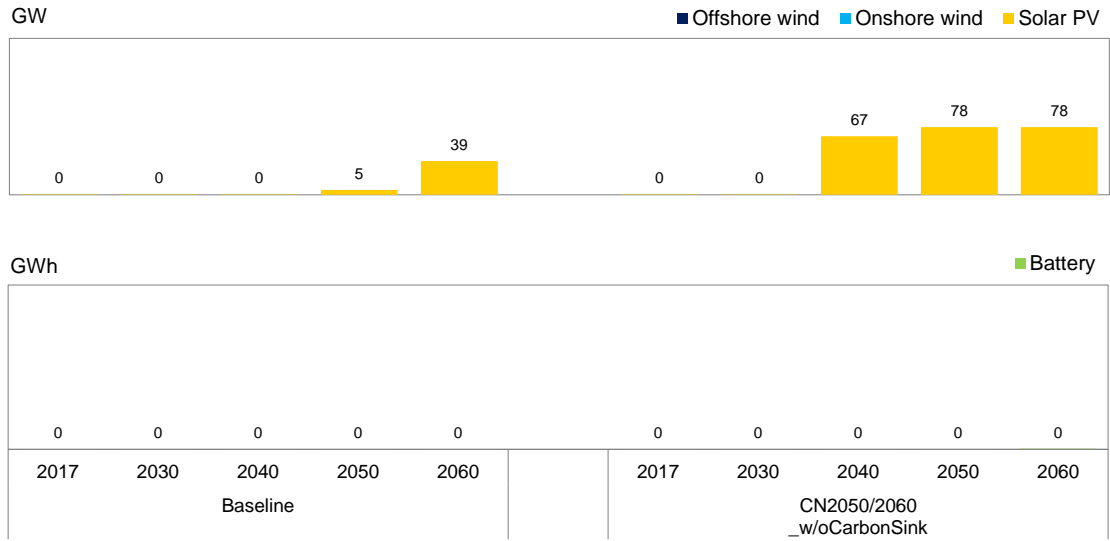
MYS = Malaysia, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

Figure A.63. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (MYS-CN2050/2060_w/oCarbonSink)



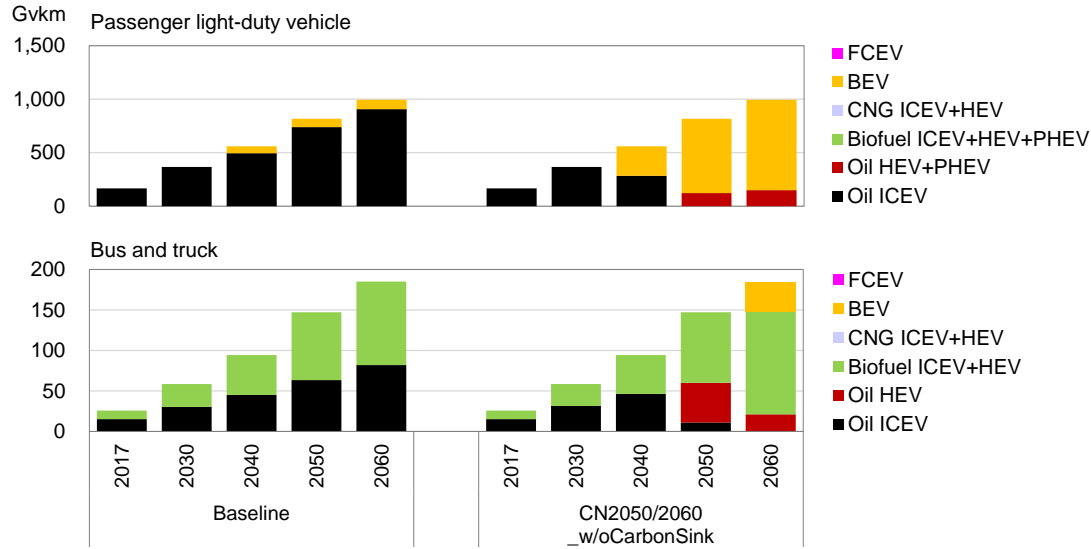
CCUS = carbon dioxide capture, utilisation, and storage; MYS = Malaysia; TWh = terawatt-hour.
Source: Author.

Figure A.64. Variable Renewable Energy and Battery (MYS-CN2050/2060_w/oCarbonSink)



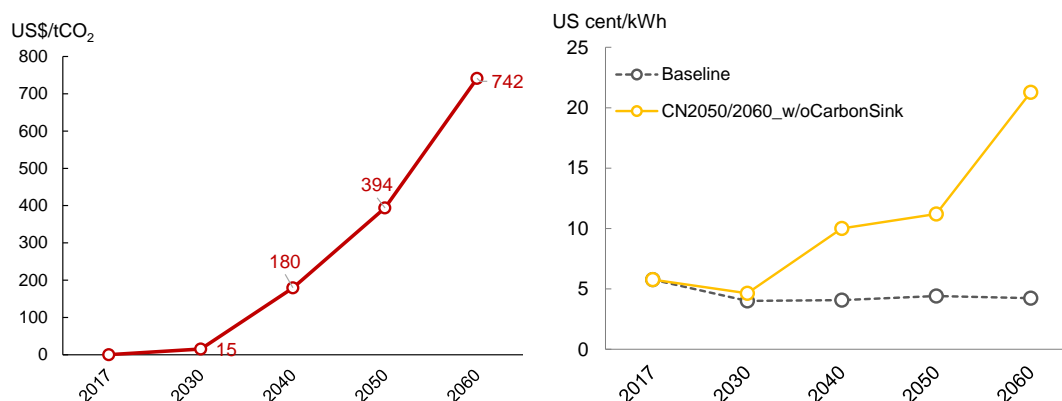
GW = gigawatt, GWh = gigawatt-hour, MYS = Malaysia, PV = photovoltaic.
Source: Author.

Figure A.65. Travel Distance by Vehicle Technology (MYS-CN2050/2060_w/oCarbonSink)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, MYS = Malaysia, PHEV = plug-in hybrid electric vehicle.
Source: Author.

**Figure A.66. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(MYS-CN2050/2060_w/oCarbonSink)**



kWh = kilowatt-hour, MYS = Malaysia, tCO₂ = tonne of carbon dioxide.
Source: Author.

**Table A.10. Carbon Dioxide Emission Baseline and without Carbon Sink Scenarios
(MYS-CN2050/2060_w/oCarbonSink)**

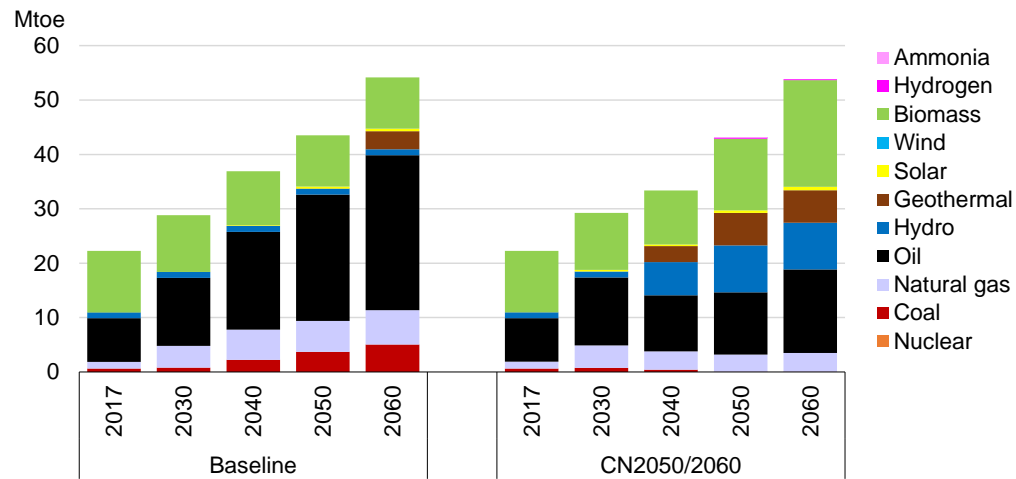
	Baseline (MtCO ₂)					MYS-CN2050/2060_w/oCarbonSink (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	104.75	130.24	196.17	220.09	240.03	104.67	122.86	24.99	-10.62	-13.11
Industry	29.94	41.97	54.04	68.22	82.53	29.94	42.18	52.18	42.67	49.75
Transport	67.38	123.07	153.51	204.83	252.19	67.48	123.07	103.94	46.55	42.51
Other end use	5.81	20.17	25.07	27.16	23.74	5.81	20.12	24.90	24.76	20.84
Other including DACCS	5.29	5.29	5.29	5.29	5.29	5.29	4.60	2.53	0.90	-99.98
LULUCF										
Energy-related CO₂ emissions	213.17	320.74	434.06	525.60	603.78	213.19	312.82	208.55	104.27	0.00

MYS = Malaysia, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

6. Myanmar

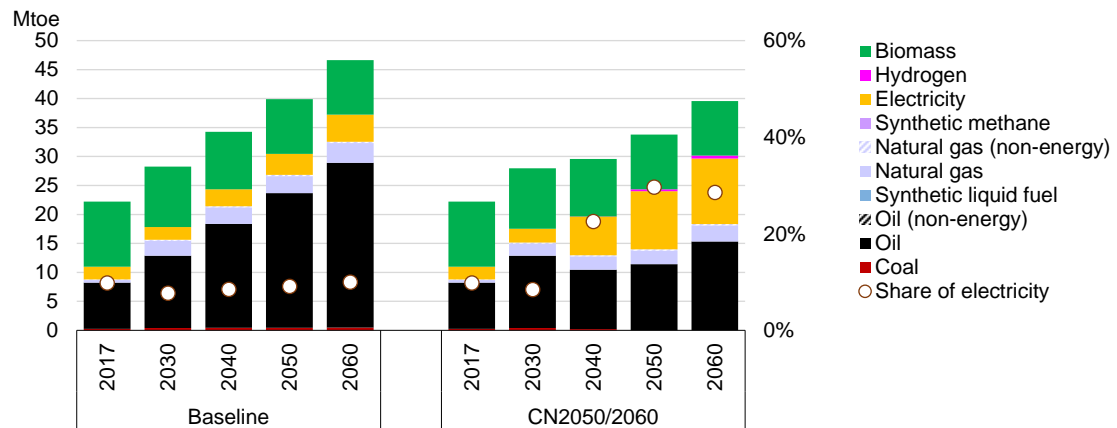
(a) CN2050/2060

Figure A.67. Primary Energy Supply (MMR-CN2050/2060)



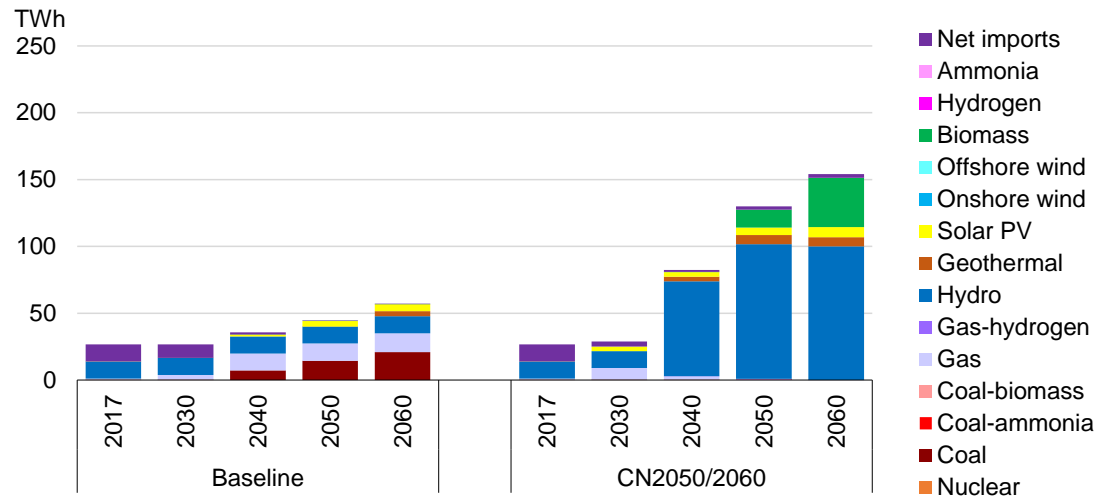
MMR = Myanmar, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.68. Final Energy Consumption (MMR-CN2050/2060)



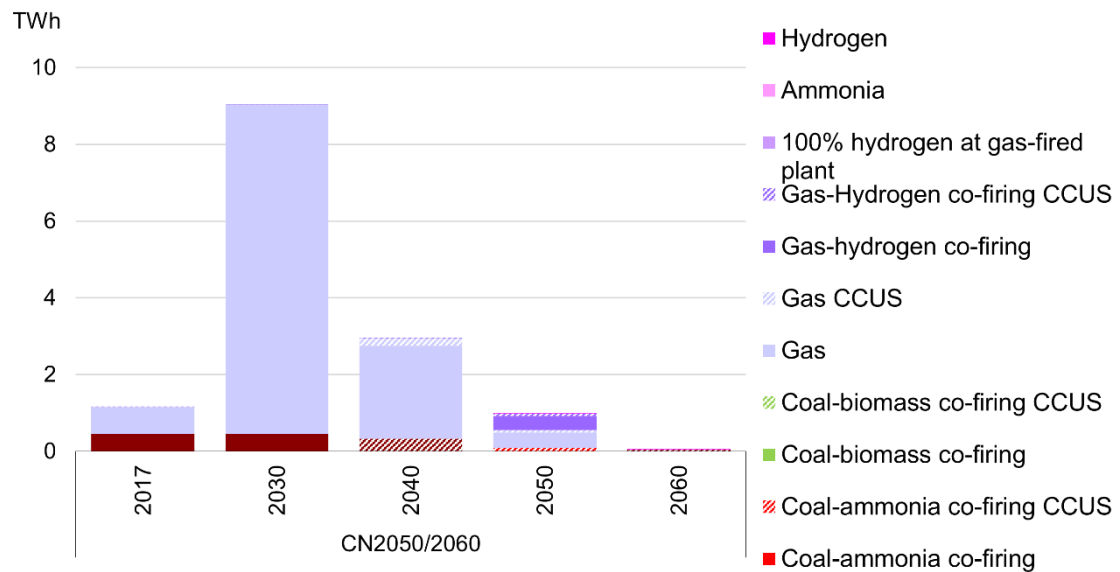
MMR = Myanmar, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.69. Power Generation (MMR-CN2050/2060)



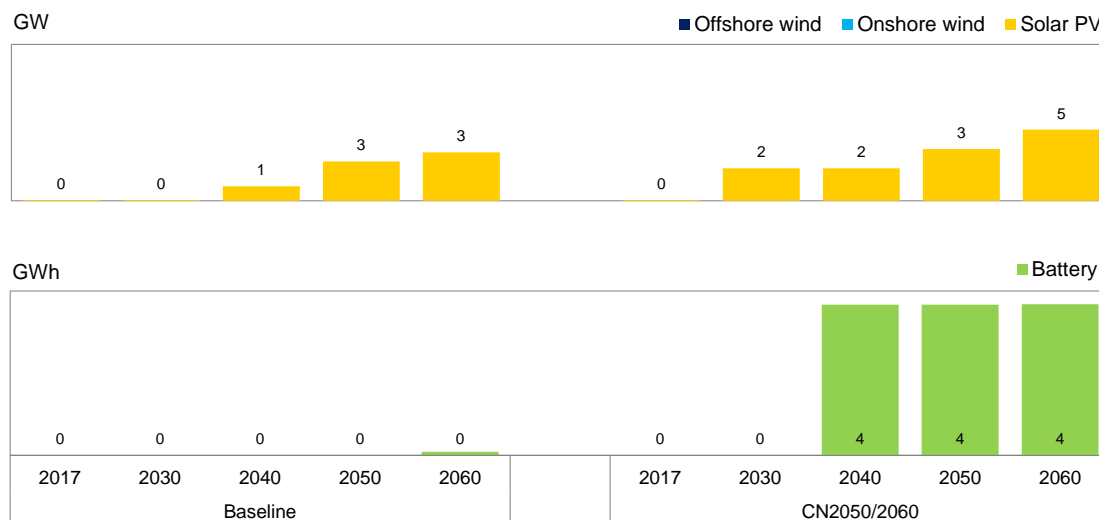
MMR = Myanmar, PV = photovoltaic, TWh = terawatt-hour.
Source: Author.

Figure A.70. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (MMR-CN2050/2060)



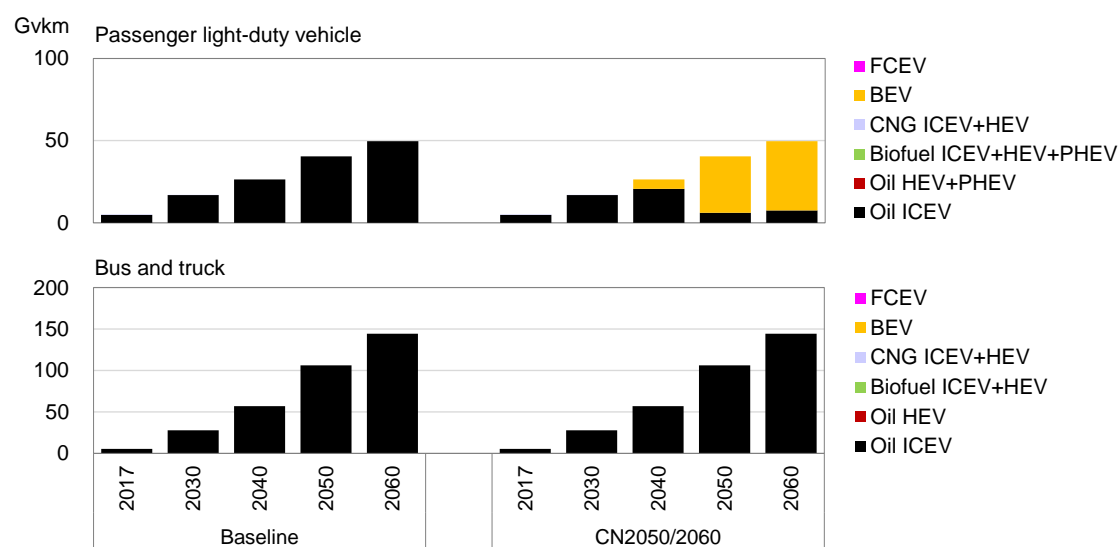
CCUS = carbon dioxide capture, utilisation, and storage; MMR = Myanmar; TWh = terawatt-hour.
Source: Author.

Figure A.71. Variable Renewable Energy and Battery (MMR-CN2050/2060)



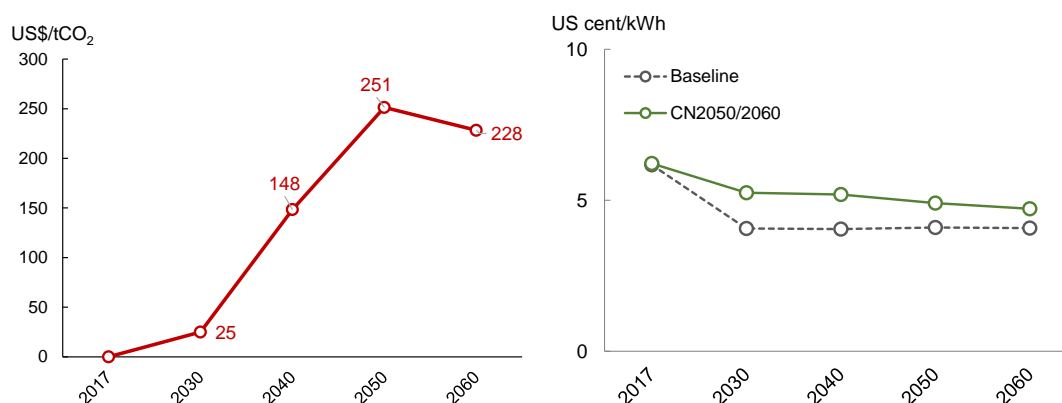
GW = gigawatt, GWh = gigawatt-hour, MMR = Myanmar, PV = photovoltaic.
Source: Author.

Figure A.72. Travel Distance by Vehicle Technology (MMR-CN2050/2060)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10⁹ vehicle-km, MMR = Myanmar, PHEV = plug-in hybrid electric vehicle.
Source: Author.

**Figure A.73. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(MMR-CN2050/2060)**



kWh = kilowatt-hour, MMR = Myanmar, tCO₂ = tonne of carbon dioxide.
Source: Author.

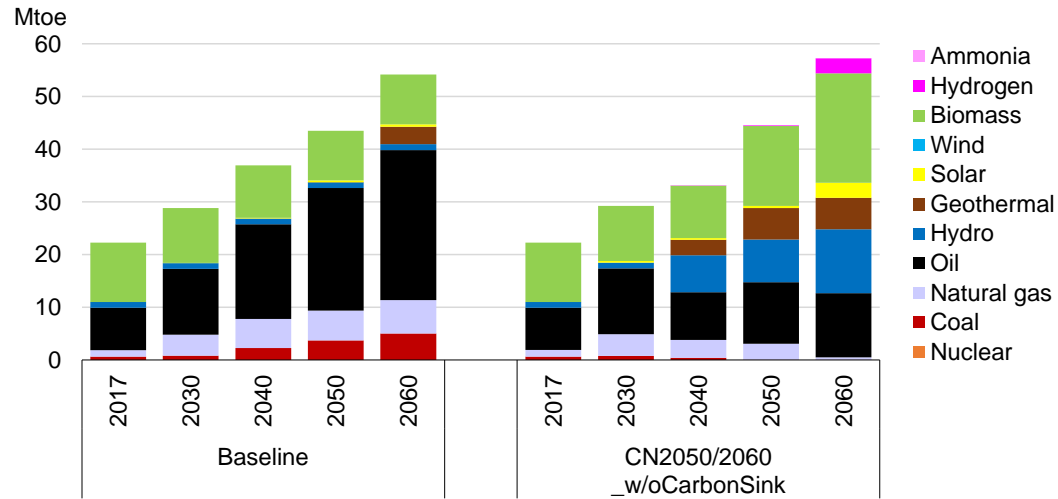
**Table A.11. Carbon Dioxide Emission Baseline and without Carbon Sink Scenarios
(MMR-CN2050/2060)**

	Baseline (MtCO ₂)					MMR-CN2050/2060 (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	1.53	2.87	11.40	17.20	22.86	1.57	4.31	0.99	-15.52	-42.68
Industry	15.11	24.09	31.87	35.91	41.61	15.11	23.41	6.83	2.56	2.90
Transport	7.84	17.99	27.51	40.16	50.76	7.84	17.99	26.66	32.91	44.37
Other end use	3.09	5.00	5.64	5.64	6.89	3.09	3.84	4.32	4.86	6.26
Other including DACCS	1.70	1.70	1.70	1.70	1.70	1.70	1.56	1.16	1.16	1.16
LULUCF						50.46	25.66	-12.90	-12.90	-12.90
Energy-related CO₂ emissions	29.27	51.63	78.12	100.60	123.82	29.31	51.12	39.95	25.97	12.00

MMR = Myanmar, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

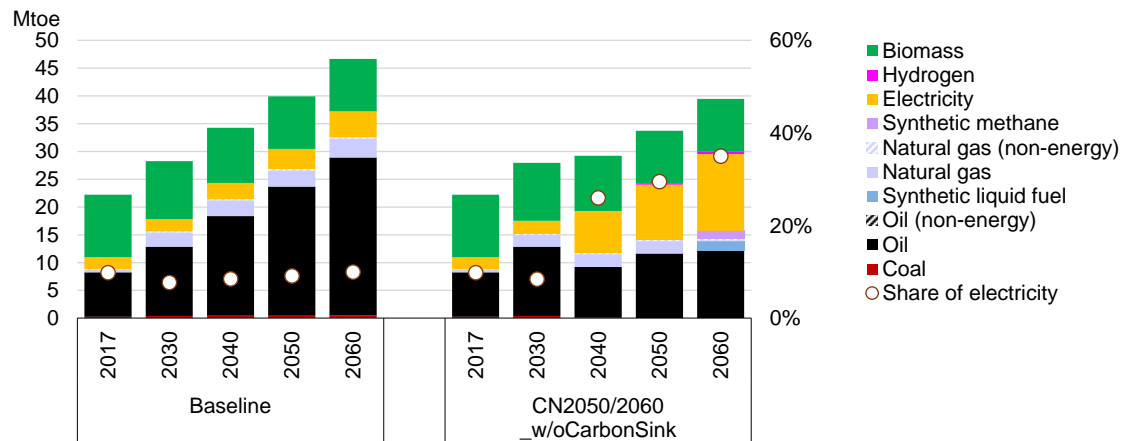
(b) CN2050/2060_w/oCarbonSink

Figure A.74. Primary Energy Supply (MMR-CN2050/2060_w/oCarbonSink)



MMR = Myanmar, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.75. Final Energy Consumption (MMR-CN2050/2060_w/oCarbonSink)



MMR = Myanmar, Mtoe = million tonnes of oil equivalent.
Source: Author.

Figure A.76. Power Generation (MMR-CN2050/2060_w/oCarbonSink)

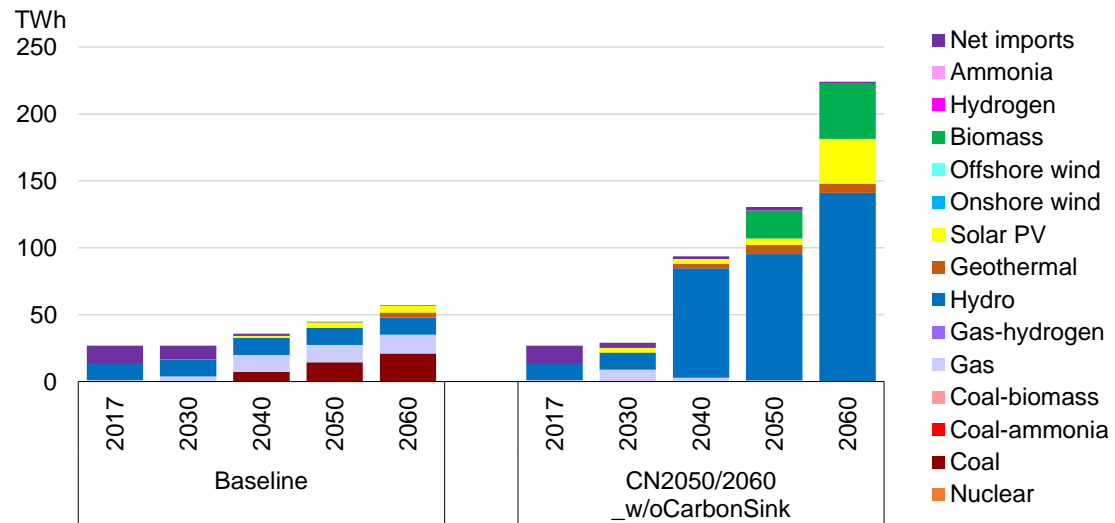
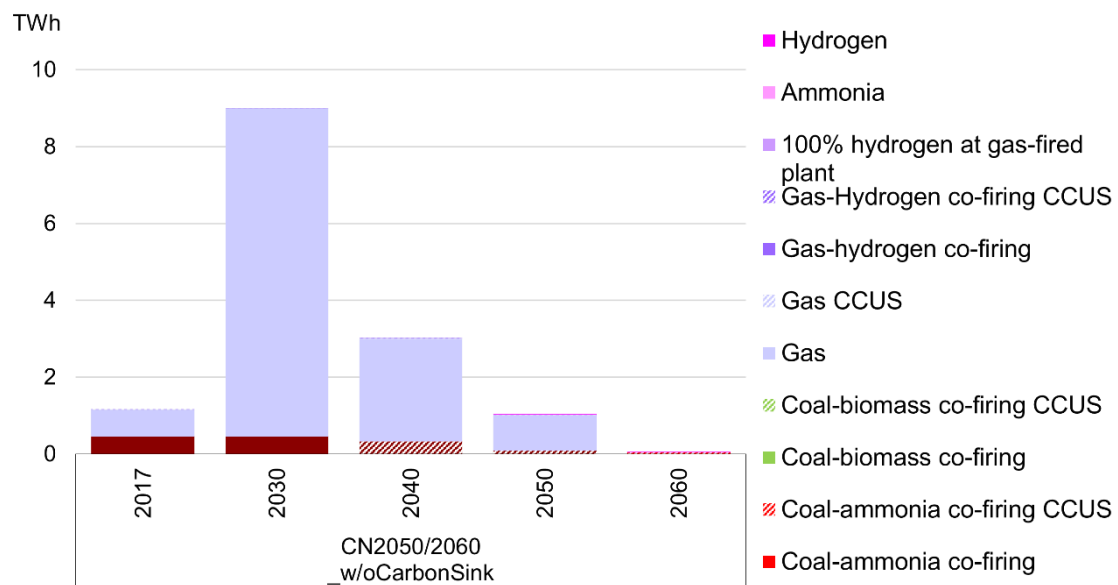
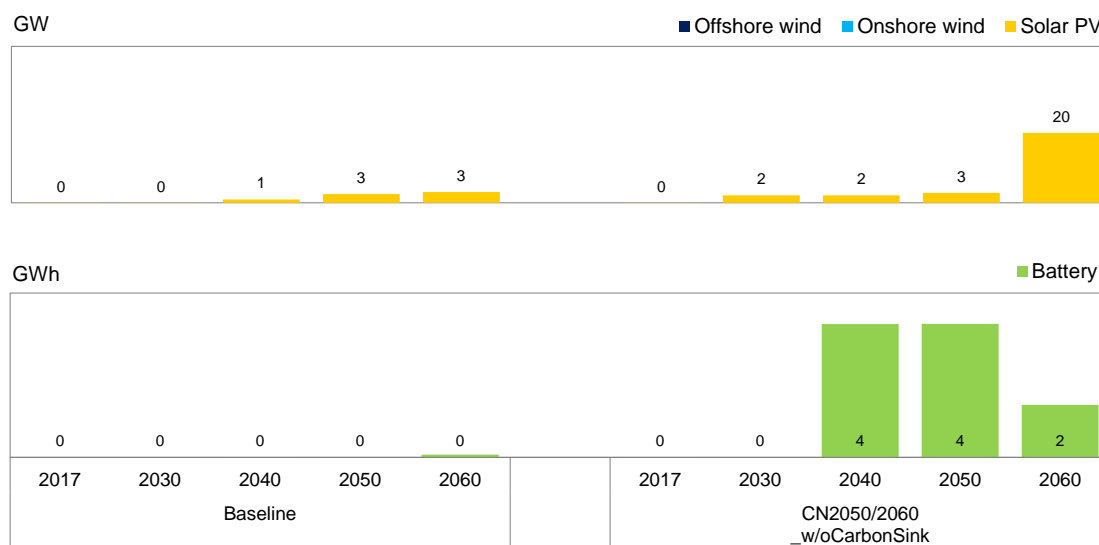


Figure A.77. Generated electricity from Coal, Gas, Ammonia, and Hydrogen (MMR-CN2050/2060_w/oCarbonSink)

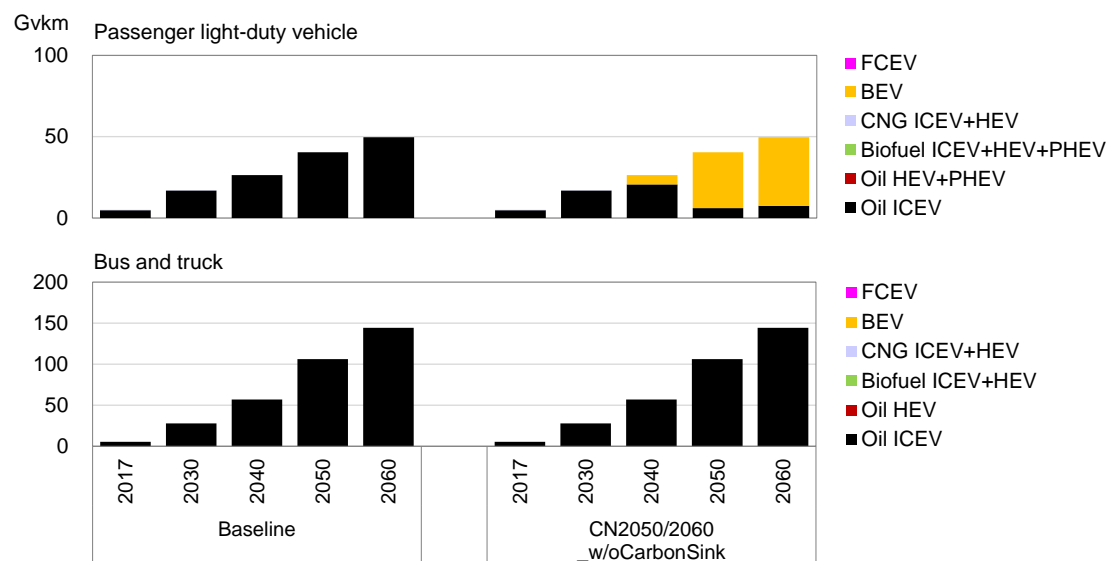


**Figure A.78. Variable Renewable Energy and Battery
(MMR-CN2050/2060_w/oCarbonSink)**



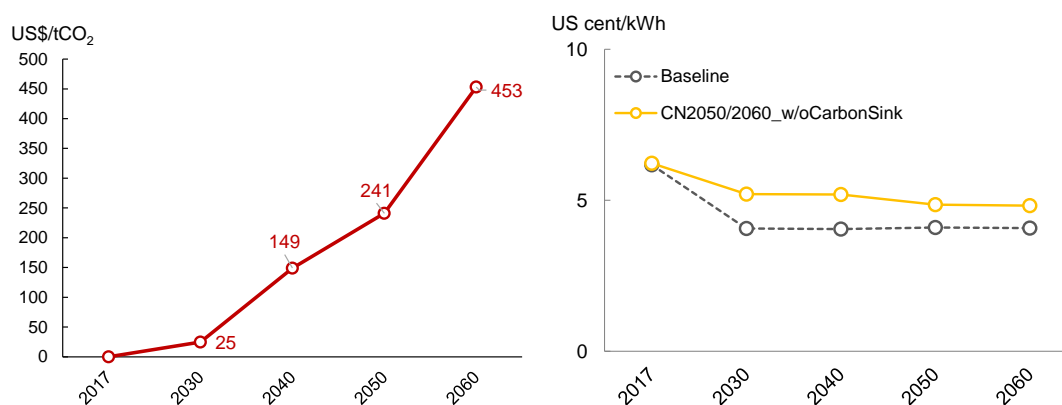
GW = gigawatt, GWh = gigawatt-hour, MMR = Myanmar, PV = photovoltaic.
Source: Author.

Figure A.79. Travel Distance by Vehicle Technology (MMR-CN2050/2060_w/oCarbonSink)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, MMR = Myanmar, PHEV = plug-in hybrid electric vehicle.
Source: Author.

**Figure A.80. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(MMR-CN2050/2060_w/oCarbonSink)**



kWh = kilowatt-hour, MMR = Myanmar, tCO₂ = tonne of carbon dioxide.
Source: Author.

**Table A.12. Carbon Dioxide Emission Baseline and without Carbon Sink Scenarios
(MMR-CN2050/2060_w/oCarbonSink)**

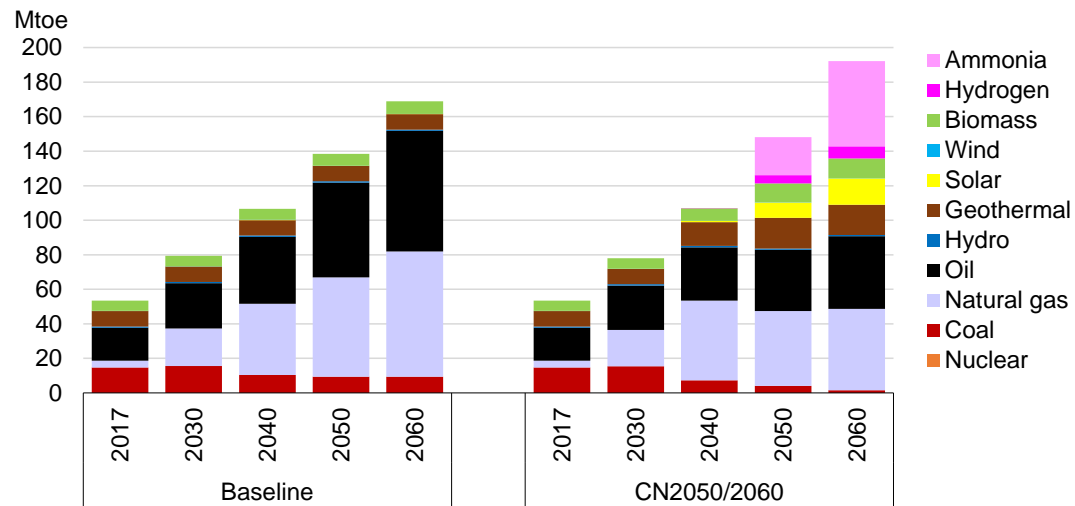
	Baseline (MtCO ₂)					MMR-CN2050/2060_w/oCarbonSink (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	1.53	2.87	11.40	17.20	22.86	1.57	4.29	1.08	-23.90	-47.80
Industry	15.11	24.09	31.87	35.91	41.61	15.11	23.44	2.74	2.56	2.78
Transport	7.84	17.99	27.51	40.16	50.76	7.84	17.99	26.66	33.84	39.46
Other end use	3.09	5.00	5.64	5.64	6.89	3.09	3.84	4.32	4.32	3.71
Other including DACCS	1.70	1.70	1.70	1.70	1.70	1.70	1.56	1.16	1.16	1.86
LULUCF										
Energy-related CO₂ emissions	29.27	51.63	78.12	100.60	123.82	29.31	51.12	35.95	17.98	0.00

MMR = Myanmar, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

7. Philippines

(a) CN2050/2060

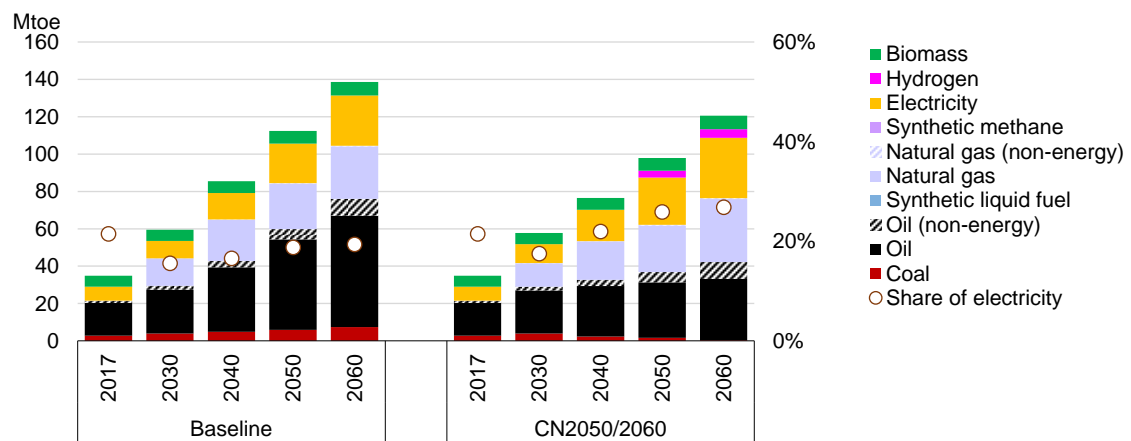
Figure A.81. Primary Energy Supply (PHL-CN2050/2060)



Mtoe = million tonnes of oil equivalent, PHL = Philippines.

Source: Author.

Figure A.82. Final Energy Consumption (PHL-CN2050/2060)



Mtoe = million tonnes of oil equivalent, PHL = Philippines.

Source: Author.

Figure A.83. Power Generation (PHL-CN2050/2060)

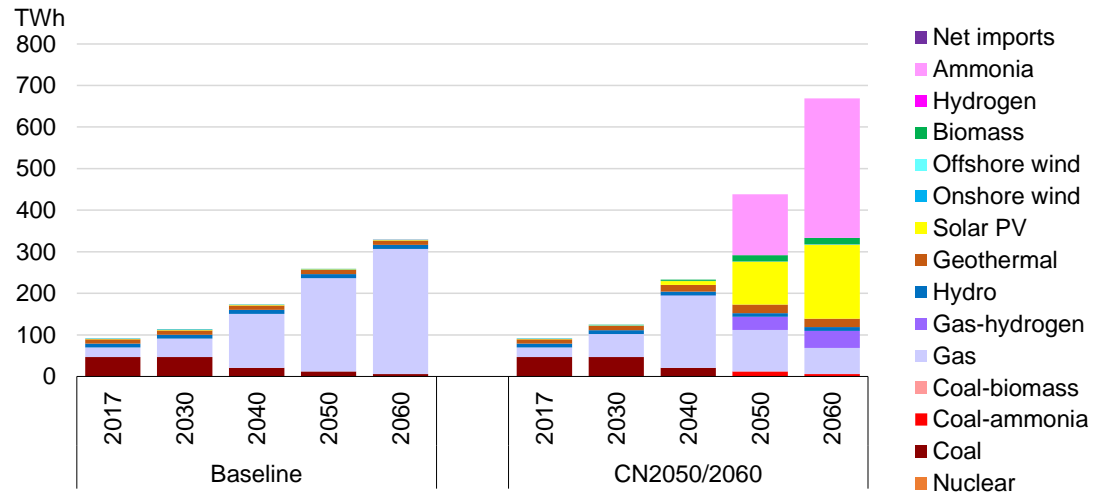


Figure A.84. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (PHL-CN2050/2060)

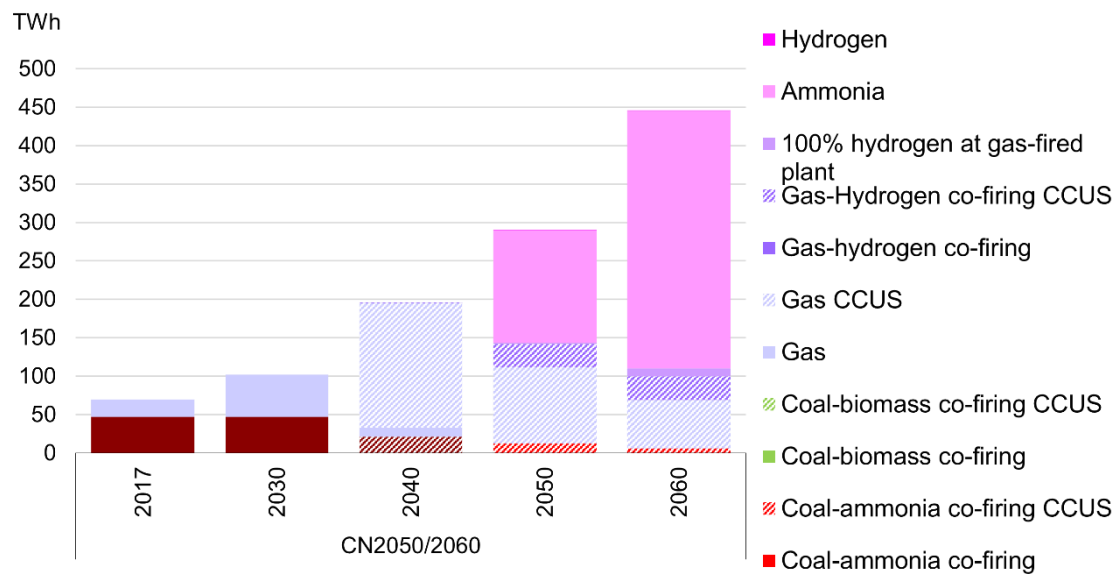
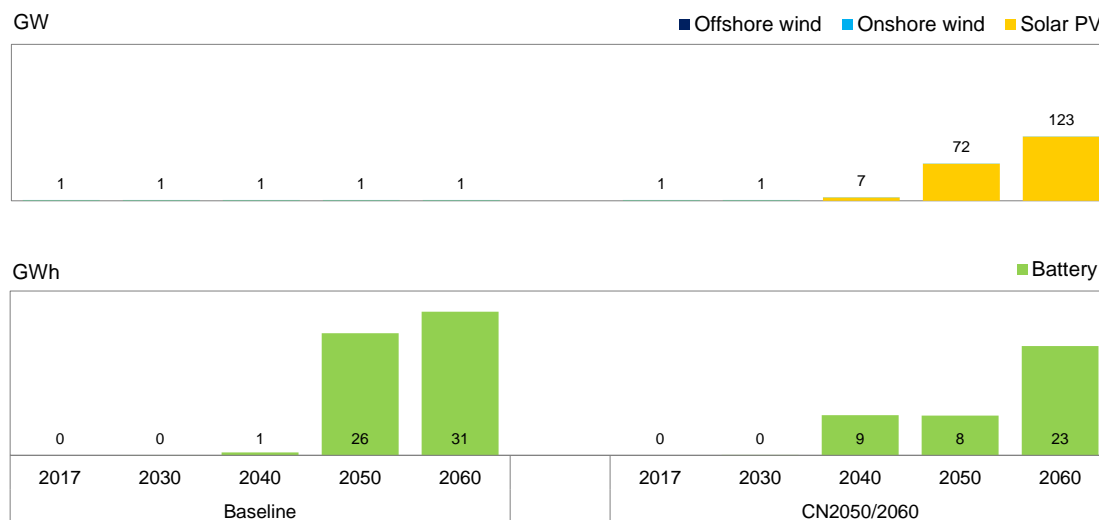
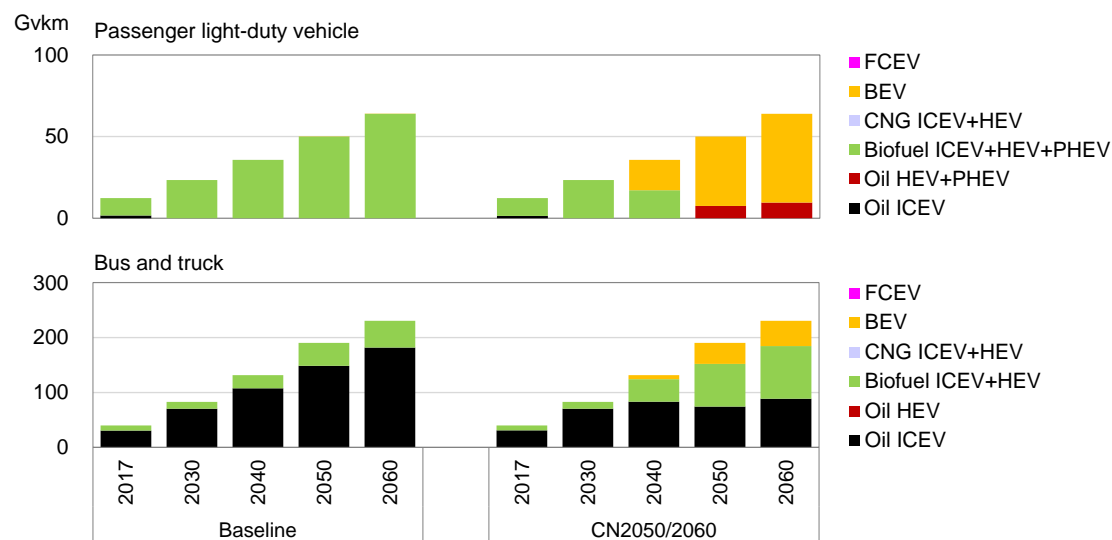


Figure A.85. Variable Renewable Energy and Battery (PHL-CN2050/2060)



GW = gigawatt, GWh = gigawatt-hour, PHL = Philippines, PV = photovoltaic.
Source: Author.

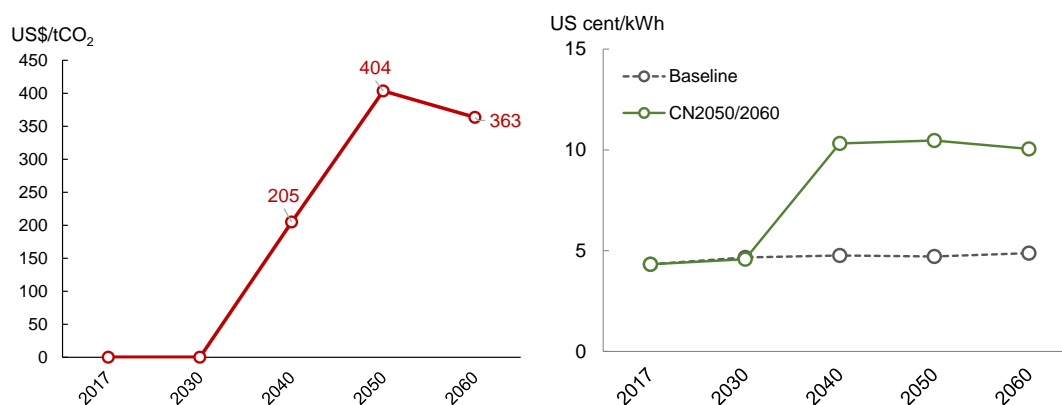
Figure A.86. Travel Distance by Vehicle Technology (PHL-CN2050/2060)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, PHEV = plug-in hybrid electric vehicle, PHL = Philippines.

Source: Author.

**Figure A.87. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(PHL-CN2050/2060)**



kWh = kilowatt-hour, PHL = Philippines, tCO₂ = tonne of carbon dioxide.
Source: Author.

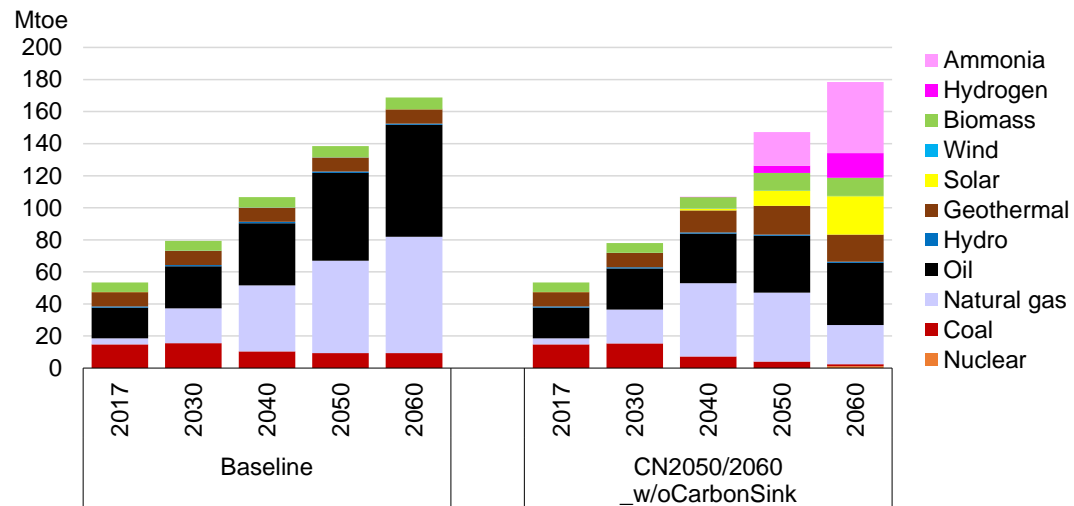
**Table A.13. Carbon Dioxide Emission Baseline and with Carbon Sink Scenarios
(PHL-CN2050/2060)**

	Baseline (MtCO ₂)					PHL-CN2050/2060 (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	52.31	60.29	64.83	89.15	109.99	52.31	63.54	7.99	-12.33	-14.00
Industry	15.70	30.08	44.91	67.23	95.25	15.70	28.85	23.26	28.79	36.61
Transport	32.71	57.94	83.46	108.35	127.91	32.71	57.94	75.75	74.04	86.24
Other end use	15.70	34.63	49.63	55.70	58.00	15.70	29.42	41.69	53.04	57.79
Other including DACCS	5.33	4.11	4.47	4.79	5.23	5.33	3.35	1.42	-68.49	-166.63
LULUCF						0.00	0.00	0.00	0.00	0.00
Energy-related CO₂ emissions	121.75	187.04	247.29	325.23	396.38	121.75	183.09	150.11	75.05	0.00

PHL = Philippines, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

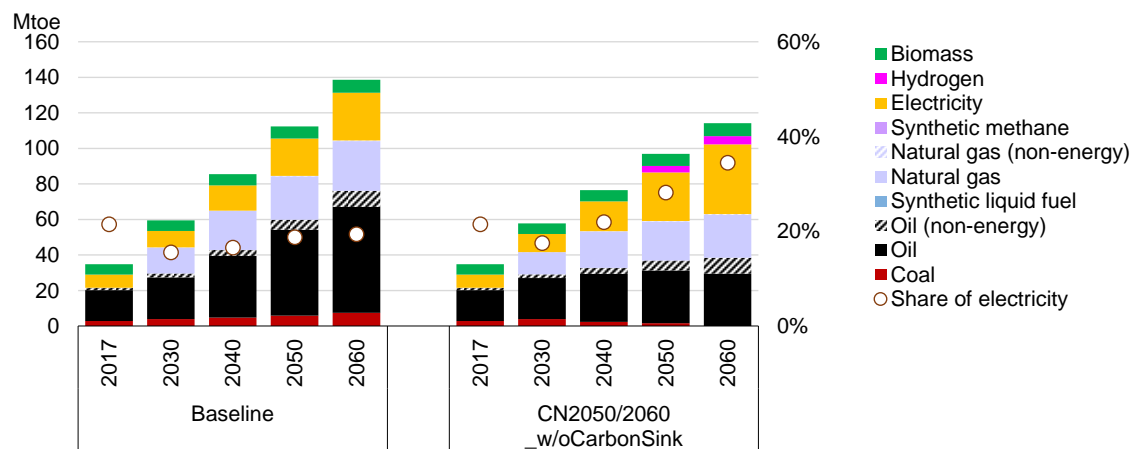
(b) CN2050/2060_w/oCarbonSink

Figure A.88. Primary energy supply (PHL-CN2050/2060_w/oCarbonSink)



Mtoe = million tonnes of oil equivalent, PHL = Philippines.
Source: Author.

Figure A.89. Final Energy Consumption (PHL-CN2050/2060_w/oCarbonSink)



Mtoe = million tonnes of oil equivalent, PHL = Philippines.
Source: Author.

Figure A.90. Power Generation (PHL-CN2050/2060_w/oCarbonSink)

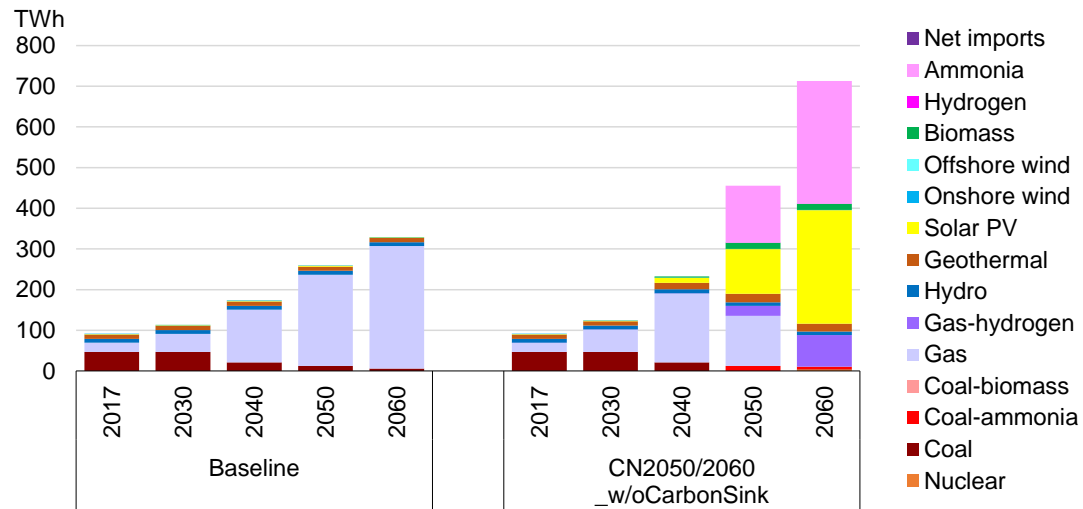


Figure A.91. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (PHL-CN2050/2060_w/oCarbonSink)

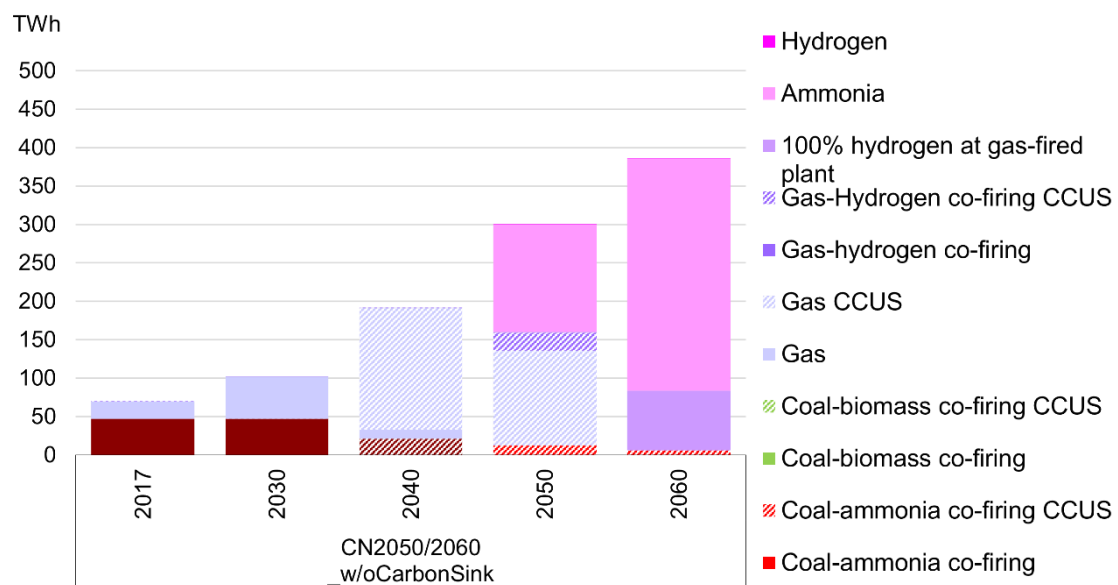


Figure A.92. Variable Renewable Energy and Battery (PHL-CN2050/2060_w/oCarbonSink)

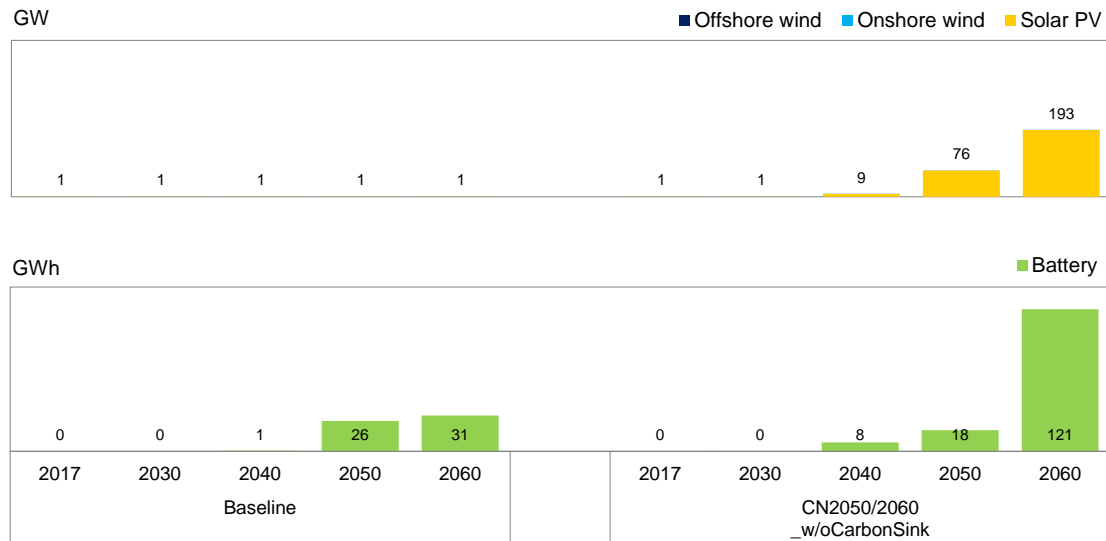
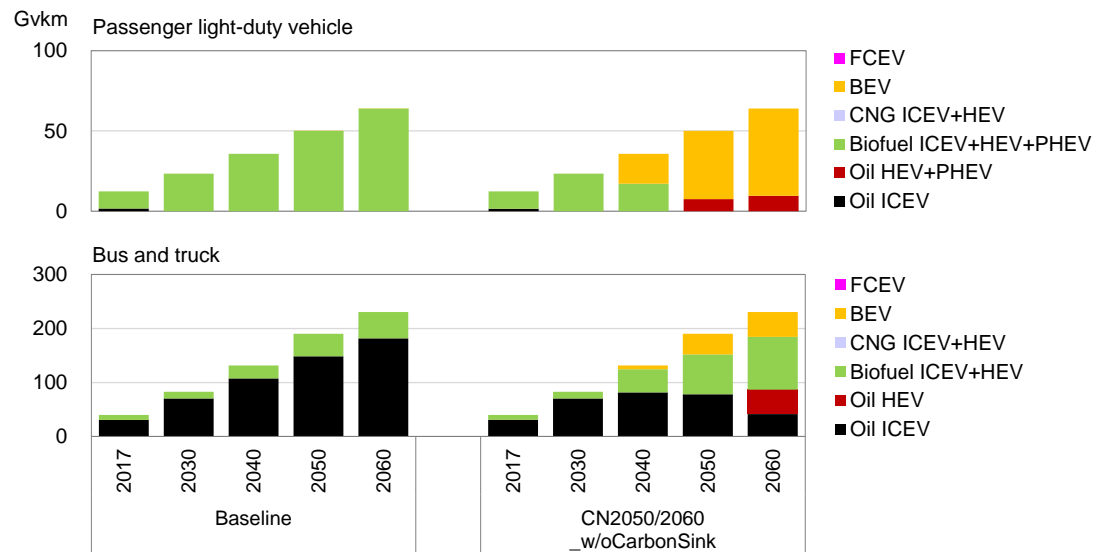
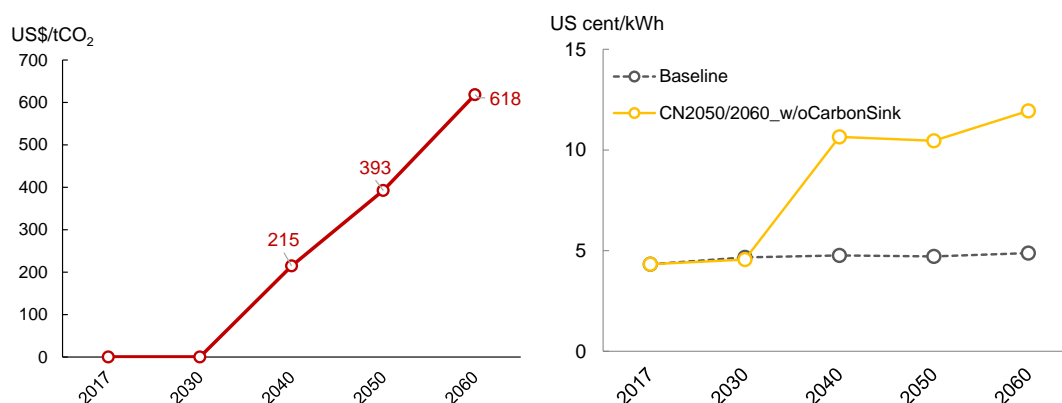


Figure A.93. Travel Distance by Vehicle Technology (PHL-CN2050/2060_w/oCarbonSink)



**Figure A.94. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(PHL-CN2050/2060_w/oCarbonSink)**



kWh = kilowatt-hour, PHL = Philippines, tCO₂ = tonne of carbon dioxide.
Source: Author.

**Table A.14. Carbon Dioxide Emission Baseline and without Carbon Sink Scenarios
(PHL-CN2050/2060_w/oCarbonSink)**

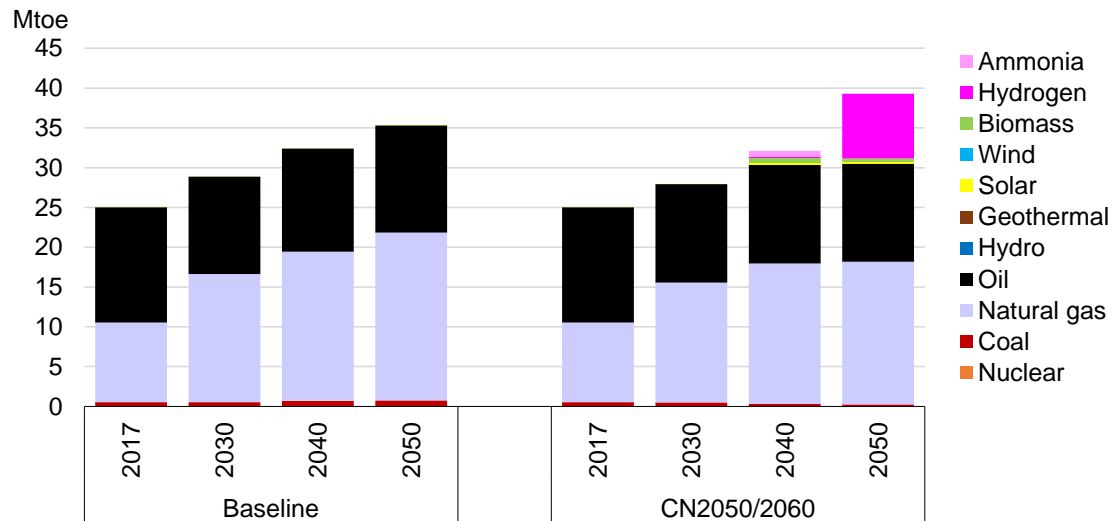
	Baseline (MtCO ₂)					PHL-CN2050/2060_w/oCarbonSink (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	52.31	60.29	64.83	89.15	109.99	52.31	63.53	7.89	-11.66	-17.09
Industry	15.70	30.08	44.91	67.23	95.25	15.70	28.85	23.27	22.48	15.71
Transport	32.71	57.94	83.46	108.35	127.91	32.71	57.94	75.84	74.04	75.99
Other end use	15.70	34.63	49.63	55.70	58.00	15.70	29.42	41.69	52.42	54.24
Other including DACCS	5.33	4.11	4.47	4.79	5.23	5.33	3.35	1.43	-62.22	-128.86
LULUCF										
Energy-related CO ₂ emissions	121.75	187.04	247.29	325.23	396.38	121.75	183.09	150.11	75.05	0.00

PHL = Philippines, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

8. Singapore

(a) CN2050/2060

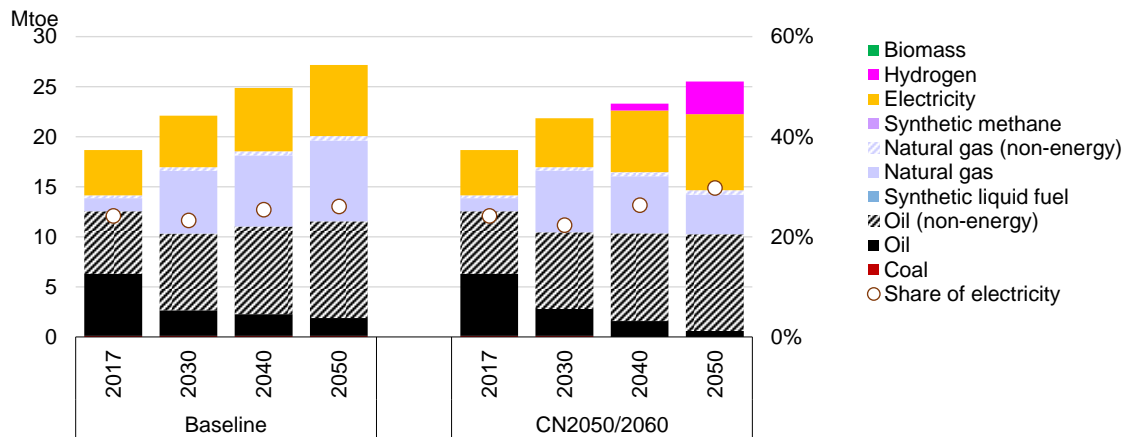
Figure A.95. Primary Energy Supply (SGP-CN2050/2060)



Mtoe = million tonnes of oil equivalent, SGP = Singapore.

Source: Author.

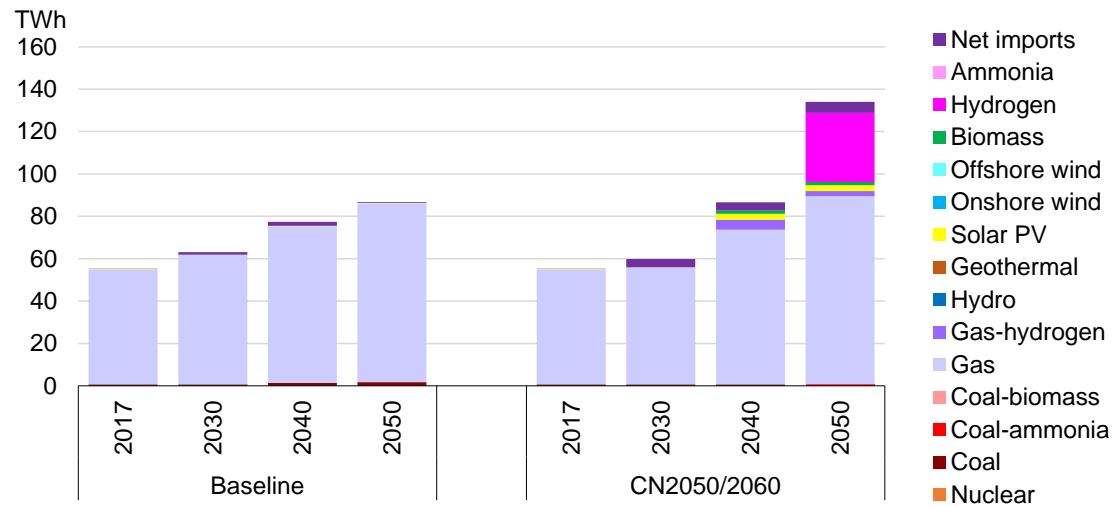
Figure A.96. Final Energy Consumption (SGP-CN2050/2060)



Mtoe = million tonnes of oil equivalent, SGP = Singapore.

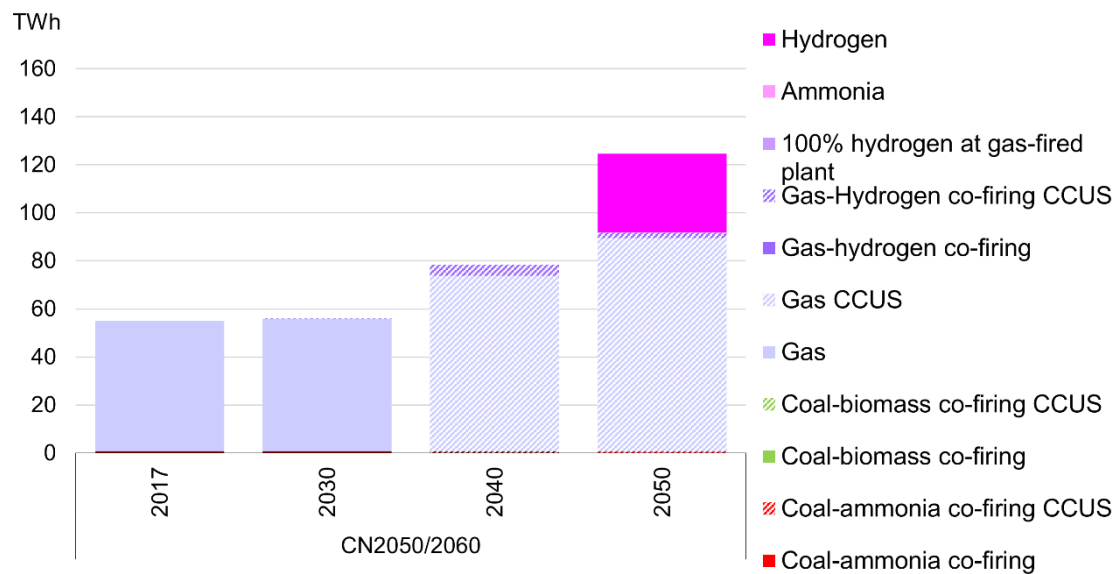
Source: Author.

Figure A.97. Power Generation (SGP-CN2050/2060)



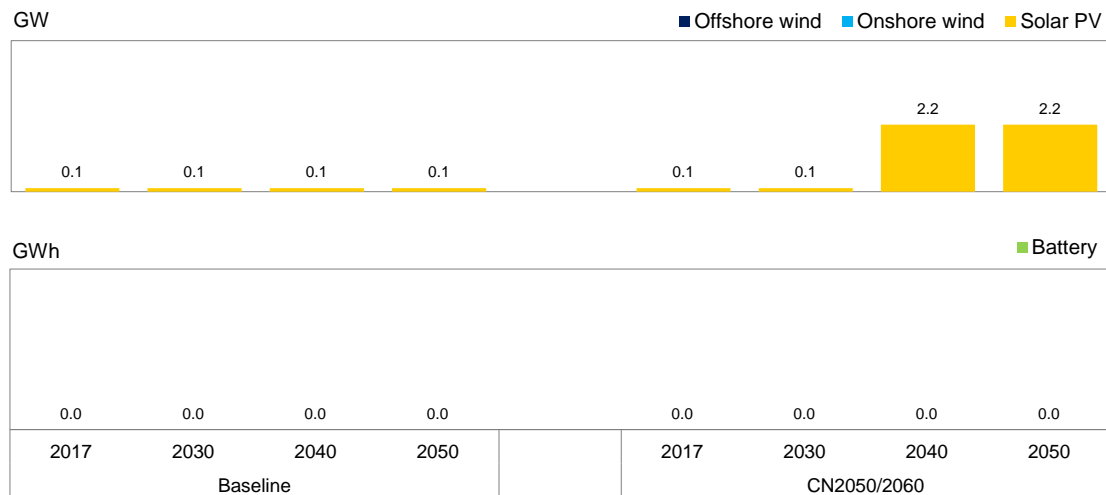
PV = photovoltaic, SGP = Singapore, TWh = terawatt-hour.
Source: Author.

Figure A.98. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (SGP-CN2050/2060)



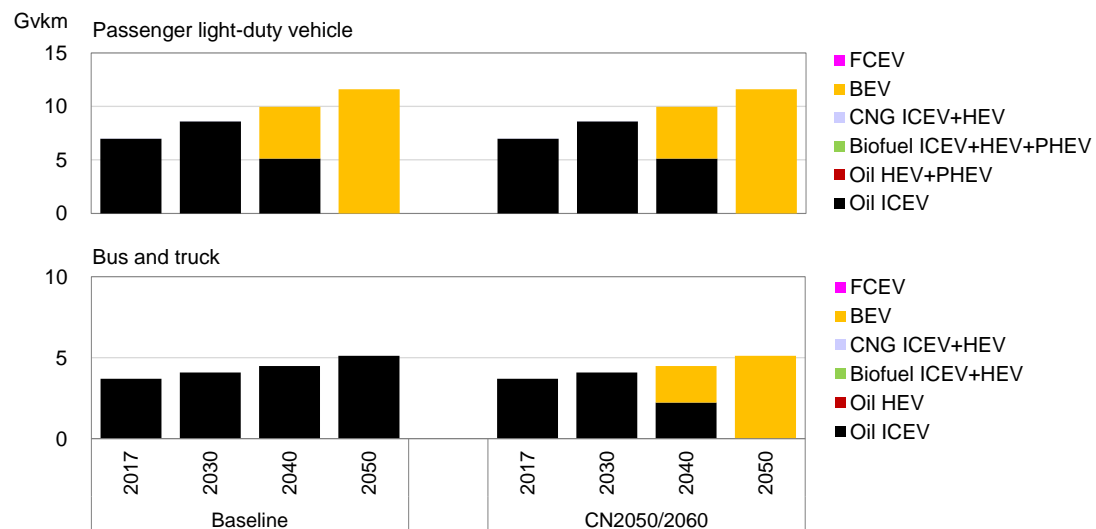
CCUS = carbon dioxide capture, utilisation, and storage; SGP = Singapore; TWh = terawatt-hour.
Source: Author.

Figure A.99. Variable Renewable Energy and Battery (SGP-CN2050/2060)



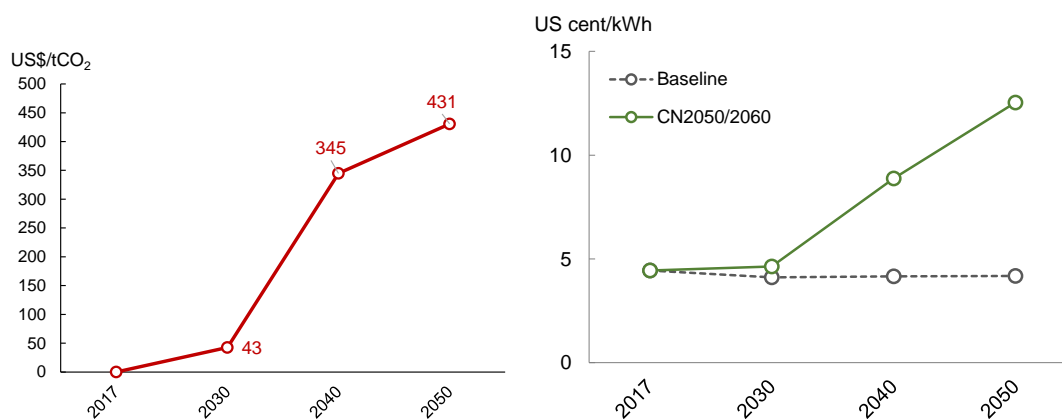
GW = gigawatt, GWh = gigawatt-hour, PV = photovoltaic, SGP = Singapore.
Source: Author.

Figure A.100. Travel Distance by Vehicle Technology (SGP-CN2050/2060)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, PHEV = plug-in hybrid electric vehicle, SGP = Singapore.
Source: Author.

**Figure A.101. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(SGP-CN2050/2060)**



SGP = Singapore, tCO₂ = tonne of carbon dioxide.
Source: Author.

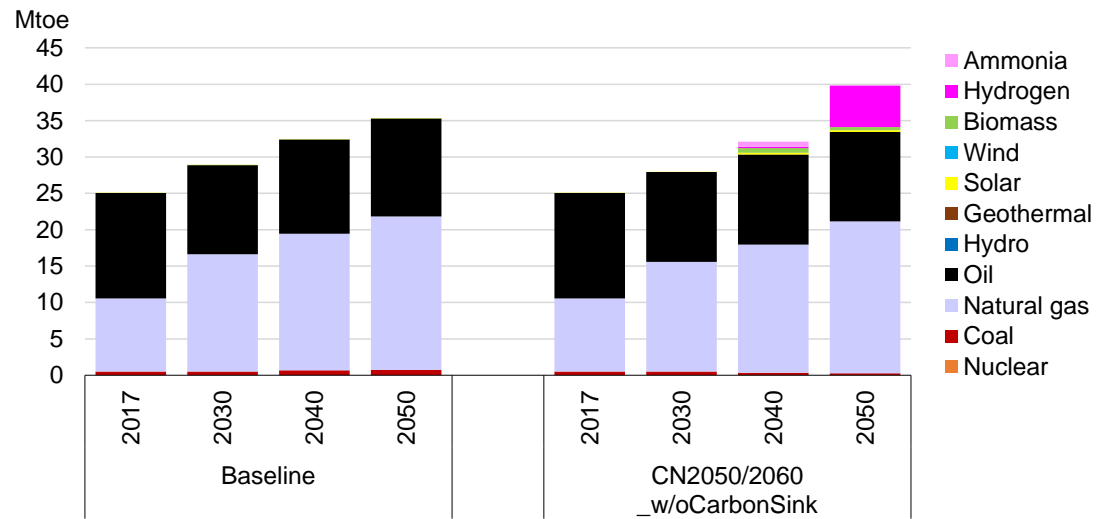
**Table A.15. Carbon Dioxide Emission Baseline and with Carbon Sink Scenarios
(SGP-CN2050/2060)**

	Baseline (MtCO ₂)					SGP-CN2050/2060 (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	21.10	23.54	28.38	31.70	31.70	21.10	21.37	0.88	1.49	0.78
Industry	15.52	13.98	15.90	18.17	21.29	15.52	14.03	12.21	8.40	9.49
Transport	6.60	7.93	6.91	5.85	6.18	6.60	7.93	5.09	1.84	1.95
Other end use	0.60	0.95	0.93	0.89	0.94	0.60	0.95	0.92	0.87	0.91
Other including DACCS	6.57	6.57	6.57	6.57	6.57	6.57	6.51	6.30	-12.60	-13.13
LULUCF						0.00	0.00	0.00	0.00	0.00
Energy-related CO ₂ emissions	50.40	52.97	58.68	63.18	66.68	50.40	50.79	25.39	0.00	0.00

SGP = Singapore, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

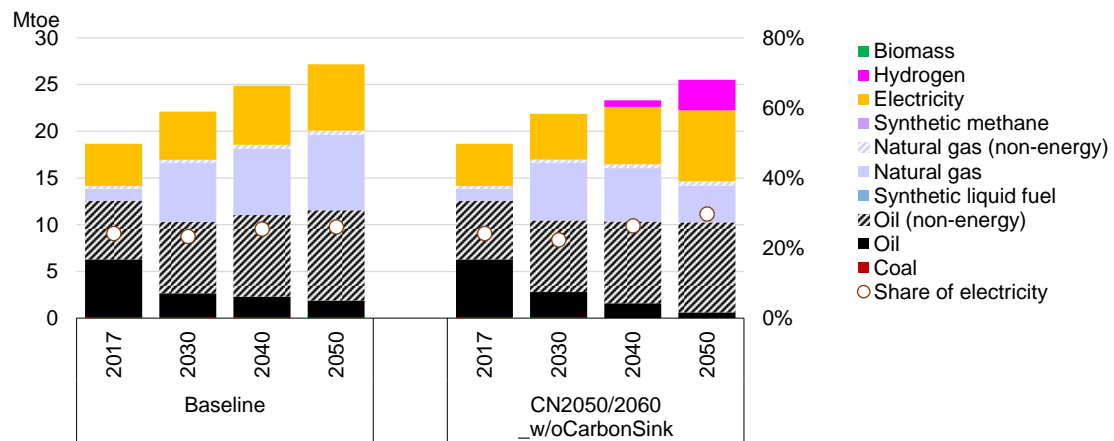
(b) CN2050/2060_w/oCarbonSink

Figure A.102. Primary Energy Supply (SGP-CN2050/2060_w/oCarbonSink)



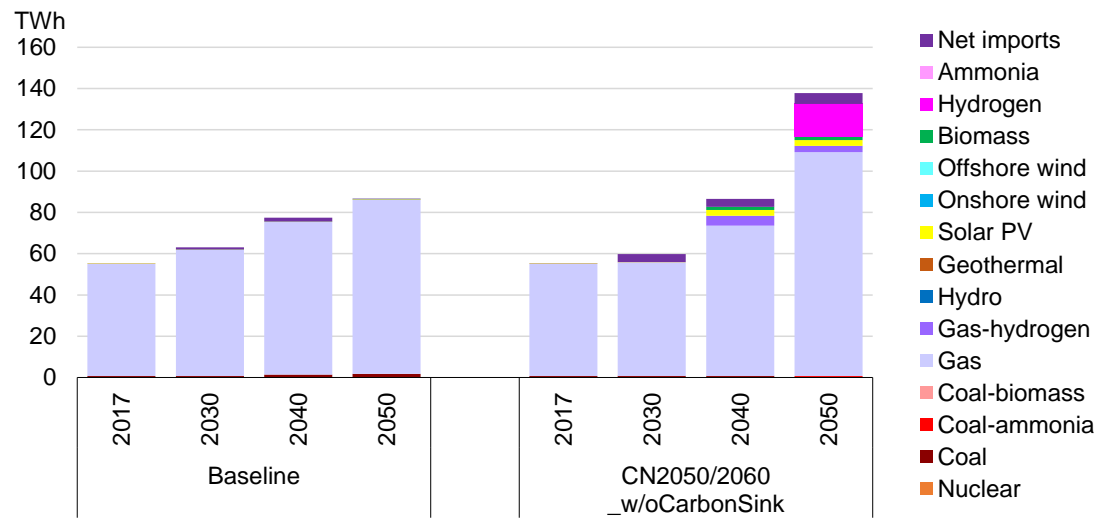
Mtoe = million tonnes of oil equivalent, SGP = Singapore.
Source: Author.

Figure A.103. Final Energy Consumption (SGP-CN2050/2060_w/oCarbonSink)



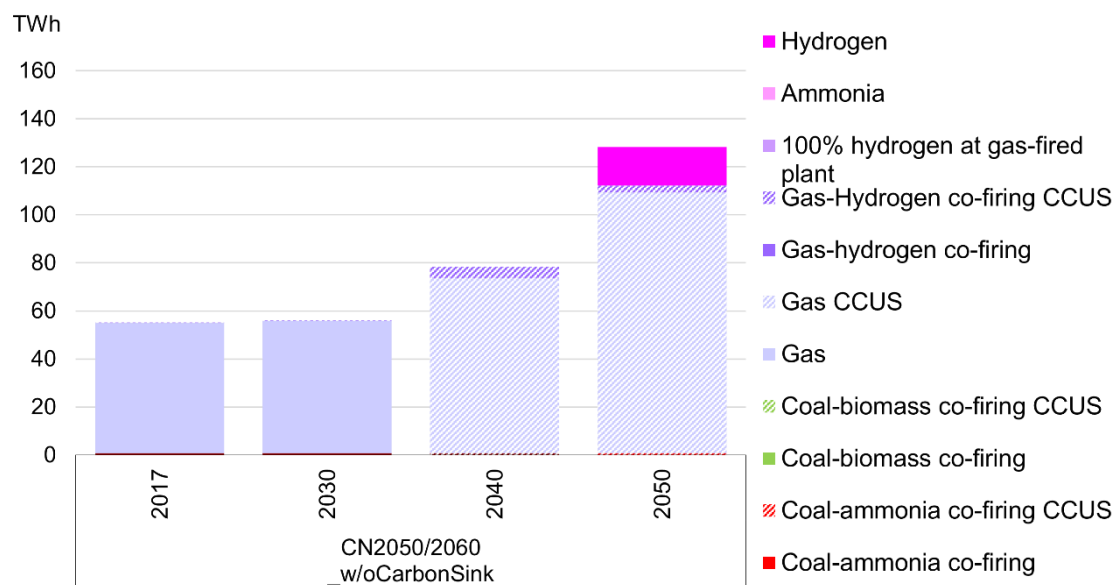
Mtoe = million tonnes of oil equivalent, SGP = Singapore.
Source: Author.

Figure A.104. Power Generation (SGP-CN2050/2060_w/oCarbonSink)



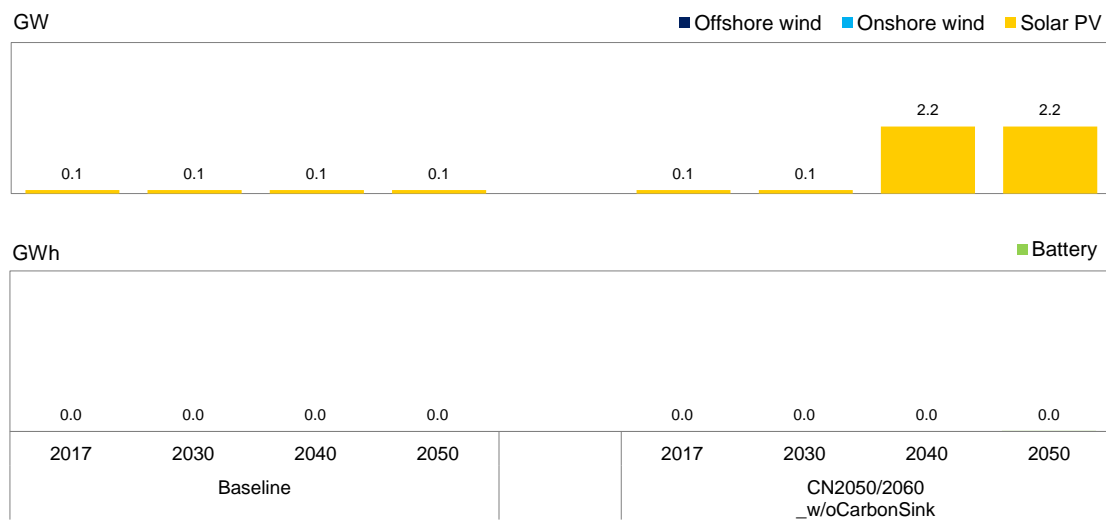
PV = photovoltaic, SGP = Singapore, TWh = terawatt-hour.
Source: Author.

Figure A.105. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (SGP-CN2050/2060_w/oCarbonSink)



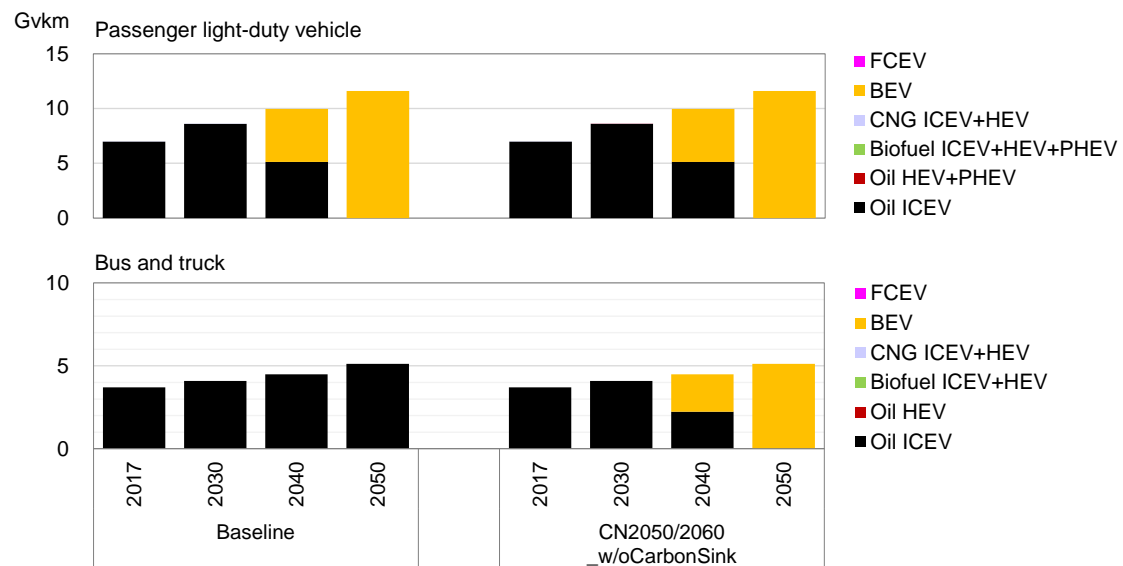
CCUS = carbon dioxide capture, utilisation, and storage; SGP = Singapore; TWh = terawatt-hour.
Source: Author.

**Figure A.106. Variable Renewable Energy and Battery
(SGP-CN2050/2060_w/oCarbonSink)**



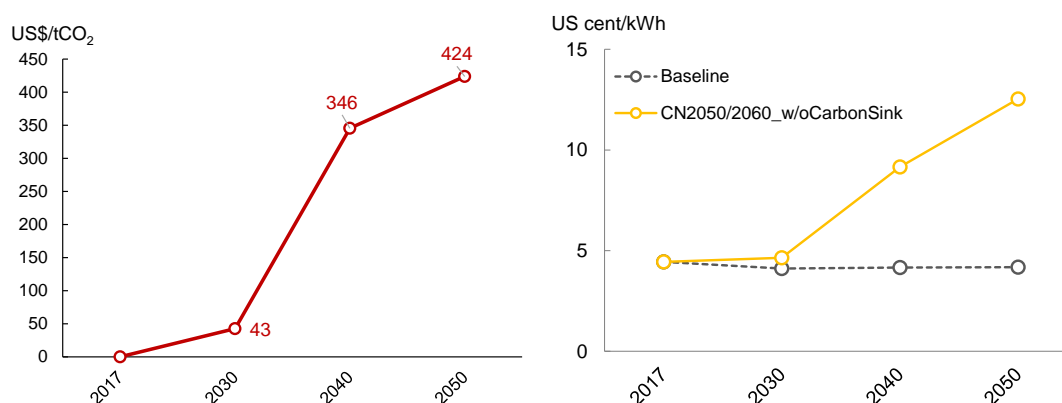
GW = gigawatt, GWh = gigawatt-hour, PV = photovoltaic, SGP = Singapore.
Source: Author.

Figure A.107. Travel Distance by Vehicle Technology (SGP-CN2050/2060_w/oCarbonSink)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, PHEV = plug-in hybrid electric vehicle, SGP = Singapore.
Source: Author.

**Figure A.108. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(SGP-CN2050/2060_w/oCarbonSink)**



kWh = kilowatt-hour, SGP = Singapore, tCO₂ = tonne of carbon dioxide.
Source: Author.

**Table A.16. Carbon Dioxide Emission Baseline and without Carbon Sink Scenarios
(SGP-CN2050/2060_w/oCarbonSink)**

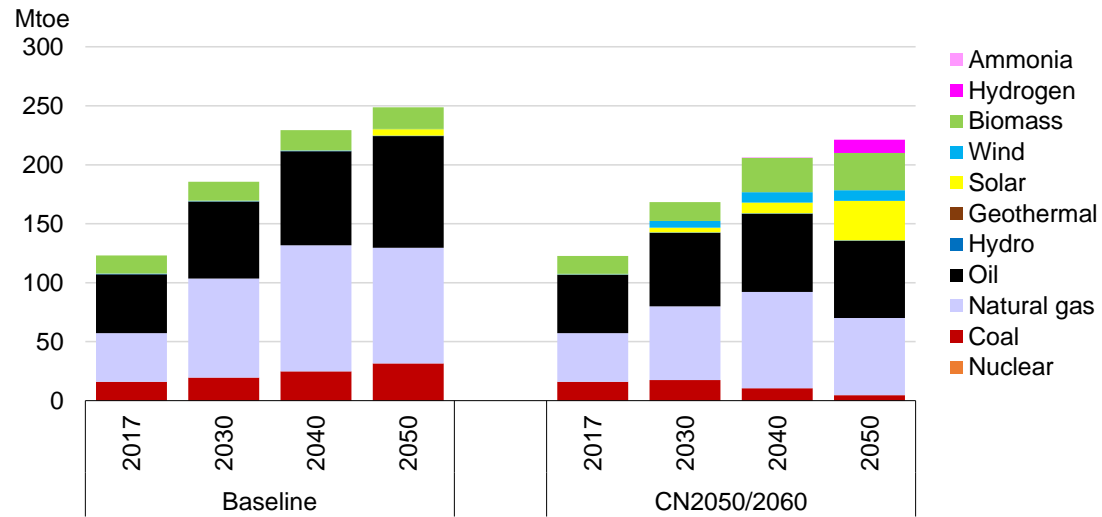
	Baseline (MtCO ₂)					SGP-CN2050/2060_w/oCarbonSink (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	21.10	23.54	28.38	31.70	31.70	21.10	21.37	0.88	2.19	0.97
Industry	15.52	13.98	15.90	18.17	21.29	15.52	14.03	12.21	8.40	9.49
Transport	6.60	7.93	6.91	5.85	6.18	6.60	7.93	5.09	1.84	1.95
Other end use	0.60	0.95	0.93	0.89	0.94	0.60	0.95	0.92	0.87	0.91
Other including DACCS	6.57	6.57	6.57	6.57	6.57	6.57	6.51	6.30	-13.29	-13.33
LULUCF										
Energy-related CO₂ emissions	50.40	52.97	58.68	63.18	66.68	50.40	50.79	25.39	0.00	0.00

SGP = Singapore, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

9. Thailand

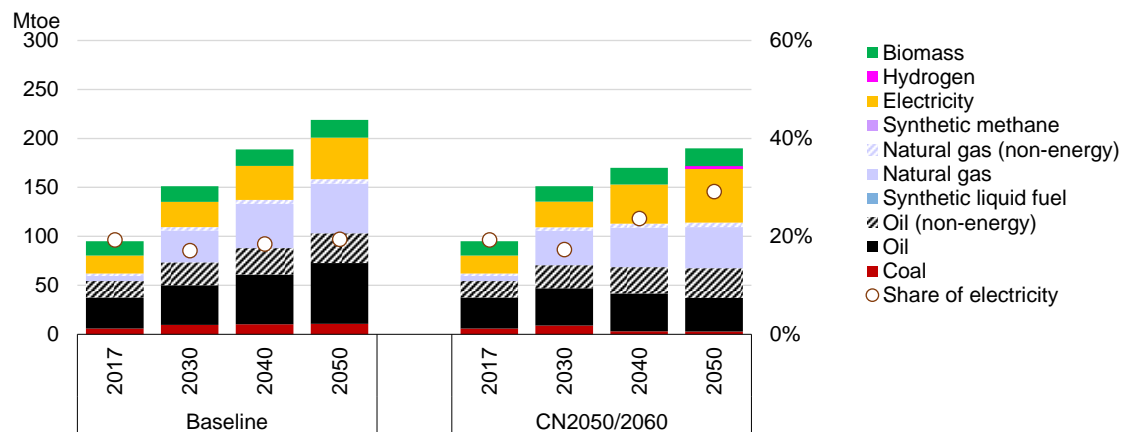
(a) CN2050/2060

Figure A.109. Primary Energy Supply (THA-CN2050/2060)



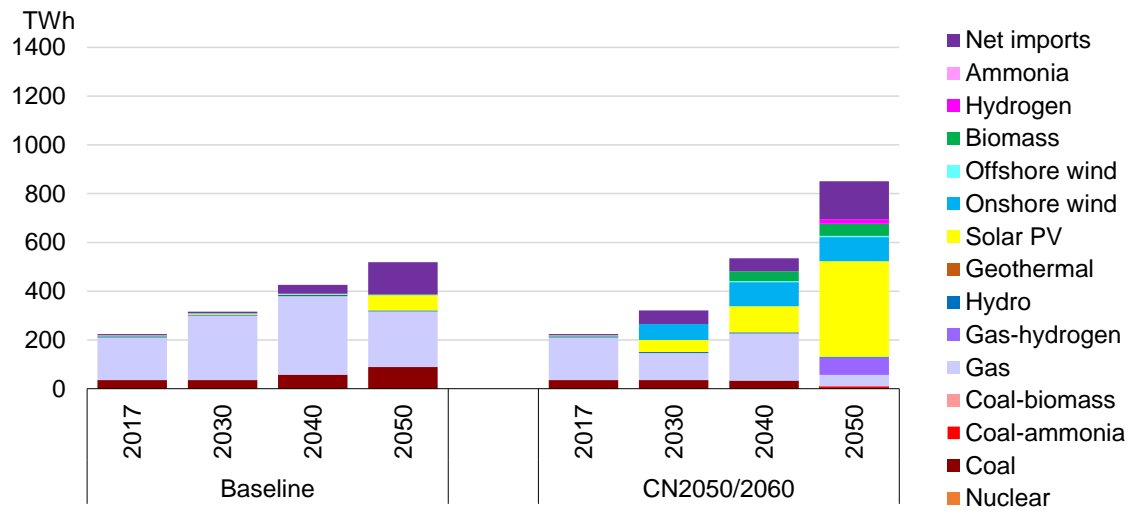
Mtoe = million tonnes of oil equivalent, THA = Thailand.
Source: Author.

Figure A.110. Final Energy Consumption (THA-CN2050/2060)



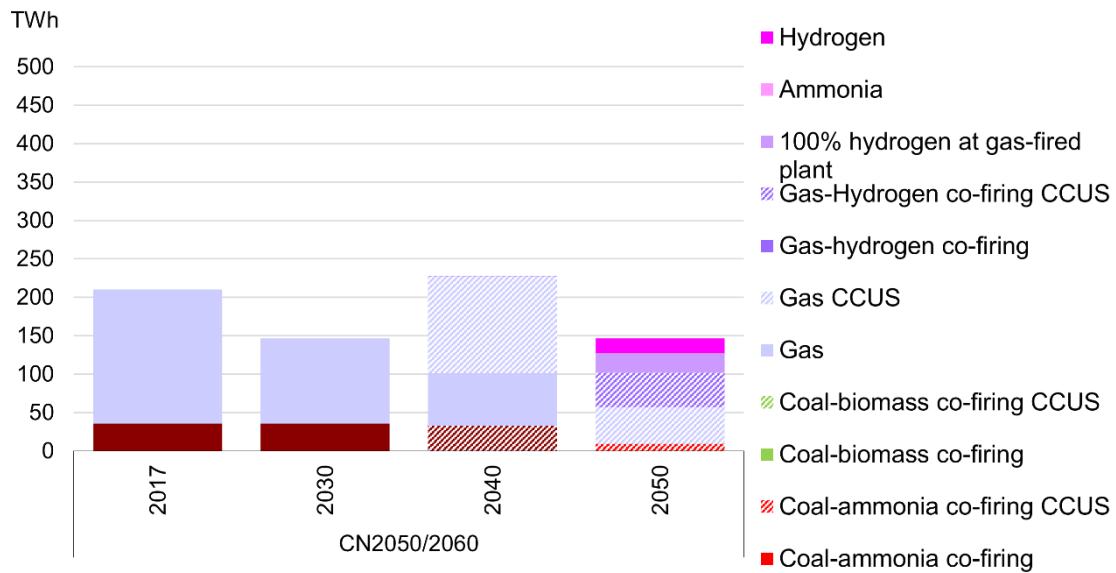
Mtoe = million tonnes of oil equivalent, THA = Thailand.
Source: Author.

Figure A.111. Power Generation (THA-CN2050/2060)



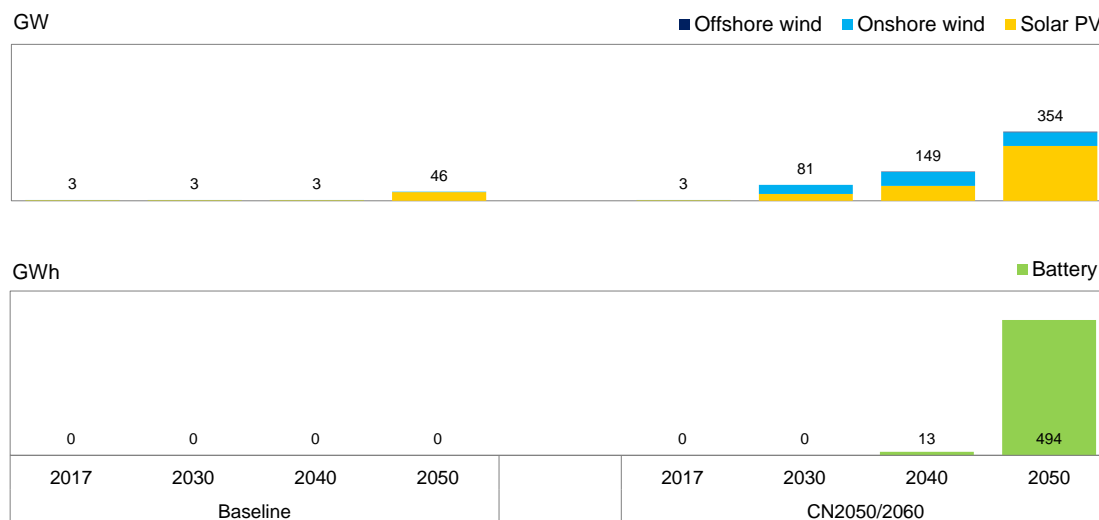
PV = photovoltaic, THA = Thailand, TWh = terawatt-hour.
Source: Author.

Figure A.112. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (THA-CN2050/2060)



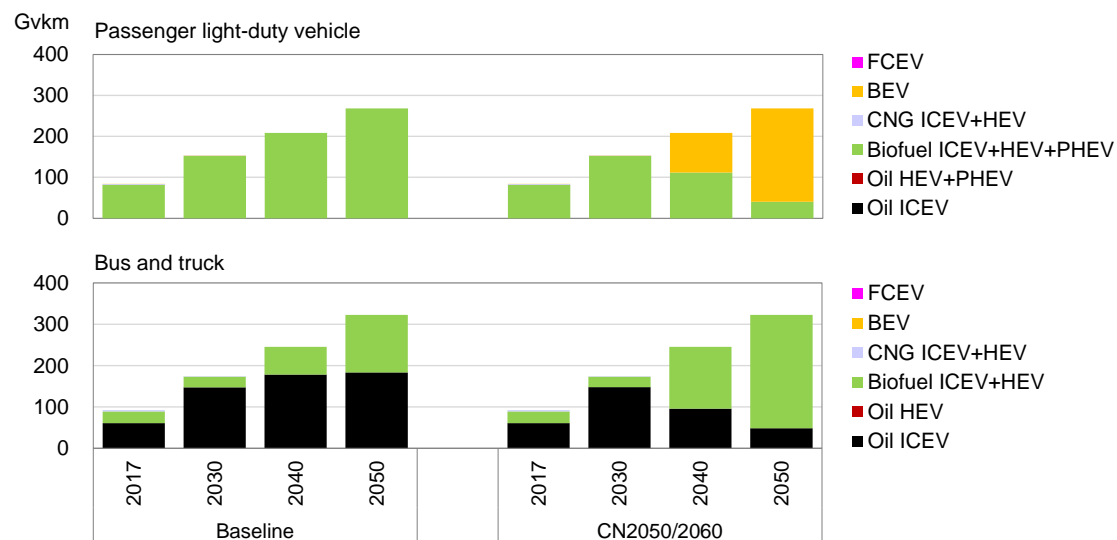
CCUS = carbon dioxide capture, utilisation, and storage; THA = Thailand; TWh = terawatt-hour.
Source: Author.

Figure A.113. Variable Renewable Energy and Battery (THA-CN2050/2060)



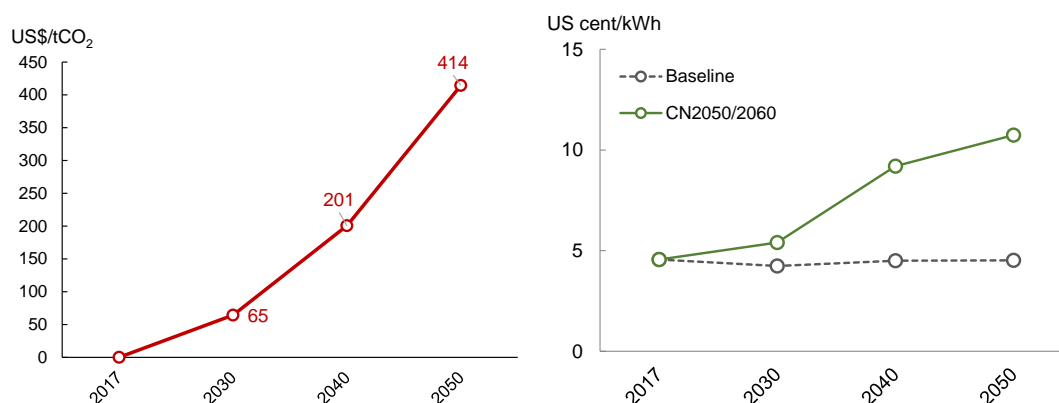
GW = gigawatt, GWh = gigawatt-hour, PV = photovoltaic, THA = Thailand.
Source: Author.

Figure A.114. Travel Distance by Vehicle Technology (THA-CN2050/2060)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, PHEV = plug-in hybrid electric vehicle, THA = Thailand.
Source: Author.

**Figure A.115. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(THA-CN2050/2060)**



kWh = kilowatt-hour, tCO₂ = tonne of carbon dioxide, THA = Thailand.
Source: Author.

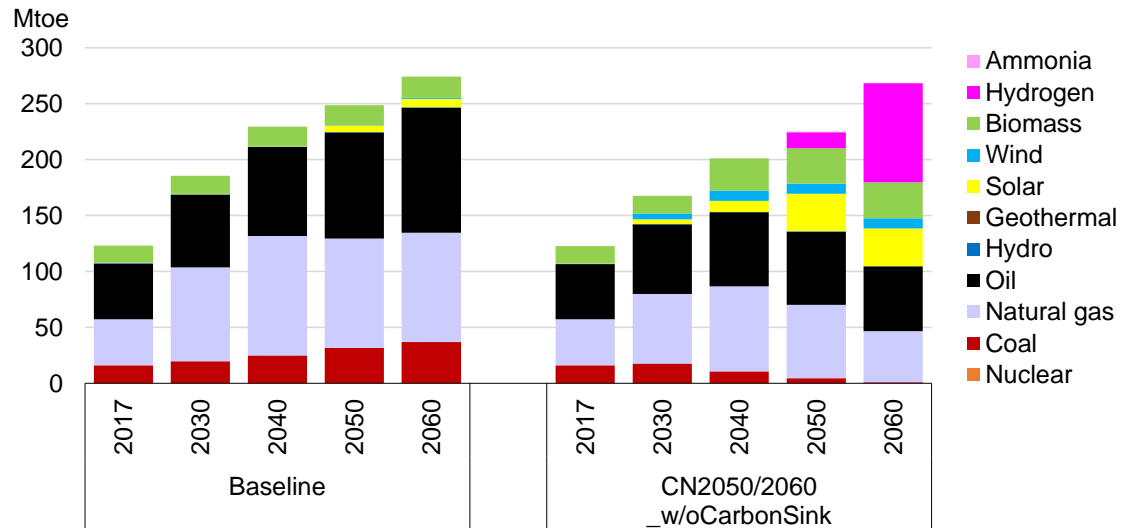
**Table A.17. Carbon Dioxide Emission Baseline and with Carbon Sink Scenarios
(THA-CN2050/2060)**

	Baseline (MtCO ₂)					THA-CN2050/2060 (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	97.27	130.66	172.12	161.54	183.92	97.25	73.45	-17.37	-52.72	-53.13
Industry	43.07	101.30	143.12	182.23	223.42	43.07	97.80	82.47	80.43	93.20
Transport	71.29	104.55	120.16	127.37	131.07	71.29	104.55	103.81	91.02	92.05
Other end use	16.38	32.35	39.01	43.35	38.77	16.38	32.28	38.74	42.60	37.96
Other including DACCS	25.60	25.71	28.16	30.01	30.83	24.29	18.44	16.61	-39.33	-48.08
LULUCF						-91.00	-115.40	-117.70	-120.00	-120.00
Energy-related CO₂ emissions	253.60	394.55	502.57	544.50	608.01	252.27	326.51	224.25	122.00	122.00

THA = Thailand, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage,
LULUCF = land use, land-use change and forestry.
Source: Author.

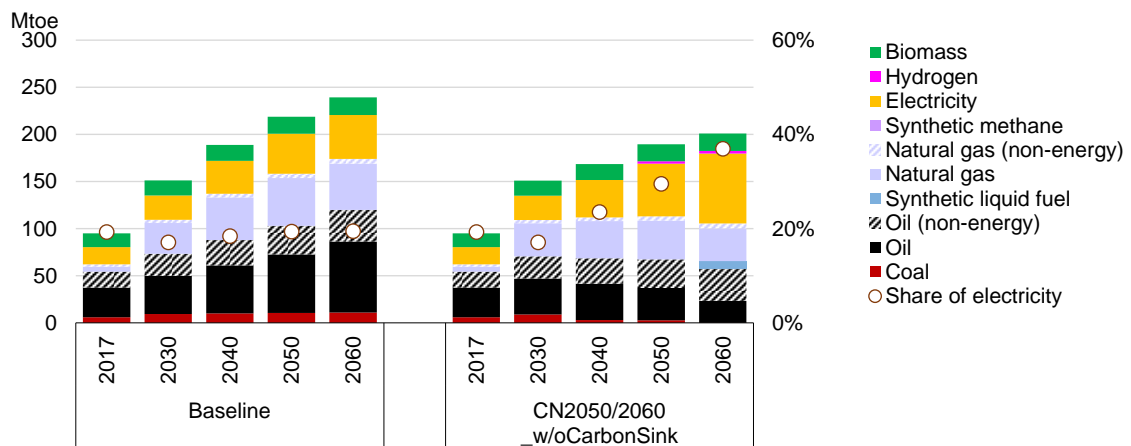
(b) CN2050/2060_w/oCarbonSink

Figure A.116. Primary Energy Supply (THA-CN2050/2060_w/oCarbonSink)



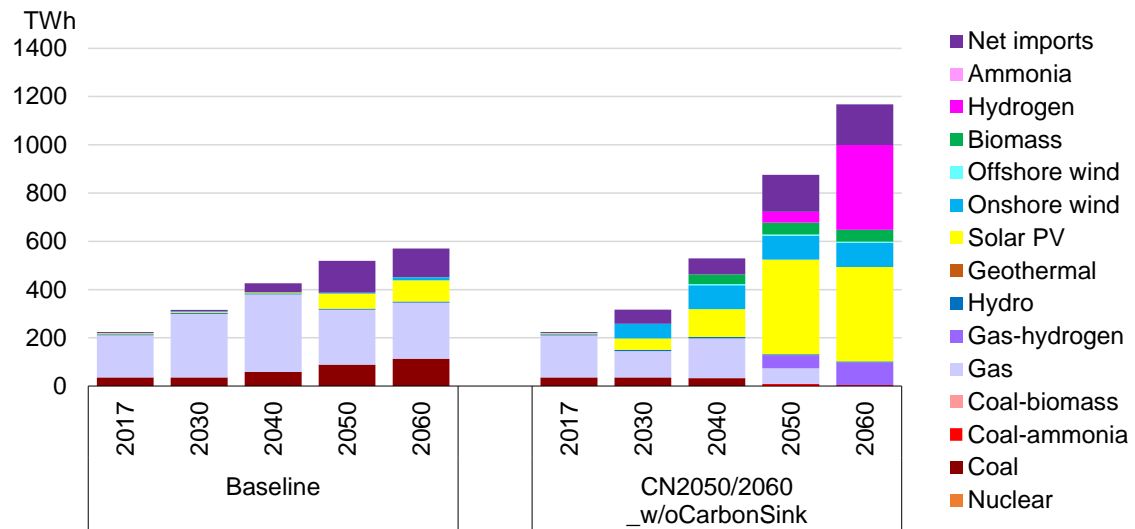
Mtoe = million tonnes of oil equivalent, THA = Thailand.
Source: Author.

Figure A.117. Final Energy Consumption (THA-CN2050/2060_w/oCarbonSink)



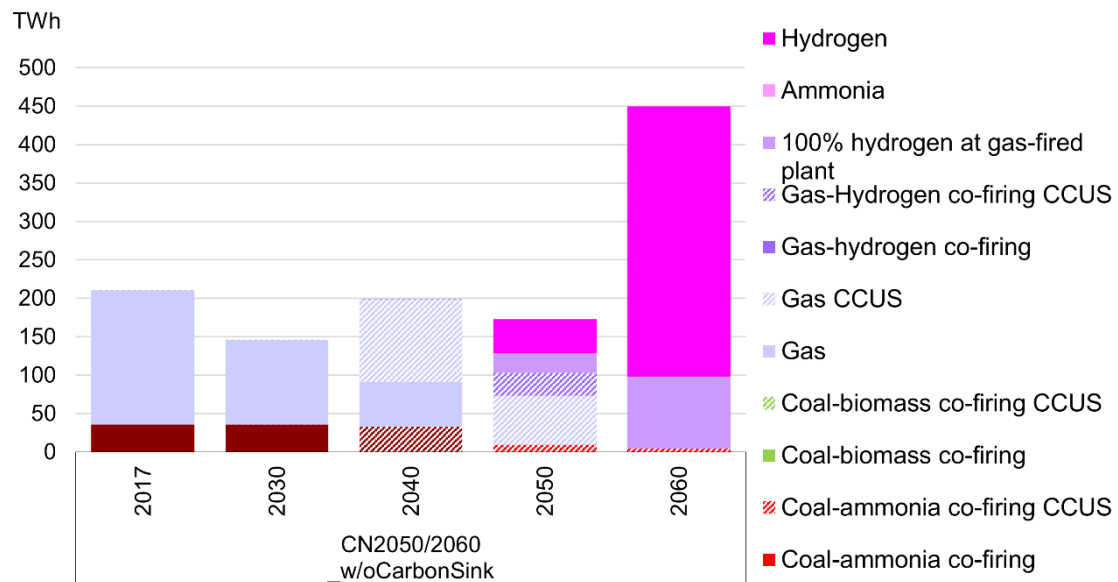
Mtoe = million tonnes of oil equivalent, THA = Thailand.
Source: Author.

Figure A.118. Power Generation (THA-CN2050/2060_w/oCarbonSink)



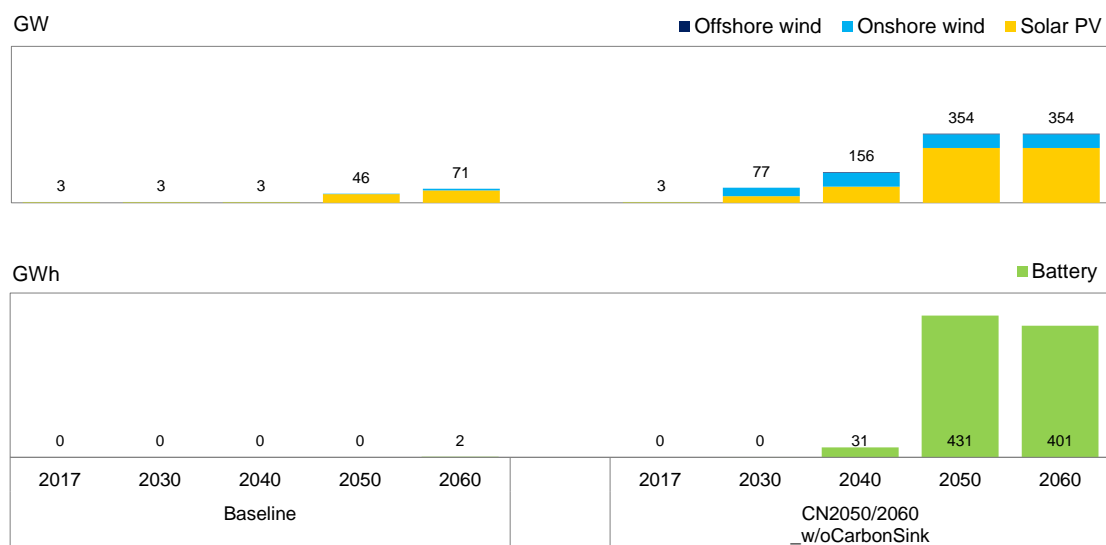
PV = photovoltaic, THA = Thailand, TWh = terawatt-hour.
Source: Author.

Figure A.119. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (THA-CN2050/2060_w/oCarbonSink)



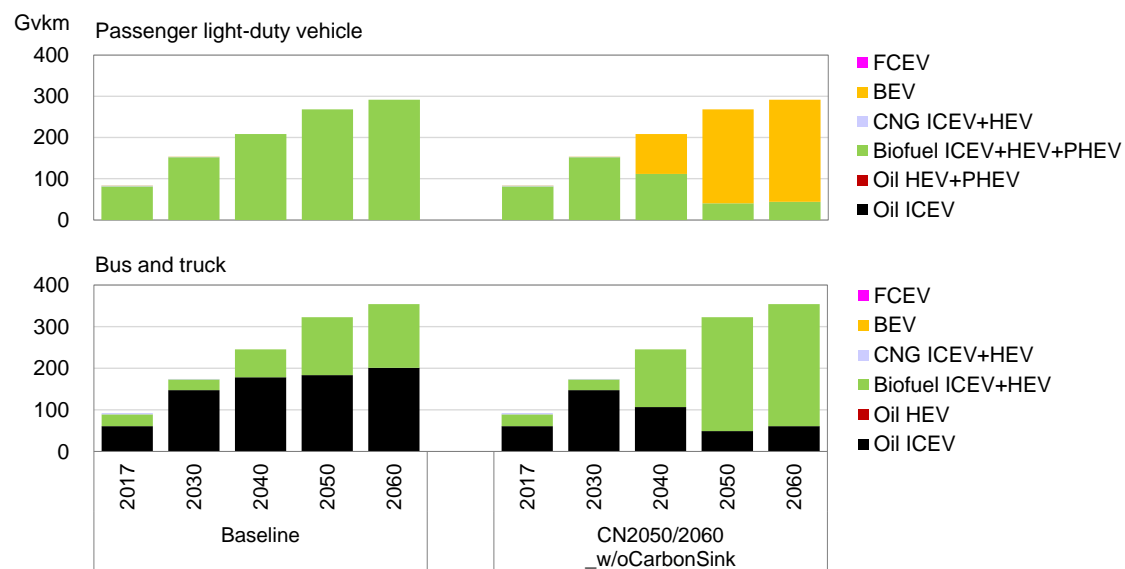
CCUS = carbon dioxide capture, utilisation, and storage; THA = Thailand; TWh = terawatt-hour.
Source: Author.

**Figure A.120. Variable Renewable Energy and Battery
(THA-CN2050/2060_w/oCarbonSink)**



GW = gigawatt, GWh = gigawatt-hour, PV = photovoltaic, THA = Thailand.
Source: Author.

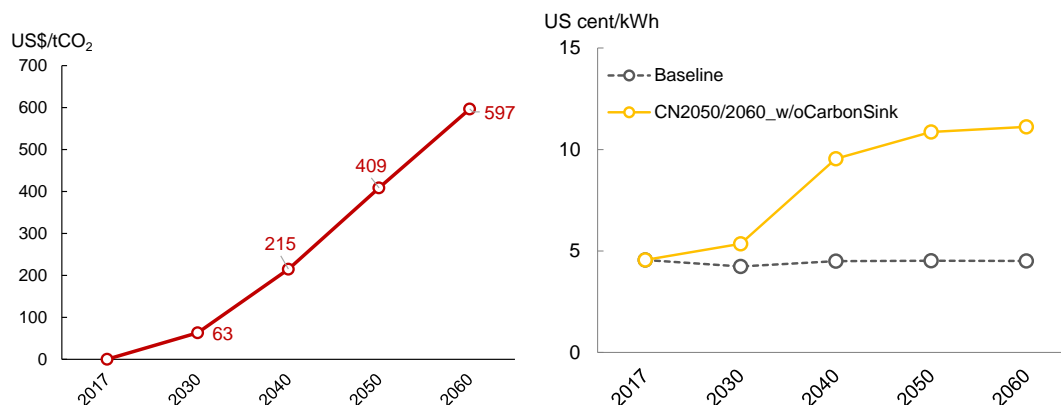
Figure A.121. Travel Distance by Vehicle Technology (THA-CN2050/2060_w/oCarbonSink)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, PHEV = plug-in hybrid electric vehicle, THA = Thailand.

Source: Author.

**Figure A.122. (Left) Marginal Carbon Dioxide Abatement Cost, (Right) Electricity Price
(THA-CN2050/2060_w/oCarbonSink)**



kWh = kilowatt-hour, tCO₂ = tonne of carbon dioxide, THA = Thailand.
Source: Author.

**Table A.18. Carbon Dioxide Emission Baseline and without Carbon Sink Scenarios
(THA-CN2050/2060_w/oCarbonSink)**

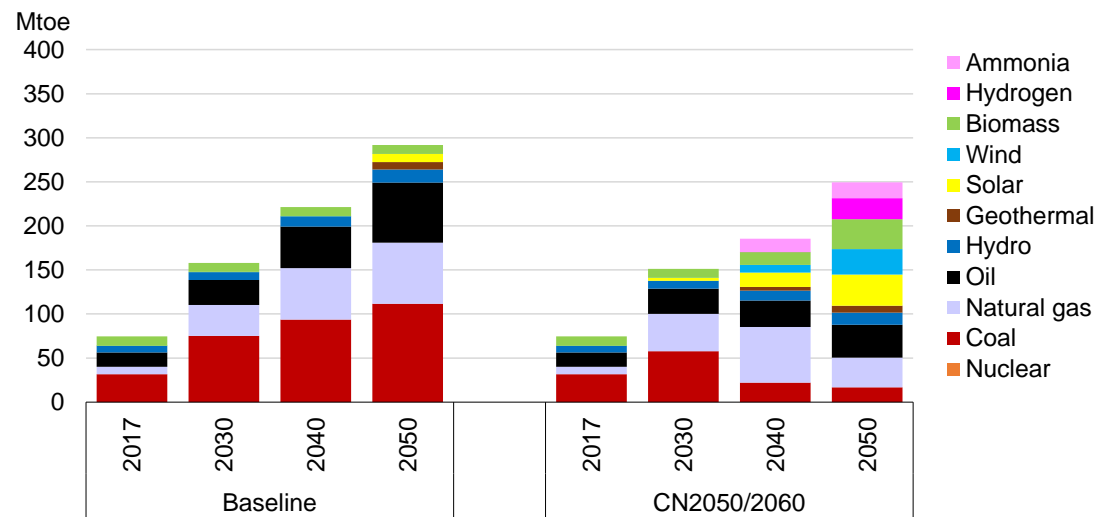
	Baseline (MtCO ₂)					THA-CN2050/2060_w/oCarbonSink (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	97.27	130.66	172.12	161.54	183.92	97.25	73.12	-21.81	-52.52	-56.34
Industry	43.07	101.30	143.12	182.23	223.42	43.07	98.13	80.36	78.32	52.26
Transport	71.29	104.55	120.16	127.37	131.07	71.29	104.55	103.81	91.02	91.32
Other end use	16.38	32.35	39.01	43.35	38.77	16.38	32.24	38.74	42.60	35.59
Other including DACCS	25.60	25.71	28.16	30.01	30.83	24.29	18.47	16.58	-50.58	-122.82
LULUCF										
Energy-related CO₂ emissions	253.60	394.55	502.57	544.50	608.01	252.27	326.51	217.67	108.84	0.00

THA = Thailand, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

10. Viet Nam

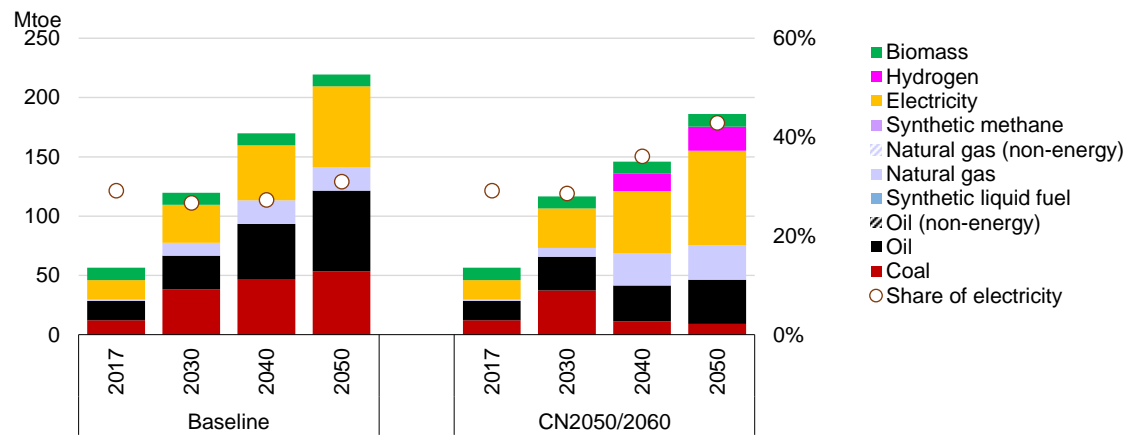
(a) CN2050/2060

Figure A.123. Primary Energy Supply (VNM-CN2050/2060)



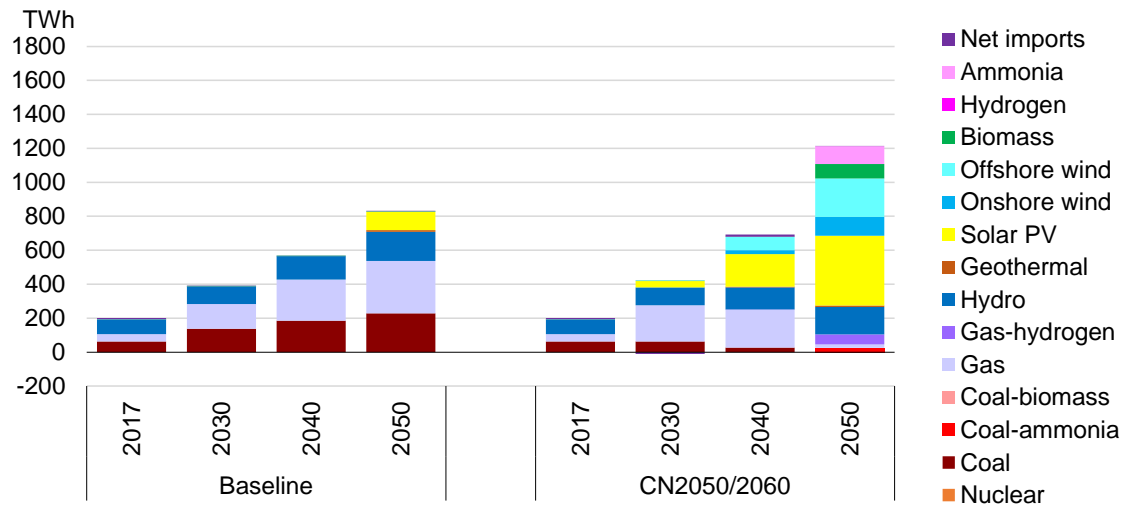
Mtoe = million tonnes of oil equivalent, VNM = Viet Nam.
Source: Author.

Figure A.124. Final Energy Consumption (VNM-CN2050/2060)



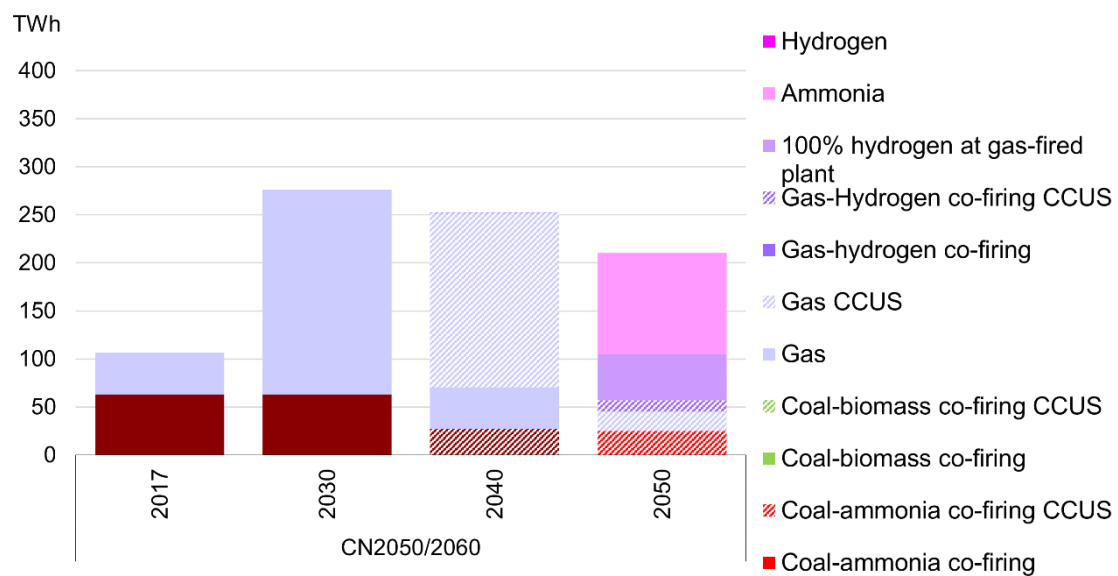
Mtoe = million tonnes of oil equivalent, VNM = Viet Nam.
Source: Author.

Figure A.125. Power Generation (VNM-CN2050/2060)



TWh = terawatt-hour, VNM = Viet Nam.
Source: Author.

Figure A.126. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (VNM-CN2050/2060)



CCUS = carbon dioxide capture, utilisation, and storage; TWh = terawatt-hour; VNM = Viet Nam.
Source: Author.

Figure A.127. Variable Renewable Energy and Battery (VNM-CN2050/2060)

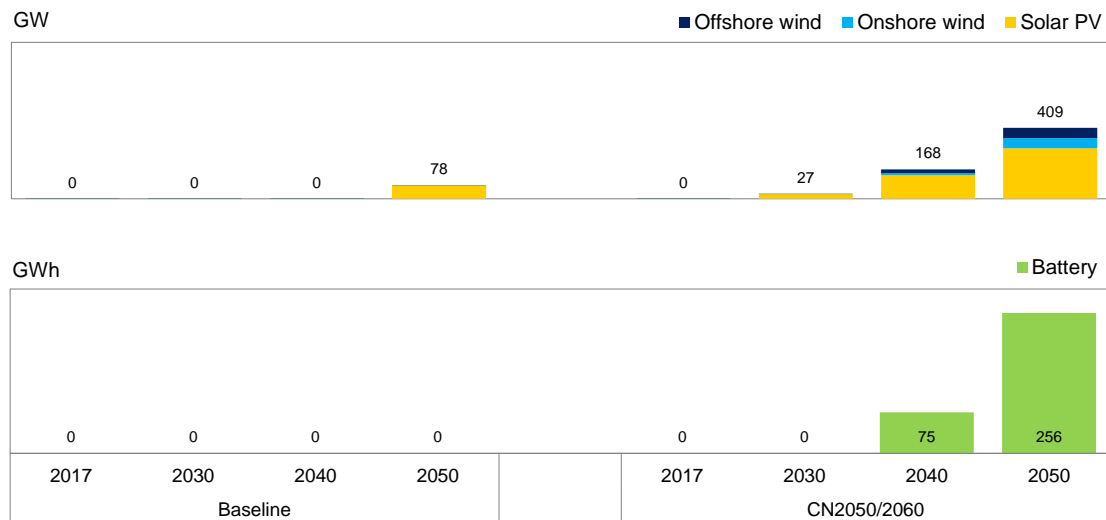
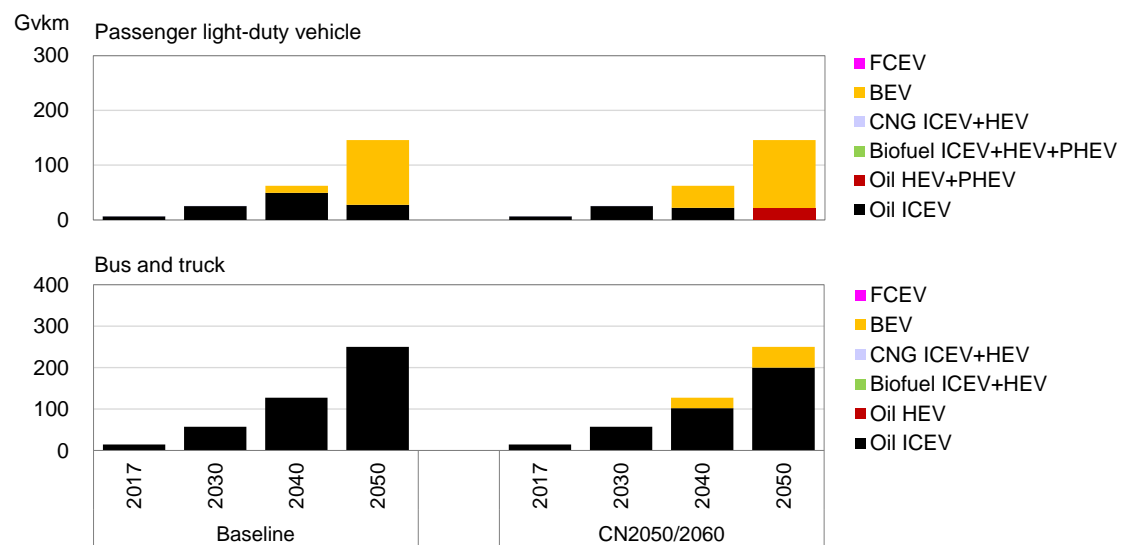
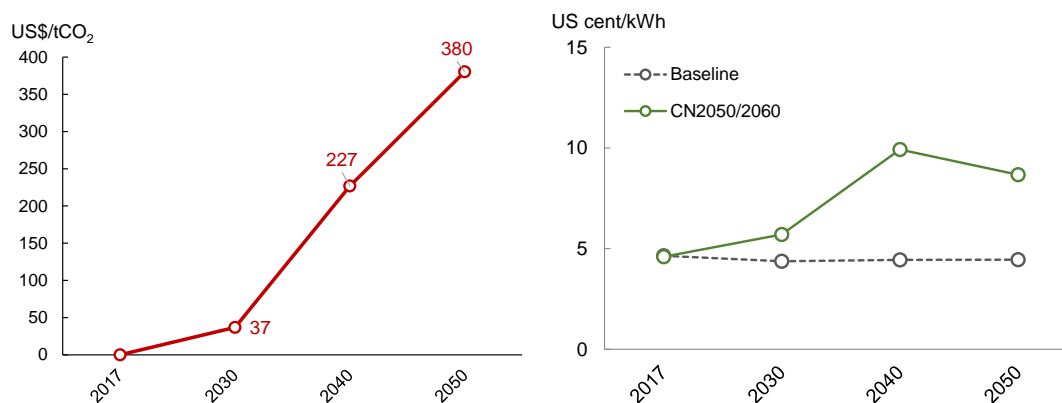


Figure A.128. Travel Distance by Vehicle Technology (VNM-CN2050/2060)



**Figure A.129. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(VNM-CN2050/2060)**



kWh = kilowatt-hour, tCO₂ = tonne of carbon dioxide, VNM = Viet Nam.
Source: Author.

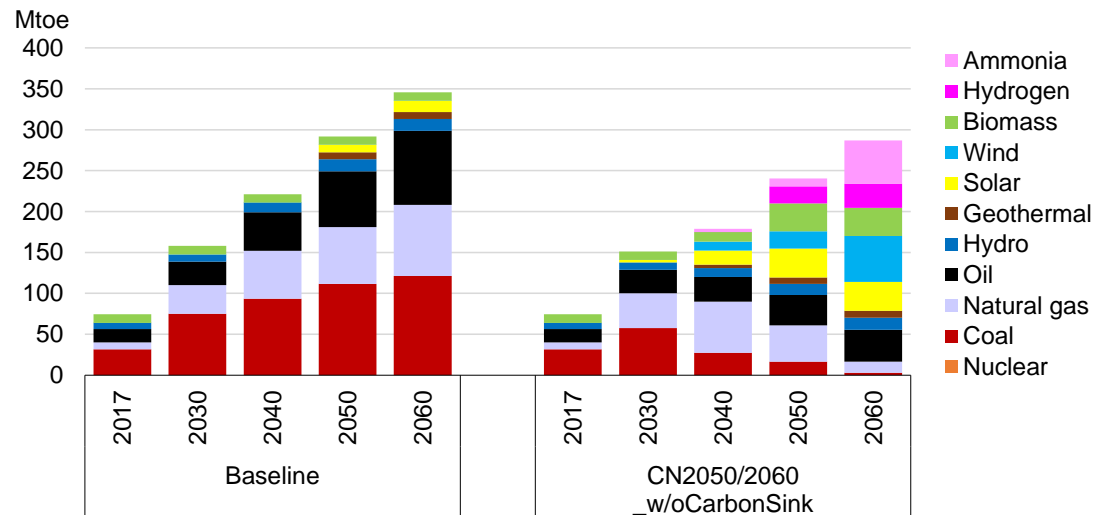
**Table A.19. Carbon Dioxide Emission Baseline and with Carbon Sink Scenarios
(VNM-CN2050/2060)**

Baseline (MtCO ₂)						VNM-CN2050/2060 (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	82.78	184.95	251.39	311.89	364.80	82.78	147.91	23.34	-95.01	-95.72
Industry	54.03	164.14	229.98	299.17	354.77	54.03	160.57	86.89	80.81	59.52
Transport	32.83	71.32	104.10	130.69	166.35	32.83	71.32	84.40	103.21	130.25
Other end use	12.98	29.23	42.66	42.27	38.49	12.98	20.01	26.21	30.66	32.79
Other including DACCS	12.30	18.27	26.46	35.16	44.52	12.30	15.74	15.58	-62.37	-69.55
LULUCF						-39.49	-58.50	-58.50	-58.50	-58.50
Energy-related CO ₂ emissions	194.93	467.91	654.58	819.18	968.94	194.93	415.56	236.43	57.30	57.30

VNM = Viet Nam, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.

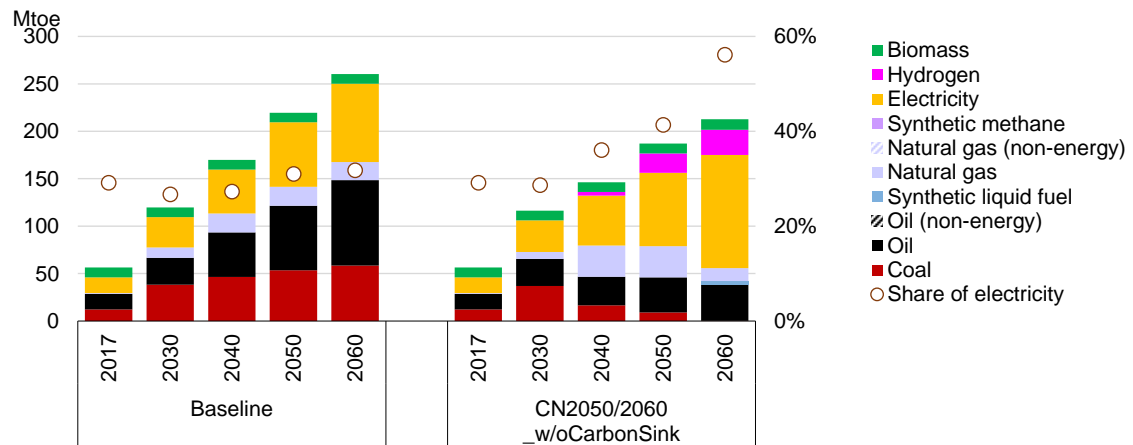
(b) CN2050/2060_w/oCarbonSink

Figure A.130. Primary Energy Supply (VNM-CN2050/2060_w/oCarbonSink)



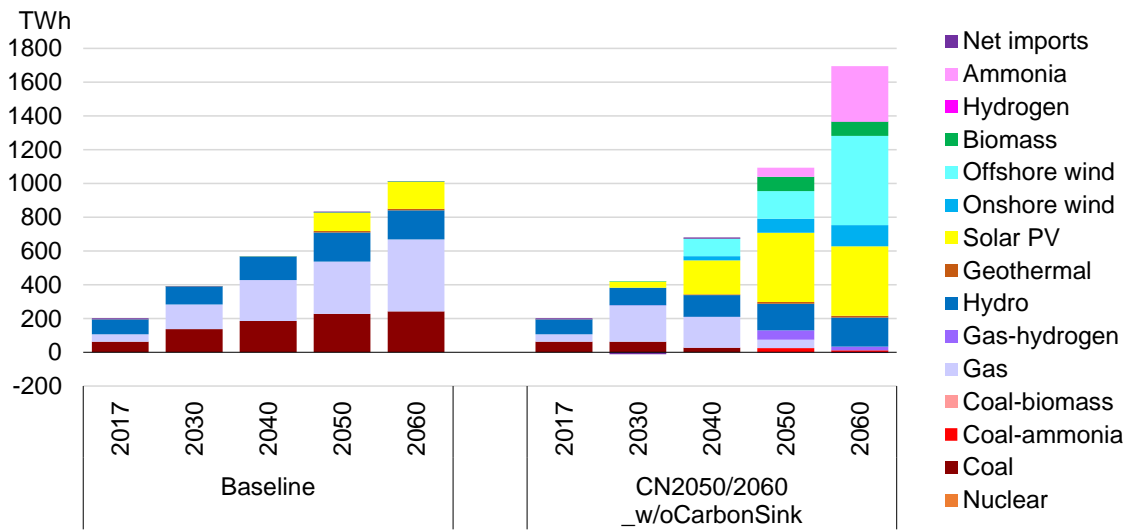
Mtoe = million tonnes of oil equivalent, VNM = Viet Nam.
Source: Author.

Figure A.131. Final Energy Consumption (VNM-CN2050/2060_w/oCarbonSink)



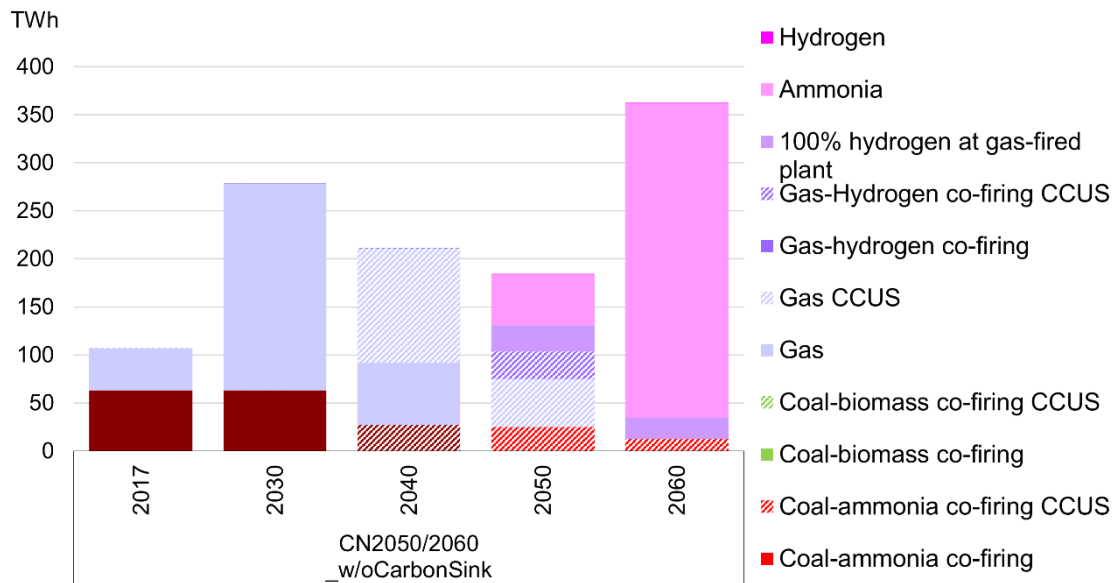
Mtoe = million tonnes of oil equivalent, VNM = Viet Nam.
Source: Author.

Figure A.132. Power Generation (VNM-CN2050/2060_w/oCarbonSink)



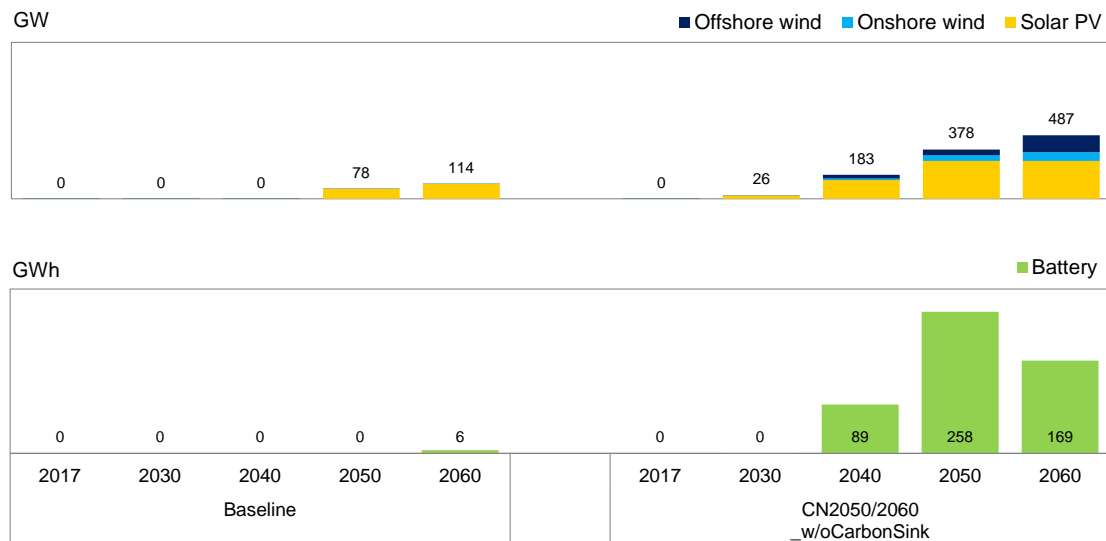
PV = photovoltaic, TWh = terawatt-hour, VNM = Viet Nam.
Source: Author.

Figure A.133. Generated Electricity from Coal, Gas, Ammonia, and Hydrogen (VNM-CN2050/2060_w/oCarbonSink)



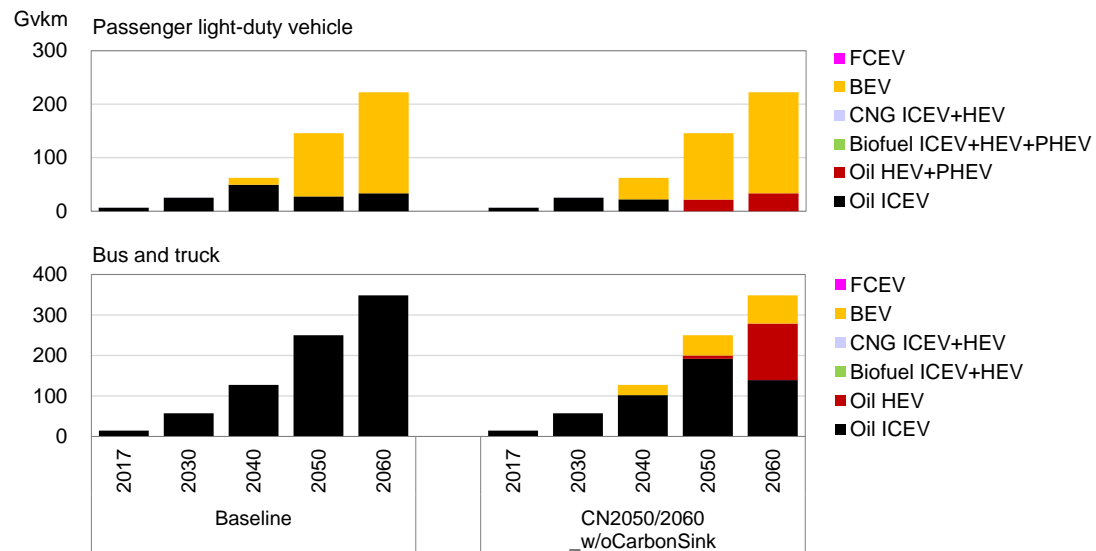
CCUS = carbon dioxide capture, utilisation, and storage; TWh = terawatt-hour; VNM = Viet Nam.
Source: Author.

**Figure A.134. Variable Renewable Energy and Battery
(VNM-CN2050/2060_w/oCarbonSink)**



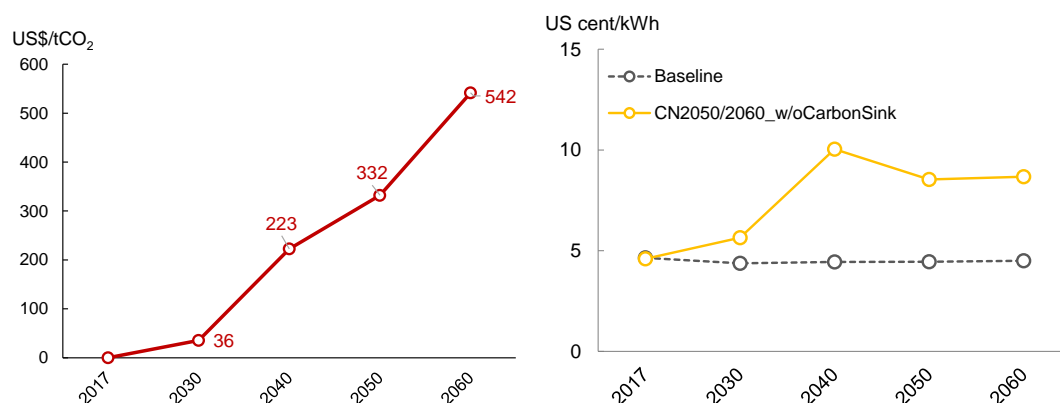
GW = gigawatt, GWh = gigawatt-hour, PV = photovoltaic, VNM = Viet Nam.
Source: Author.

Figure A.135. Travel Distance by Vehicle Technology (VNM-CN2050/2060_w/oCarbonSink)



BEV = battery electric vehicle, CN = carbon neutral, CNG = compressed natural gas, FCEV = fuel cell electric vehicle, HEV = hybrid electric vehicle, ICEV = internal combustion engine vehicle, Gvkm = 10^9 vehicle-km, PHEV = plug-in hybrid electric vehicle, VNM = Viet Nam.
Source: Author.

Figure A.136. Marginal Carbon Dioxide Abatement Cost (Left), Electricity Price (Right)
(VNM-CN2050/2060_w/oCarbonSink)



kWh = kilowatt-hour, tCO₂ = tonne of carbon dioxide, VNM = Viet Nam.
Source: Author.

Table A.20. Carbon Dioxide Emission Baseline and with Carbon Sink Scenarios
(VNM-CN2050/2060_w/oCarbonSink)

	Baseline (MtCO ₂)					VNM-CN2050/2060_w/oCarbonSink (MtCO ₂)				
	2017	2030	2040	2050	2060	2017	2030	2040	2050	2060
Electricity	82.78	184.95	251.39	311.89	364.80	82.78	148.83	29.10	-93.39	-97.21
Industry	54.03	164.14	229.98	299.17	354.77	54.03	159.63	121.71	98.84	31.13
Transport	32.83	71.32	104.10	130.69	166.35	32.83	71.32	84.40	102.58	116.52
Other end use	12.98	29.23	42.66	42.27	38.49	12.98	20.01	26.21	21.49	12.73
Other including DACCS	12.30	18.27	26.46	35.16	44.52	12.30	15.76	15.61	9.00	-63.17
LULUCF										
Energy-related CO ₂ emissions	194.93	467.91	654.58	819.18	968.94	194.93	415.56	277.04	138.52	0.00

VNM = Viet Nam, MtCO₂ = Million tonne of carbon dioxide, DACCS = Direct Air Carbon Capture and Storage, LULUCF = land use, land-use change and forestry.
Source: Author.