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# Grabbing the Sunshine?

## Tweaking Germany's Energy Partnerships towards a Just Hydrogen Transition

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Green hydrogen (GH2), produced from renewable energy sources, is seen as crucial to achieving global decarbonization goals. Energy partnerships form a central part of Germany's National Hydrogen Strategy as Germany's renewable energy sources are limited. The strategy aims to promote GH2 export to Germany. This raises both hopes and concerns in the partner countries. A just hydrogen transition is needed to ensure a fair sharing of benefits and burdens. This briefing paper explores the role of GH2 in Germany's decarbonization strategy, the potentials and risks of GH2 projects for the Global South, and policy recommendations for German decision-makers to ensure a just hydrogen transition. Policies may include transferring power to local communities in decision-making processes and implementing environmental and social safeguards. Furthermore, German policymakers should push for truly sustainable GH2 standards and certification schemes. Additionally, reducing domestic energy consumption and economic inequality in Germany is key.

**Keywords:** *Green Hydrogen, Energy Partnerships, Just Transition, Energy Justice, Degrowth*

**Green hydrogen (GH2)** is heralded as a cornerstone of global decarbonization efforts. As Germany's renewables potential is limited, bilateral energy partnerships are essential for achieving the goals of Germany's National Hydrogen Strategy. Besides assisting selected countries in their energy transition efforts, these partnerships secure a sustainable energy supply for the German economy. The strategy requires bootstrapping whole GH2 markets including production and transport infrastructure. Its goal is the construction of renewable energy production sites (e.g. solar parks) in mostly Global South countries, to convert the energy produced to GH2 and to export it to Germany via sea – adequately captured by the slogan "shipping the sunshine" (BMWi 2020: 12).

Extractivism and resource grabs are too well-known phenomena for such a slogan not to sound alarming in the ears of those already left behind by the global energy system (Peoples of the Global South 2023). Currently, Global South countries serve as net energy exporters catering to the energy needs of the Global North (Dorninger et al. 2021). However, with the global hydrogen market still in its infancy, the effects on future GH2-producing countries are unclear. Globally, we are thus presented with an opportunity to avoid reproducing neocolonial patterns and to shape GH2 markets that serve the needs of everyone – an opportunity for a **"just hydrogen transition"** (Müller et al. 2022: 4).

The aim of this briefing paper is threefold. First, to portray the role of GH2 in Germany's decarbonization strategy in the context of the energy transition. Second, to explore potentials and risks of GH2 projects for Global South countries and citizens. Third, to outlay policies for German

**Hydrogen** is expected to meet 10% of the global final energy consumption by 2050 (IEA 2021: 5). However, due to its energy intensive production, green hydrogen (GH2) is a scarce resource. In 2021, low-emission hydrogen accounted for "less than 1% of global hydrogen production" (IEA 2022). With the current pace, in 2050 only 10% of total hydrogen production will be GH2 (IEA 2021: 5). Still, GH2, typically produced by the electrolysis of water using renewables such as solar, wind or hydro, is a clean alternative to fossils and critical to the decarbonization of the global economy. GH2 enables intermittent renewable energy to be stored and transported. Provided that its production costs decrease and the necessary infrastructure is developed, GH2 will be used with varying degrees of efficiency in a range of applications, including hard-to-electrify sectors such as steel and chemicals as well as long-distance shipping.

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**Energy Justice in Practice**

Energy justice encompasses at least six dimensions. Let's explore the meaning of each dimension in the context of a just hydrogen transition (Müller et al. 2022).

**Procedural justice** demands involving affected communities in transparent planning processes of GH2 infrastructure. This includes meaningful engagement, consultation, and adhering to the principle of free, prior and informed consent (FPIC).

**Distributive justice** focuses on the fair distribution of the transition's costs and benefits. It includes the fair allocation of generated electricity, ensuring that disadvantaged communities have access to affordable and reliable energy as well as water.

**Relational justice** highlights the need to preserve sustainable ways of living. The transition to GH2 should not come at the expense of sacrificing sustainable livelihoods. Negative socio-ecological effects need to be minimized.

**Restorative justice** acknowledges the Global North's historical and ecological debts resulting from colonialism and climate change. These debts need to be compensated, ensuring that Global South countries and citizens receive sufficient resources to benefit from GH2 production. Grants, tax justice, the halt of capital flight, and debt cancellation are encouraged.

**Recognitional justice** focuses on respecting the identities, cultures, and rights of all individuals and communities affected – as well as their interests, needs and vulnerabilities. This calls for recognizing the unique contributions and perspectives of different groups, particularly of marginalized communities.

**Epistemic justice** demands the inclusion of diverse knowledge systems in decision-making processes. This includes valuing local and indigenous knowledge. It is important to incorporate these knowledge systems into planning processes alongside scientific and technical expertise.

policymakers which can contribute to a just hydrogen transition, globally.

### Germany's Hydrogen Strategy in the Context of a Just Energy Transition

To assess the role of GH2 in Germany's decarbonization strategy, we first have to explore the strategy's context: the necessary – and ideally just – energy transition. A **just energy transition** is "the transformation of the energy sector from operating mainly with fossil fuel-based sources toward a zero-carbon sector using renewable energy" (UNRISD 2022: 1) that ensures "a fair sharing of adjustment benefits and burdens" (IRENA 2022: 29).

In this definition, there are several components to unpack. First, there is the status quo. The global energy sector is characterized by widespread energy poverty (GCEEP 2020), and **fossil fuel dependency** (IRENA 2022: 145) which deepens the climate crisis and strains other Earth system boundaries (Rockström et al. 2023). Furthermore, the global energy sector is embedded in a global capitalist system characterized by profit-driven economic actors and oligopolistic markets. As such, the sector is marked by extractivism, resource grabbing and unequal (ecological) exchange (Dorninger et al. 2021).

Second, there is the desired state of affairs after the just energy transition took place. This is a **carbon neutral energy sector** running on renewables thus promoting both planetary health and human well-being. Furthermore, this state of affairs offers the prospect of inequality reduction and social inclusion (Just Transition Centre 2017: 2), poverty reduction and job creation (IRENA 2022: 29) as well as systemic change towards democratically governed energy systems that guarantee universal energy access (UNRISD 2022).

Third, there is the process of the transformation itself. Albeit being agnostic about whether we should adopt a green growth or a degrowth strategy, the concept of a just energy transition states one thing clearly about this transformation: it must be just. Slightly more concrete, that means that whatever we do to decarbonize the energy sector, at least six dimensions of **energy justice** should be considered: procedural, distributive, relational, restorative, recognitional, and epistemic justice (Müller et al. 2022: 3).

The demands of a just energy transition equally apply to a just hydrogen transition as both require the equitable distribution of the transition's benefits and burdens across society and between societies. In this context, one needs to assess the potentials and risks of **Germany's National Hydrogen Strategy**. The strategy, which is currently being revised, aims to establish the country as a leader in the hydrogen sector. On a national level, it includes investing in research and development, establishing GH2 certification, and financing hydrogen infrastructure.

However, the plans to install domestic electrolysis capacity fall short of meeting the expected domestic GH2 demand. German steel production alone will require 80 TWh of GH2 to become climate-neutral by 2050 (BMWi 2020: 6). Germany thus plans to import GH2 through **energy partnerships** with countries that have a high potential for producing renewables. These partnerships intend to secure Germany's supply of GH2 and facilitate the development of a global hydrogen market. Partner countries include Morocco, Namibia, and South Africa. The partnerships will involve the construction of infrastructure, such as GH2 production and transport facilities. In the Moroccan case, Germany has pledged financing of at least 300 million € to kickstart GH2 production (Ghorfa 2020).

### The Effects of Green Hydrogen Projects on Global South Countries and Citizens

Germany's energy partnerships raise questions about the economic, social, and ecological impacts of GH2 promotion on the partner countries and their citizens. Potential benefits are **economic growth and sectoral diversification** as well as job creation. For instance, Morocco expects the GH2 sector to create more than 15.000 jobs by 2030 (Green Hydrogen Organisation 2023). GH2 projects could further contribute to growth by attracting investment in related high-value industries such as ammonia and steel.

Other potential benefits are increased national **energy security and access**. GH2, if used domestically to replace fossils, also reduces carbon emissions in the partner country thus mitigating climate change.

However, there are several risks associated with GH2 projects. For one, the economic benefits might not materialize. The investment required for GH2 infrastructure is substantial. The additional burden of financing these capital-intensive projects may lead to **unsustainable levels of debt** (Hotz 2022). This could trigger debt spirals, hindering economic growth and exacerbating existing inequalities, in the end leaving countries even more dependent on foreign assistance and multilateral lending (Hamouchene 2022b).

For another, the economic benefits might be appropriated by a small national elite due to phenomena known as resource curse and elite capture. A **resource curse** is diagnosed in the paradoxical situation in which countries rich in natural resources experience adverse effects such as economic crises, corruption, and inequality. In this context, if significant investments flow into GH2 projects without proper governance mechanisms in place, the benefits of these projects could be captured by the elite. The risk of such **elite capture** is higher in capital-intensive sectors tending to oligopolistic market structures – such as the conventional energy sector and the hydrogen sector more specifically (KNÖ 2022: 5). In Morocco for instance, the energy sector is dominated by only two actors that enjoy close links to the monarchy, providing the ideal nurturing ground for capturing GH2 benefits (Baumann 2021).

**Water scarcity** is also a major challenge. GH2 production requires a lot of water, and the arid climates of Germany's energy partner countries may make it difficult to secure sufficient water resources. This could exacerbate existing water scarcity issues – as in case of Morocco's Ouarzazate Solar Power Station (Hamouchene 2022a) – and endanger livelihoods in small-scale agriculture (Baumann 2021). Ameliorating water scarcity, the solution of choice is using seawater and desalination technology to produce freshwater. This, however, raises energy input and might destabilize local maritime ecosystems (BfdW/HBS 2022a: 20).

Another risk is **land use conflicts** as GH2 production requires significant amounts of land. In South Africa's Northern Cape region alone, around 250.000 ha land will be required for renewables that shall power the GH2 export industry (DSI 2021: 76). This could lead to conflicts with local communities over land rights and resource access (Hotz 2022). Dominantly, potential GH2 producing regions are portrayed as "vast empty land, sparsely populated, [...] however, this deceptive narrative overlooks questions of ownership and sovereignty" (Hamouchene 2022a). The construction of GH2 projects, as has shown the experience with Morocco's Noor Midelt power plant, might result in the displacement of communities (KNÖ 2022: 6) and the loss of well-adjusted agro-pastoralist livelihoods (BfdW/HBS 2022b).

In the context of these risks, it is important to consider the power asymmetries between Germany and its energy partners. GH2 production has been proposed as an export opportunity for Global South countries with abundant renewable energy sources such as solar. However, there are concerns about **sun grabbing**, i.e., the potential that foreign companies or governments, in some cases enabled by local elites, could seek to appropriate the renewable energy sources of these countries for their own benefit (KNÖ 2022: 5).

The idea of sun grabbing is rooted in concerns about neocolonial resource grabs in the renewables sector. Critics argue that focusing on GH2 export does not reflect the needs of local communities and mirrors extractivist practices relying on the overexploitation of the Global South's natural resources to the benefit of the Global North and corrupt national elites – the difference being that now we would be talking about **green extractivism**. We can see foreshadows of this pattern already. In Tunisia, a country that depends almost completely on fossils for electricity production, GH2 shall be mainly produced for export – instead of fueling the country's own energy transition (Delpuech 2022).

**Sources**


**Arepo (2022).** Fair Green Hydrogen: Chance or Chimera in Morocco, Niger and Senegal?

**Baumann, B. (2021).** Green hydrogen from Morocco: No magic bullet for Europe's climate neutrality. Heinrich-Böll-Stiftung.

**BMWi (2020).** The National Hydrogen Strategy.

**Brot für die Welt, & Heinrich-Böll-Stiftung [BfdW/HBS] (2022a).** Green hydrogen: Key success criteria for sustainable trade & production.

**— (2022b).** Pastoralism and large-scale renewable energy and green hydrogen projects: Potential and threats.

**Cabaña, G., & Diaz, M. (2021, November 29).** The Limits of Europe's Corporate-Led Hydrogen Project. Green European Journal.

**Delpuech, A. (2022).** Who Benefits from Tunisia's Green Hydrogen Strategy? Arab Reform Initiative.

**Department of Science and Innovation [DSI] (2021).** Hydrogen Society Roadmap for South Africa 2021.

**Dorninger, C., Hornborg, A., Abson, D.J., von Wehrden, H., Schaffartzik, A., Giljum, S., Engler, J.-O., Feller, R.L., Hubacek, K., & Wieland, H. (2021).** Global patterns of ecologically unequal exchange: Implications for sustainability in the 21st century. Ecological Economics, 179, 106824.

**Ghorfa Arab-German Chamber of Commerce and Industry [Ghorfa] (2020).** Bundesregierung unterzeichnet Wasserstoff-Abkommen mit Marokko.

**Global Commission to End Energy Poverty [GCEEP] (2020).** 2020 Report: Electricity Access.

**Green Hydrogen Organisation (2023).** Morocco.

**Haberl, H., Wiedenhofer, D., Virág, D., Kalt, G., Plank, B., Brockway, P., Fishman, T., Hausknost, D., Krausmann, F., & Leon-Gruchalski, B. (2020).** A systematic review of the evidence on decoupling of GDP, resource use and GHG emissions, part II: Synthesizing the insights. Environmental Research Letters, 15(6), 065003.

**Hamouchene, H. (2022a).** Dismantling Green Colonialism. Luxemburg – Gesellschaftsanalyse und linke Praxis.
**— (2022b).** The energy transition in North Africa: Neocolonialism again! Transnational Institute.
**Hickel, J., & Kallis, G. (2020).** Is Green Growth Possible? New Political Economy, 25(4), 469-486.
**Hotz, A. (2022, October 14).** Green Extractivism and the Green Frontier. Amandla, 84.
**IEA (2022).** Hydrogen.
**— (2021).** Global Hydrogen Review.
**IRENA (2022).** World Energy Transitions Outlook 2022: 1.5°C Pathway. International Renewable Energy Agency.
**Just Transition Centre (2017).** Just Transition: A Report for the OECD.
**Konzeptwerk Neue Ökonomie [KNÖ] (2022).** Wasserstoff und Klimagerechtigkeit. Bausteine für Klimagerechtigkeit.
**Müller, F., Tunn, J., & Kalt, T. (2022).** Hydrogen justice. Environmental Research Letters, 17(11), 115006.
**Peoples of the Global South (2023).** Manifesto for an Eco-social Energy Transition from the Peoples of the South.
**Rockström, J., Gupta, J., Qin, D., et al. (2023).** Safe and just Earth system boundaries. Nature, 2856.
**Sachverständigenrat für Umweltfragen [SRU] (2021).** Wasserstoff: Weichenstellungen für Nachhaltigkeit. Wasserstoff im Klimaschutz: Klasse statt Masse, 67-79.
**UNRISD (2022).** Evaluating Existing Transformations: The Case for a Just Energy Transition. UNRISD Issue Brief, 14, December 2022.
**Xu, Q., & Zhong, M. (2023).** The impact of income inequity on energy consumption: The moderating role of digitalization. Journal of Environmental Management, 325 (Part A), 116464.

**Policies for a Just Hydrogen Transition**

German legislators should ensure that the country's energy partnerships contribute to a just hydrogen transition. To that end, we recommend action on three levels.

First, on the project level, GH2 projects must be developed prioritizing the needs of local communities. This includes transferring **decision-making power and ownership** to them, ensuring fair compensation for land and resources given free, prior and informed consent (FPIC), and implementing environmental and social safeguards (Cabaña/Diaz 2021). Through participatory processes win-win strategies such as agrophotovoltaics might be identified. Democratically governed use of the GH2 revenues should be encouraged.

Second, on the national level, German legislators should condition GH2 partnerships on meaningful local participation, decision-making power and ownership, as well as environmental and social safeguarding. They should pursue strong **sustainability criteria for GH2** definition and certification (SRU 2021). Such criteria should follow the principle of "Additionality 2.0 [that] guarantees added value for supplier countries" (Arepo 2022: 64). This could mean, e.g., that running desalination plants requires increasing local water supply. GH2 sustainability criteria should be enshrined in law, verifiable and enforceable (KNÖ 2022: 7).

Third, on the international level, the German government should pioneer GH2 promotion in accordance with a just hydrogen transition and form an **alliance of future GH2 importers and exporters** setting sustainable GH2 precedents (BfdW/HBS 2022a: 32). Ongoing institutional standardization and certification efforts could build upon such de facto standards.

Above recommendations imply conditionality for GH2 partnerships. To impose conditionality, however, can itself be seen as neocolonial. Given Germany's climate debt, justice considerations also demand non-paternalistic actions. Considering as well the failure of green growth strategies and the urgency of climate change mitigation (Haberl et al. 2020; Hickel/Kallis 2020), the key actions for German policymakers for a just hydrogen transition are covered by the slogan **"degrowth first, hydrogen second"** (KNÖ 2022: 7). It captures prioritizing a planned and equitable contraction of certain sectors of the German economy over the expansion of GH2 consumption.

In the context of degrowth, German policymakers should pursue two strategies to foster a just hydrogen transition.

First, we suggest – more than focusing on energy efficiency – prioritizing domestic **energy reduction**. This includes scaling down energy-intensive industries and material consumption, transitioning to agroecological farming, and shifting to more sustainable modes of transport. Given the foreseeable scarcity of GH2, this also means prioritized access to GH2 for socially valuable sectors without a viable green alternative. Reduction efforts have to be accompanied by adequate social policy like a shortening of the working week.

Second, German legislators should reduce domestic economic inequality. Since the latter is a major driver of (energy) consumption (Xu/Zhong 2023), a more equitable distribution of economic resources would curb energy demand. More **progressive taxation on wealth, land and capital income** would suit that purpose – with the side benefit of providing the necessary funds for the transition efforts.

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