Supplementary Materials

Supplementary S1: Supporting materials for the multi-criteria analysis

Table S1. Prospective hydrogen partnerships (until August 2023)

Prospective importer	Prospective exporter	Date partnership
Belgium	Chile	2021
Belgium	Namibia	2021
Belgium	Oman	2021
Belgium	Egypt	2022
Belgium	Norway	2022
Germany	DR Congo	2020
Germany	Ukraine	2020
Germany	Australia	2021
Germany	Brazil	2021
Germany	Chile	2021
Germany	Denmark	2021
Germany	Namibia	2021
Germany	Russian Federation	2021
Germany	Saudi Arabia	2021
Germany	Tunisia	2021
Germany	UAE	2021
Germany	Mexico	2021
Germany	Norway	2023
Germany	Turkey	2021
Germany	India	2022
Germany	Qatar	2022
Germany	Nigeria	2022
Germany	Angola	2022
Germany	Canada	2022
Germany	Kazakhstan	2022
Germany	Algeria	2022
Germany	Kenya	2023
The Netherlands	Portugal	2020
The Netherlands	Australia	2021
The Netherlands	Canada	2021
The Netherlands	Chile	2021
The Netherlands	Iceland	2021
The Netherlands	Morocco	2021
The Netherlands	Namibia	2021
The Netherlands	Oman	2021
The Netherlands	South Africa	2021
The Netherlands	Uruguay	2021
The Netherlands	UAE	2023
The Netherlands	Spain	2023
The Netherlands	Oman	2022

Table S2: Content analysis of indicator literature

Dimension	Indicators	#	Mentioned in
Technological	Renewable energy potential	6	Pflugmann & De Blasio [28], Eicke & De Blasio [30], Perner & Brothe [33] Breitschopf et.al [41], Aditiya & Aziz [70], Ikonnikova et al. [29],
Technological	Freshwater availability	5	Pflugmann & De Blasio [28], Eicke & De Blasio [30], Perner & Brothe [33], Breitschopf et.al [41], Ikonnikova et al. [29],
Sustainability	Domestic energy demand	4	Breitschopf et.al [41], Heinemann & Mendelevitch [40], Bouacida & Berghmans [42], Bouacida [39],
Sustainability	Water availability	4	Breitschopf et.al [41], Heinemann & Mendelevitch [40] Lindner [37] Bouacida [39]
Political	Corruption index	4	Lindner [37], Perner & Brothe [33] Breitschopf et.al [41], Heinemann & Mendelevitch [40]
Political	Fragile state index	3	Lindner [37], Perner & Brothe [33] Breitschopf et.al [41]
Political	Ease of doing business index	3	Lindner [37], Brauer, Truby and Villavicencio [34], Perner & Brothe [33]
Economic	Supply costs	3	Brauer, Truby and Villavicencio [34], Ikonnikova et al. [29], Moritz, Schönfisch and Schulte [27]
Economic	Production costs	3	Brauer, Truby and Villavicencio [34], Perner & Brothe [33], Breitschopf et.al [41]
Sustainability	Air emissions (EPI)	2	Breitschopf et.al [41], Teske, Niklas and Mey [47]
Sustainability	Human Rights	2	Heinemann & Mendelevitch [40], Teske, Niklas and Mey [47]
Political	Rule of law index	2	Lindner [37], Breitschopf et.al [41]
Political	Political stability	2	Brauer, Truby and Villavicencio [34], Breitschopf et.al [41]
Political	R&D spending per capita	2	Brauer, Truby and Villavicencio [34], Teske, Niklas and Mey [47]
Economic	Strength of the economy (GDP per capita)	2	Brauer, Truby and Villavicencio [34], Aditiya & Aziz (2021)
Economic	Experience in handling gas or renewable energy	2	Brauer, Truby and Villavicencio [34], Perner & Brothe [33]
Sustainability	HDI	2	Lindner [37], Aditiya & Aziz [70]
Sustainability	Waste management (EPI)	2	Breitschopf et.al [41] Teske, Niklas and Mey [47]
Technological	Availability of CO_2	1	Perner & Brothe [33]
Technological	Risk index (disasters)	1	Breitschopf et.al [41]
Technological	Ports (terminals and handling capacity)	1	Breitschopf et.al [41]
Technological	Pipelines (domestic, reserves, export connection with EU)	1	Breitschopf et.al [41]

Technological	Transport distance	1	Breitschopf et.al [41]
Technological	Utilities (access to electricity, water)	1	Breitschopf et.al [41]
Technological	Export of chemicals	1	Breitschopf et.al [41]
Sustainability	Share of population in extreme poverty	1	Lindner [37]
Sustainability	Share of youth not in education	1	Lindner [37]
Sustainability	Share of population with access to electricity	1	Perner & Brothe [33]
Sustainability	Heavily indebted poor countries	1	Perner & Brothe [33]
Sustainability	Biodiversity	1	Breitschopf et.al [41]
Sustainability	Land use	1	Heinemann & Mendelevitch [40]
Sustainability	Protected areas	1	Breitschopf et.al [41]
Sustainability	R&D spending per capita	1	Aditiya & Aziz [70]
Sustainability	Local communities	1	Teske, Niklas and Mey [47]
Sustainability	Perspectives for development	1	Perner & Brothe [33]
Political	Global democracy index	1	Lindner [37]
Political	Freedom index	1	Lindner [37]
Political	World press index	1	Lindner [37]
Political	Attitude towards renewable energies (RES targets)	1	Perner & Brothe [33]
Political	Voice and accountability index	1	Breitschopf et.al [41]
Political	Regulatory quality	1	Breitschopf et.al [41]
Political	Signatories to energy charter (EU or international)	1	Breitschopf et.al [41]
Political	World bank RISE (regulatory indicators for sustainable energy)	1	Breitschopf et.al [41]
Political	GII Human capital and research	1	Breitschopf et.al [41]
Socio-political	Global quality infrastructure index	1	Breitschopf et.al [41]
Socio-political	Government effectiveness	1	Breitschopf et.al [41]
Economic	Costs of RES	1	Perner & Brothe [33]
Economic	Export oriented economy	1	Perner & Brothe [33]
Economic	Share of fossil fuels in national income	1	Perner & Brothe [33]

Table S3 : Coding of the indicators (green is "one", red is "zero")

Country	Access to electricity	Water stress	% RE in electricity	CPI	FSI	EODB	Production costs	DES costs
Algeria	99,8	84,01	0,84	33	72,2	48,6	107	173
Angola	46,9	0,48	70,79	33	88,1	41,3	138	241
Australia	100	3,93	32,28	75	22,7	81,2	103	189
Brazil	100	1,55	86,94	38	73,9	59,1	113	195
Canada	100	3,73	69,74	74	20,1	79,6	97	167
Chile	100	21,62	52,96	67	43,2	72,6	100	171
Democratic republic of Congo	19,1	24,94	83,96	20	107,3	36,2	139	228
Denmark	100	0,23	99,73	90	18,1	85,3	89	144
Egypt	100	141,17	11,22	30	83,6	60,1	139	216
Iceland	100	0,39	99,99	74	17,1	79	90	149
India	100	66,49	20,48	40	75,3	71	103	194
Kazakhstan	100	32,65	11,34	36	59,5	79,6	128	224
Kenya	71,4	13,13	89,78	32	88,2	73,2	98	198
Mexico	99,4	19,39	22,94	31	70,3	72,4	95	168
Morocco	100	50,75	17,38	38	70,1	73,4	93	155
Namibia	56,3	0,86	95,54	49	62,9	61,4	105	197
Nigeria	55,4	4,36	27,51	24	97,2	56,9	118	213
Norway	100	2,05	98,97	84	15,6	82,6	75	131
Oman	100	116,71	0,43	44	49,5	70	91	171
Qatar	100	431,03	0,07	58	42,3	68,7	86	155
Portugal	100	12,32	59,82	62	27,5	76,5	119	179
Russian Federation	100	4,12	18,36	28	72,6	78,2	136	222
Saudi Arabia	84,4	974,17	0,21	51	67,5	71,6	93	169
South Africa	100	63,56	9,09	43	72	67	102	201
Spain	100	26,03	42,22	60	44,4	77,9	94	161
Tunisia	100	96	4,39	40	68,2	68,7	109	172
Turkey	100	29,08	41,97	36	78,1	76,8	113	180
UAE	100	1672	4,5	67	39,1	80,9	91	161
Ukraine	100	13,73	16,52	33	68,6	70,2	220	288
Uruguay	100	9,79	84,44	74	35,2	61,5	147	228

Table S4: Overall risk performance of countries (green is "low", orange is "medium", red is "high")

Country	economic risk	investment risk	justice risk
Algeria	low	high	high
Angola	high	high	medium
Australia	low	low	low
Brazil	medium	high	low
Canada	low	low	low
Chile	low	low	low
DR Congo	high	high	low
Denmark	low	low	low
Egypt	high	high	high
Iceland	low	low	low
India	medium	high	low
Kazakhstan	high	medium	high
Kenya	medium	high	medium
Mexico	low	high	low
Morocco	low	high	medium
Namibia	medium	high	medium
Nigeria	high	high	high
Norway	low	low	low
Oman	low	medium	high
Qatar	low	low	high
Portugal	medium	low	low
Russian Federation	high	high	medium
Saudi Arabia	low	medium	high
South Africa	medium	high	high
Spain	low	low	medium
Tunisia	low	high	medium
Turkey	low	high	medium
UAE	low	low	high
Ukraine	high	high	medium
Uruguay	high	medium	low

Supplementary S2: Robustness check

This supplementary material presents the results of a series of robustness tests of the multi-criteria analysis. I test the impact of changes in the dichotomization thresholds on the categorization of the countries.

Economic risks:

1) Production costs: The original threshold was set at USD 113/MWh. A first alternative and lower threshold was set at 120$/MWh. This alternative threshold would assign both Portugal (USD119/MWh) and Nigeria (118$/MWh) a code "one" instead of "zero". For Portugal, the alternative threshold does not change the categorization of the country. For Nigeria this would change the categorization from a "Last Resort" country to a "Volatile Venture" country. A second alternative threshold was set at USD 105/MWh. This would assign Algeria (USD 107/MWh), Brazil (USD 113/MWh), Turkey (USD 113/MWh) and Tunisia (USD 109/MWh) a code of "zero" instead of "one". For Algeria and Tunisia and Turkey, this would not change the overall country categorization. For Brazil, this would change the categorization from a "Volatile Venture" to a 'Last Resort Country".
2) DES costs: The original threshold was set at USD 189/MWh. A first alternative threshold of USD 205/MWh was used. This alternative threshold would assign Brazil (USD 195/MWh), India (USD 194/MWh), Namibia (USD 197/MWh), and South-Africa (USD 201/MWh) a code of "one" instead of "zero" on this indicator. A second alternative threshold was set at USD 185/MWh. This would assign Australia (USD 189/MWh) a code of "zero" instead of "one. However, both alternative thresholds do not change the overall categorization of the country categories.

Political risks:

3) Corruption Perception Index: The original threshold was set at 50. A first alternative threshold of 45 would assign Namibia (49) a "one" instead of a "zero". However, this does not change the categorization of Namibia. A second alternative threshold was set at 55 and this would assign Saudi Arabia (51) a code of "zero" instead of "one". This would change the country categorization of Saudi Arabia from a "Strategic Gambit" to a "Volatile Venture".
4) Fragile State Index: The original threshold was set at a score of 60. A first alternative threshold of 65 would only assign Namibia (62,9) a score of "one" instead of "zero". However, this does not change the categorization of Namibia. A second alternative categorization of 55 would assign Kazakstan (59,5) a "zero" instead of a "one" on this indicator. Yet, this does not change the country categorization of Kazakhstan.
5) Ease of doing business index: The original threshold was set at 63. A first alternative threshold of 60 would change the coding of "zero" to "one" for Egypt (60.1), Namibia (61,64) and Uruguay (61,7). However, this would not change the categorization of any of these countries. A second alternative threshold was set at 65. This does not change any of the coding for this indicator.

Notably, should the alternative thresholds for the aforementioned political risk dimension categorize Namibia positively across all indicators within this dimension, Namibia would transition from being a "Volatile Venture" country to a "Strategic Gambit" country.

Sustainability risks:

6) Access to electricity: The original indicator was set at 100%. A first alternative threshold of 95% would assign Algeria (99,8%) and Mexico (99,4%) a score of "one" instead of "zero". However, this would not change the overall country categorization of both countries. A second alternative threshold was not used, as there are substantial gaps within the data. For more information, check Table S3 in Supplementary S1.

7) Share of renewables in electricity mix: The original threshold was set at 28%. A first alternative threshold of 25% would assign Nigeria (27,51%) a score of "one" instead of zero. However, this would not change the country categorization of Nigeria. A second alternative threshold was set at 30%. This does not change the coding for this indicator.

8) Water stress index : The original index was set at 25%. A first alternative threshold of 30% would assign Spain (26,03%) and Turkey (29,08%) a coding of “one” instead of “zero”. However, this would not change the overall country categorization of both countries. A second alternative threshold was set at 20%. This would assign Chile (21,62%) and the DRC (24,94%) an score of “zero” instead of “one”. However, this would not change the overall country categorization of both countries.