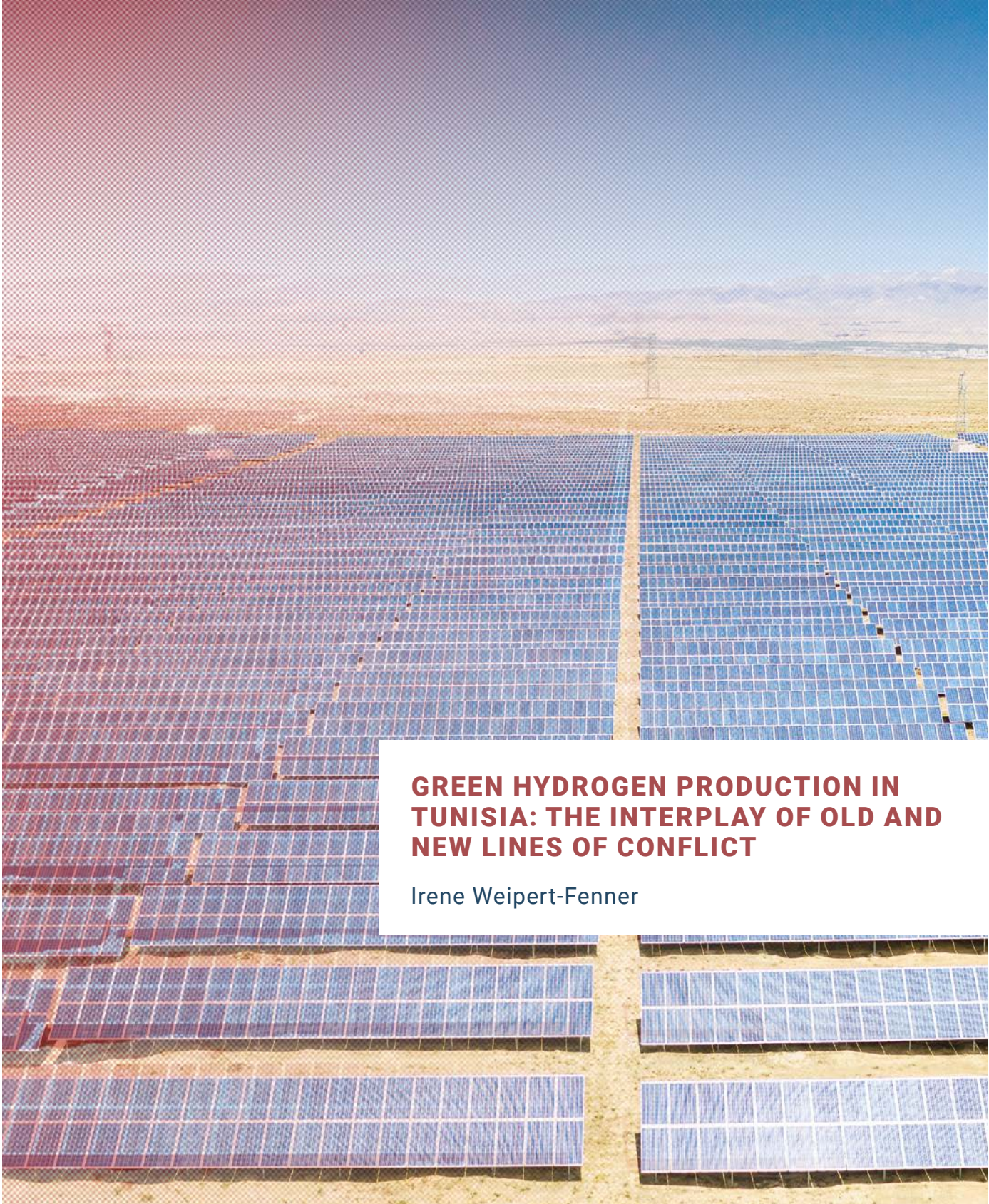




report



**GREEN HYDROGEN PRODUCTION IN
TUNISIA: THE INTERPLAY OF OLD AND
NEW LINES OF CONFLICT**

Irene Weipert-Fenner

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Peace Research Institute Frankfurt
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Friedens- und Konfliktforschung



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With the Green Deal and the energy crisis caused by Russia's war in Ukraine, the EU has accelerated a massive transition towards importing green energy, including green hydrogen, from North Africa. EU decision-makers portray the energy transition as a win-win situation, while transnational activists severely criticize these developments as green colonialism. In these debates, little attention is directed toward activism in the national realm and (potentially) affected communities. Understanding the views and actions on the ground can help us develop a broader assessment of the conflict potential of export-oriented green energy production.

In order to fill this gap, the report focuses on Tunisia. Building on the first part that lays out Tunisia's road to green energy from multiple perspectives, the second part shows how ecological and socioeconomic activists perceive the risks of green hydrogen as a future technology. It situates their views within a larger set of relevant political and economic actors' perspectives. Based on original material from Tunisia including interviews and documents, the report argues that we need to take into account not only the direct conflict potential (most prominently related to land and water issues), but also the dimensions in which renewable energy (RE) exports are interconnected with ongoing conflicts. More precisely, the report finds that the struggles over green energy exports are closely linked to ongoing domestic struggles over the political economy. They run along three conflict lines: center vs. periphery, private vs. public sector, and domestic vs foreign actors.

The report furthermore shows that we need to understand the potential for conflict against the background of a postcolonial energy history. We also should more strongly reflect upon regime type and transformation as an important intervening variable of the energy transition. In the case of Tunisia, the question of how a just transition (including the call for energy democracy) could be achieved in the context of re-autocratization has not been addressed so far.

Finally, a comprehensive conflict analysis reveals chances but also limitations for conflict prevention and conflict management. Germany, European countries and the EU carry a particular responsibility here as major drivers of the GH2 economy and should integrate ongoing and potential RE-related conflicts into their policies, be it in the form of development cooperation or intergovernmental agreements.

Frankfurt, April 17, 2025

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1. INTRO: DECONSTRUCTING THE WIN-WIN NARRATIVE¹

“This is Europe’s ‘man on the moon’ moment”² – with these words President of the European Commission Ursula von der Leyen announced the European Green Deal of December 2019, a massive investment package for a then ailing European economy hit by the Covid-19 pandemic. It set the ambitious goals of reducing emissions of greenhouse gases by 55% by 2030 and arriving at net zero emissions by 2050, making Europe the first climate-neutral continent.³ These commitments were further enhanced after Russia’s full invasion of Ukraine in February 2022 with REPowerEU, issued only three months later in May 2022 (Vezzoni 2023). The immediate challenge of reducing reliance on Russian gas supplies was addressed at least in part by accelerating the energy transition. Green hydrogen (GH₂) targets were increased by a factor of four to twenty million tons in 2030, 50% of which were to be imported. Subsequent legislation set the share of renewable energy (RE) in the EU’s overall energy consumption at 42.5% by 2030 – doubling the share of RE,⁴ which led to a doubling of RE imports from non-EU countries in 2022 (28.4 billion Euro compared to 13.3 billion in 2021⁵). Without imports, as was clear from the outset, Europe’s green energy transition would not be possible. Germany, in particular, has great interest in green hydrogen as a source for its energy-intensive industry where a sustainable electrical power supply is not technically or economically feasible. Within the framework of its National Hydrogen Strategy of June 2020, Germany initiated a number of bilateral agreements with countries outside Europe.

This seems to be nothing but good news for potential export countries. In her opening statement to the Italian-African summit on 29 January 2024, Ursula von der Leyen explained her view on cooperation with Africa in energy affairs: Africa had plenty of land and sun and could be a “clean energy powerhouse.”⁶ All the continent was missing was infrastructure, something the EU could provide within the framework of the Global Gateway Initiative. And this in turn would allow African countries to massively scale up the production of green energy (from currently only 2% of global production)

1 Field research for this paper was funded by the Arab-German Young Academy of Sciences and Humanities (AGYA), as part of a joint project with AGYA members Mohammad Al-Saidi and Lahcen El Youssfi. The paper profited enormously from collaboration within the framework of the AGYA Working Group “Energy, Water and Environment”. An earlier version of this paper was presented and discussed at the DVPW Congress 2024 in Göttingen. I would like to particularly thank Pascal Abb, Jonas Driedger, Patrick Flamm, Lucas Kori Leonhard, Mariam Salehi, Hendrik Simon, Christin Stühlen, Iris Volg, Jonas Wolff, and Tobias Zumbrägel for their valuable comments. Many thanks also to Karin Hammer and Susan Richter for their support in the editing process. Most importantly, I would like to thank all interview partners in Tunisia for their time and sharing their insights with me.

2 Press remarks by President von der Leyen on the occasion of the adoption of the European Green Deal Communication, 11 December 2019, https://ec.europa.eu/commission/presscorner/detail/en/speech_19_6749.

3 https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en. While the EU seems to use the terms climate neutrality and net zero emissions synonymously, differences have been pointed out that can affect on the scope of the reforms undertaken: see, e.g. <https://plana.earth/academy/what-is-difference-between-carbon-neutral-net-zero-climate-positive> and <https://www.climatepartner.com/de/wissen/insights/was-bedeutet-net-zero-wirklich>.

4 https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repower-eu-affordable-secure-and-sustainable-energy-europe_en.

5 <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20231109-3>.

6 https://www.youtube.com/watch?v=QouN2F_gDmM.

for domestic consumption and export to Europe. This would provide African countries with fresh revenue, create employment, and improve energy security on both continents.

Mitigating climate change (to which the energy sector contributes with 75% of global greenhouse gas emissions⁷), while fighting energy poverty and even stimulating development in the Global South sounds like a win-win situation. However, what looks like the right path to a bright green future from the perspective of European politicians has been met with increasing criticism and warnings from (mainly transnational) activists and academics, warning of negative impacts and potential for conflicts outside Europe. Many decry Europe's run toward green energy as "green colonialism" (Hamouchene and Sandwell 2023, Müller 2024) or "green extractivism" (Dunlap et al. 2024), pointing to well-known patterns of exploitation of countries in the Global South for profits in the Global North.⁸ One element in this debate concerns critical raw materials that are needed for the energy transition such as lithium and cobalt. The local environmental, social, and cultural impacts of mining have already been widely discussed (for an overview, see Matanzima/Longinova 2024), mainly in the context of Latin American and sub-Saharan countries. Looking specifically at the conflict potential of GH2, Tunn et al. (2024) establish a very helpful matrix of different forms of injustices related to green hydrogen economies: water, energy, land, and background injustices, all of which can have distributive, procedural, restorative and recognitional justice dimensions. The authors further identify three dimensions of extractivist patterns in the GH2 economy, i.e. exclusion, enclosure, and externalization (Tunn et al. 2024, 8). I will sketch out in 1.1. what we already know about conflicts in these dimensions in the case of Tunisia – mainly water and land questions. I will use sections 2 and 3 of the report to provide new insights into energy related conflicts as well as to what Tunn et al. call background injustices, i.e. financial, political, social, and epistemic injustices. While Tunn et al. look at these injustices from a bird's eye perspective and at GH2 conflicts specifically, this report adds bottom-up insights and argues in favor of integrating existing conflicts in the respective countries and their dynamics (rather than injustices as such) into the GH2 conflict analysis. Furthermore, Tunn et al. and transnational activists look primarily at pre-existing global conflicts, mainly from a post- and decolonial perspective problematizing global North-South relations (see also Müller 2024). Building on that, I suggest integrating the agency of national actors pushing for GH2 more strongly into the analysis. These actors play a crucial role, follow their own agendas, and have agency well beyond the paradigm of being exploited by "the global North."

Furthermore, ongoing intrastate conflicts have dynamics of their own that we need to take into account when assessing conflicts about energy transitions that might have been started or accelerated by external actors. In the case of Tunisia, we can also *learn from past and ongoing conflicts* over existing wind and solar energy production that have so far remained limited to their respective localities. With a view to GH2 production that is still in the planning phase and Memorandums of Understand-

7 The energy sector is composed of electricity and heat (29.7% of all emissions), transportation (13.7%), manufacturing and construction (12.7%), and buildings (6.6%). <https://www.wri.org/insights/4-charts-explain-greenhouse-gas-emissions-countries-and-sectors>.

8 To be sure, there is extensive research on extractivism and conflict. For the development of the term (from old, neo- to green extractivism) see Dunlap et al. 2024, 439–444; for a recent compilation on the nexus of extractivism and violence, see, for example, Shapiro/McNeish 2021. For a focus on the infrastructure of extractivism and potential for conflict as well as prevention, see Lezak et al. 2019. For a broader view on the intersection of environment and peace and conflict, see Ide et al. 2023.

ing (MoUs) between investors and the government, we already find *first forms of contention*, be it in the form of still small campaigns or local public protests. The interplay between RE and the different conflict lines is important to understand and to take into account in the setup and implementation of GH2 projects, as they also offer chances for conflict prevention and management.

Furthermore, the report argues that we need to factor in much more strongly the political context in which these conflicts over green energy take place. In the case of Tunisia, the energy transition was accelerated during the shaky democratization process which started with the revolution of 2011. However, in 2021 President Saied began a fast and comprehensive re-autocratization process that led to the concentration of power in the hands of Saied and increasingly targeted the repression of political opposition, critical journalists, lawyers, and activists. Resistance so far has remained weak and fragmented (Yssen/Stokke 2024). As will become clear, the political developments had detrimental effects on managing the potential for conflict in the energy transition.

Finally, and closely linked to the political context, the political economy will prove crucial in order to understand ongoing and potential conflicts. Tunisia is resource-poor, with the exception of (shrinking) phosphate and oil reserves that have long failed to contribute to socioeconomic development and provoked local social unrest instead (Weipert-Fenner 2020). Unemployment is high, particularly among university graduates. Public sector employment has grown considerably since the revolution, seemingly the only way to calm socioeconomic discontent. Any attempts to reduce public sector expenditures have been met by fierce resistance by Tunisia's powerful trade union federation. The economy, marked by low value-added production, is highly dependent on imports of basic goods, which in combination with the currency devaluation initiated by the IMF, and the economic fallouts of the Covid-19 pandemic and Russia's war on Ukraine, led to a massive surge in public debt (Diwan et al. 2024). New economic visions are therefore needed, but investments need to be chosen carefully, as fiscal leeway is limited and socioeconomic development needed. This is the background against which the development of a green hydrogen economy needs to be critically studied.

1.1 THE POTENTIAL FOR CONFLICT IN A GH2 ECONOMY: DIRECT EFFECTS OF GH2 PRODUCTION

The critical debate about green hydrogen production in North Africa has dealt mainly with natural resources that are needed for energy production, namely land and water. In the win-win narrative, the European perspective exemplified by Ms. von der Leyen creates the impression of the desert as a vast empty space. Its massive solar energy potential, in this narrative, had yet to be tapped into. The green transition could thus turn a useless space into a useful one to the benefit of all. This is a widely criticized argument that builds on a supposedly void land (*terra nullius*, Tunn et al. 2024, 6) that, instead, is used for transport routes, as pastoral land, or inhabited. Natalie Koch calls this process "wastelanding the desert" (2024). In addition, collective land rights that historically have clashed with the concept of private property since colonial times are now once more contested by investors in renewable energy, leading to the eviction of local communities. Conflicts over land usage and property rights are hence one important potential cause for conflicts at the local level (Hamouchene and

Sandwell 2023). Another key factor here is arable land that is now being allocated for use by RE projects. Tunisia is highly dependent on food imports and has seen unprecedented shortages of basic goods with the rapid rise in world market prices (since the Covid-19 pandemic and Russia's war on Ukraine) and the national currency's value has decreased (as part of the IMF programs) (discussed in greater detail in section 2.2). Conflicts over the usage of arable land are therefore very likely, particularly as ten times more land is needed for renewable energy production than for fossil energy, and this land needs to be located in specific areas best suited for RE production.⁹ Thus land questions will play an important role and will need to be assessed on a project level.

The other massive conflict potential over natural resources tied to green energy is related to water resources. Solar panels in arid regions need to be regularly cleansed of dust and sand. An even more direct conflict is presented by the water consumption of green hydrogen production (Tunn et al. 2024, 4). The statistics on the amount of water needed to produce one kilogram of hydrogen vary widely. One often finds numbers such as 9 to 11 liters of water; these figures, however, account only for the amount of water needed for electrolysis, the process that splits water into its components, hydrogen and oxygen. During this process the electrolyzer also needs to be cooled, which can be done via dry and wet cooling. While the first method does not consume water, it is more costly and energy-intensive; the latter, as the name suggests, requires additional water (Miltrup 2024).

As the production of green hydrogen requires large amounts of renewable energy, for which arid regions present the highest potential, the water issue is particularly important. The most common solution to this problem is desalination. To produce 1 kg of green hydrogen, 35 liters of desalinated water are needed. This in turn requires 83 kg of seawater and leaves 48 kg of brine that is channeled back to the sea, leading to higher salinity. The byproduct also contains heavy metals from the desalination plant (Miltrup 2024). Both factors can have very negative effects on the maritime environment.

Desalination is also energy-intensive. So far, plants are usually run with fossil fuels. However, the production of green hydrogen would make sense from a climate-mitigation perspective only if renewable energy were used for desalination. As MENA is the most arid world region, and Tunisia one of the most arid countries in the world,¹⁰ crucial questions need to be answered now: How many desalination plants would a potential GH2 export country need a) for drinking water, b) for agriculture, and c) the production of green hydrogen? How many more wind and PV parks would it need to power the required number of desalination plants? How great would the effect of the brine (and the heavy metals it contains) be on the maritime ecosystem, particularly given the fact that all Mediterranean countries face problems of water scarcity and see desalination as one important solution?

We still lack basic information in the form of scenarios of desalination needs and effects. The question of whether GH2 production on a large scale is feasible largely depends on whether desalination can be done on a large scale without (too much) ecological harm. While local impact assess-

9 <https://www.brookings.edu/articles/renewables-land-use-and-local-opposition-in-the-united-states/>.

10 <https://www.unicef.org/mena/water-doesnt-come-tap>; <https://www.kfw-entwicklungsbank.de/Global/North-Africa-and-Middle-East/Project-information-Tunisia-Water-2024/>.

ments are important (Terrapon-Pfaff et al. 2021), a broader view on the effects on the Mediterranean Sea is needed as well. Furthermore, to achieve higher social acceptability desalinated water should serve multiple needs, not only GH2 production (Terrapon-Pfaff et al. 2021). Avoiding or managing distributive conflicts should be done in participative and inclusive ways, bringing local communities and stakeholders together, at best prior to major investment decisions – processes that have not been taking place so far in Tunisia.

1.2 TOWARDS A BROADER CONFLICT ASSESSMENT: THE GH2 ECONOMY AND INDIRECT EFFECTS ON EXISTING CONFLICTS

While these questions are of crucial importance, it is right that the debate about green hydrogen has focused on the direct impact of the production of green hydrogen, with water and land issues being the main concern for future conflicts. However, this article argues that we need to integrate into the analysis much more strongly the many ways in which GH2 production is interconnected with existing conflict lines. While the win-win narrative points to the potential of GH2 to increase employment opportunities, transnational activists see these effects as rather minor and argue that revenues would go mostly to foreign investors and governments, and partly to domestic elites. Green energy would therefore mirror and reinforce the structural inequalities these countries have faced since colonial times (e.g. Hamouchene & Sandwell 2023). Instead, what transnational activists call for is a “just transition” that takes into account class, race and gender perspectives, that brings about a decentralized energy transition with community-owned energy production, contributing to democratization and accountability (Transnational Institute 2020).

This article identifies lines of conflict for the case of Tunisia that are related to the GH2 economy, and that are more nuanced than a sole focus on a North-South divide might suggest. These struggles are embedded in general conflicts over state-society and state-economy relations that have been prevalent for decades, erupting in the 2011 revolution and persisting in the context of and the interplay with the democratization period (2011–2021), as well as the ongoing autocratization under President Saïed. The most important lines of conflict run between the public and the private sector, between the center (Tunis and the Sahel, coastal region) and the periphery (West and South of Tunisia), and between national and external actors as a struggle for national sovereignty.

The article combines a decade of research on post-revolutionary socioeconomic conflicts in Tunisia with the analysis of the now unfolding energy transition and a current run on green hydrogen. To gather various perspectives, interviews and background talks were conducted with activists from different backgrounds (socioeconomic, environmental and political activism), journalists, academics, and external actors from business and development cooperation during field research in Tunis in August 2023 and in follow-up online interviews.¹¹ Furthermore, official documents of and publications

11 Given the sharply increasing level of repression in Tunisia and the small circle of activists in this field, I did not want to allow connections to be drawn between different quotes and traced back to any one person. I have therefore refrained from using my anonymous number codes as references.

by activists, state officials, trade unions, business associations, and media were analyzed to understand how the subject at hand is discussed on the ground. The aim is to better understand ongoing as well as potential conflicts, to learn from past mistakes to better manage these conflicts – or even prevent them from occurring in the first place.

The next part will provide background information on Tunisia's energy sector, its transition towards green energy, and how the general populace perceives RE. Part 3 discusses three conflict lines that have evolved in the context of renewable energy projects so far, and what conflicts activists anticipate in the run-up to a GH2 economy. The article will end with some preliminary conclusions.

2. TUNISIA'S ROAD TO GREEN ENERGY

2.1 TUNISIA'S ENERGY SECTOR: FROM COLONIAL TIMES UP TO TODAY

When Tunisia became independent in 1956, it inherited an energy sector that was dominated by private companies and provided energy to only a minority of the Tunisian population (Belaïd, 2018, Ben Ammar 2022, 11). Bringing energy to Tunisians was thus a crucial pillar of postcolonial development. It was combined with an authoritarian developmental state approach by President Habib Bourguiba, who nationalized strategically important companies and used them to provide services and create jobs. Socioeconomic benefits widely distributed, so the rationale, should compensate for political liberties and ensure loyalty (also known as the authoritarian social contract or bargain, Loewe et al. 2021). In the energy sector, the state-owned gas and electricity company STEG (*Société Tunisienne de l'Électricité et de Gaz*) was founded in 1962, tasked, among others, with increasing the electrification rate, which at the time stood at just over 20%. STEG was entrusted with a monopoly on the production, transmission and distribution of electricity. Today, the rate is at almost 100% (Ben Rouine and Roche 2023, 201).

Tunisia has its own gas¹² and oil¹³ reserves, managed by another state-owned company, *Entreprise Tunisienne d'Activités Pétrolières* (ETAP, founded in 1972). However, Tunisia has faced a sharp increase in domestic energy consumption (around 3% annually since 2010, World Bank 2023, 17) and a depletion of the sources at the same time. Back in 1985, another state body, the *Agence Nationale pour la Maîtrise de l'Énergie* (National Agency for Energy Management – ANME) was therefore created with the goal of rationalizing energy consumption. Subordinated to the Ministry of Industry, Mines and Energy, it is officially in charge of the energy transition today. In 2021, Tunisia needed to import 50% of its energy, mainly in the form of gas from its neighboring country Algeria, an increase of 93% since 2000.¹⁴ The growing energy dependency was the driver for the first attempts to introduce renew-

12 <https://www.worldometers.info/gas/tunisia-natural-gas/>.

13 <https://www.worldometers.info/oil/tunisia-oil/>.

14 <https://www.iea.org/countries/tunisia/energy-mix#how-is-energy-used-in-tunisia>. In 2010, the import rate was still at 7%. World Bank 2023, 16–17.

able energies in the early 2000s. However, no major shift has occurred for twenty years: In Tunisia's energy mix of 2021, almost 90% of the sources were fossil fuels (almost 50% natural gas, 40% oil, IRENA 2024¹⁵).

One major feature of the energy market in Tunisia is energy subsidies. STEG always sold energy at prices that did not cover the actual costs.¹⁶ Private households relied on cheap energy, and companies even more so (among them many state-owned), which were economical only because of cheap energy and for whom market prices would have meant financial ruin. Until 2014, STEG relied on two forms of subsidies: first, it received gas at prices below the actual production costs from the Tunisian Company for Petroleum Activities (ETAP); second, it also received direct financial support from the state budget (Ben Ammar 2022, 11). Following the advice of international donors, after 2014 STEG was obliged to buy energy directly from the international market at global prices. Particularly with the national currency's loss of value, purchasing energy on the world market in dollars or euros brought STEG into a disastrous financial situation, obliging it to take out loans for larger investments including those related to green energy (Ben Ammar 2022, 12). Skyrocketing energy prices after the beginning of Russia's war in Ukraine have exacerbated the fiscal crisis in Tunisia, leading to the doubling of energy subsidies' percentage of GDP from 2.1% (2011–2021) to 5.3% in 2022 (World Bank 2023, 8). At the same time, state subsidies to STEG were so insufficient that the company had to rely on loans to offer energy at subsidized consumer prices. And yet, even though subsidies increased and energy prices did not reflect the international price growth of 42%, consumer prices still rose considerably (fuel: 20%, gas 16%, electricity 12%) in 2022, adding to the highest inflation rate Tunisia had seen since 1984 (World Bank 2023, 3). It is fair to say that this system has turned into a lose-lose-lose situation: for the state, STEG and consumers. The increasing indebtedness of STEG is a great impediment to investments, particularly in the electrical grid, which is in need of modernization and expansion given the growing domestic energy needs. As this need cannot be met, Tunisia has been facing power shortages, particularly during summertime, when air conditioning adds massively to the normal level of energy consumption.¹⁷

The reduction of energy subsidies has been a demand from international donors for years, most prominently the IMF (Weipert-Fenner et al. 2025). More precisely, they proposed the introduction of automatic price adjustment mechanisms to the electricity and gas sectors, similar to fuel subsidies – although adjustments to these were paused at times, or rose rather modestly compared to international price developments. Only in 2022 were price adjustments for households with higher consumption introduced (World Bank 2023, 18). The reform of the subsidy system is, of course, a broad debate: while there are many reasons to phase out subsidies, this measure also poses severe risks, particularly to poorer households, and especially in countries with large informal economies (for an overview of the debate, see Vidican Auktor/Loewe 2022, 4–6). The energy sector is a unique case, however, as energy provision (and for that matter, high costs for it or even a lack thereof) is directly

15 <https://www.iea.org/countries/tunisia/energy-mix#how-is-energy-used-in-tunisia>.

16 The same is true for the monopolist of fuel production, import and distribution, the STIR national refineries owned by the state (World Bank 2023).

17 <https://www.africanews.com/2023/09/20/tunisia-suffers-nationwide-power-cut/>.

entangled with other social protection issue areas, such as food and water security (given the effects on agriculture and transportation).¹⁸ Energy is also increasingly becoming an existential good in times of massive heat waves that occur more regularly because of climate change. On the other hand, the whole debate about subsidies could become less relevant if energy were produced domestically (and thus independent of currency fluctuations and global supply chains), and in a sustainable and economical manner – a factor that the energy transition could deliver at some point.

2.2 TOWARDS GREEN ENERGY

As laid out above, energy is a crucial question for Tunisia, which saw a shift from energy self-sufficiency to energy stress from the 2000s on. In 2004, a bill on energy efficiency was passed, followed by an internationally supported National Fund for Energy Management, culminating in the Tunisian Solar Plan of 2009 that, beyond its name, was also intended to strengthen wind power, cogeneration, and biomass as sources of energy (Rocher/Verdeil 2013, 281–282). While a long list of possible larger projects was drawn up, it was mainly self-production that started in the era of Ben Ali. Looking more closely at the first steps towards green energy, we find PROSOL, a joint program by the United Nations Environment Program (UNEP), Tunisia's state-owned gas and electricity company STEG, the National Agency for Energy Management ANME, and the Italian Ministry of the Environment, Land and Sea Protection. It supported the solar thermal market by offering subsidized loans for private households to purchase solar water heaters.¹⁹ Another program initiated in 2010, PROSOL Elec, targeted support for the installation of PV panels on residential buildings for private household electricity consumption. Surplus energy produced could be sold to STEG via the national grid (Rocher/Verdeil 2019). Under the umbrella of PROSOL Elec, PRO VOLT targeted the agricultural sector and promoted photovoltaic solar energy for water electrification and pumping as well as electricity for STEG buildings.²⁰ In addition to energy-related questions, the programs promoted job creation in the fields of supply, manufacturing and installation.

PROSOL and its variations were portrayed as a success model that was exported to other countries in North Africa (Rocher/Verdeil 2019, 239). However, a number of factors explain why the medium-term development remained modest in the 2010s: First, STEG resisted the idea of paying for surplus energy fed into the national grid at the same price as this energy was sold to consumers. Without any compensation for the costs of infrastructure provision this turned out to be a ruinous business model; in addition, STEG insisted that the national grid lacked the capacity to flexibly integrate the surplus energy. Critics like ANME suggested that STEG was mainly resisting technological change and privatization (El Amine 2023). An ideological component seemed to matter as well: STEG's unwillingness to let go of its historic role as the provider of national energy and, in turn, of national unity (Rocher/Verdeil 2013, 286). Another factor impeding further growth of the projects was its initial suc-

18 UNDP highlights that universal access to energy has positive effects for nearly all Sustainable Development Goals. <https://climatepromise.undp.org/what-we-do/areas-of-work/energy>.

19 <https://sdgs.un.org/partnerships/prosol-solar-programme>.

20 <https://www.anme.tn/en/projets/solar-pv/solar-buildings-project-prosol-elec>.

cess, which created an administrative bottleneck at the ANME, leading to massive delays in paying subsidies to PV installers, the smaller of which went bankrupt, and the larger of which turned to more profitable non-subsidized large-scale projects (Rocher/Verdeil 2019, 240–242). And finally, during the democratization process initiated in 2011 private entrepreneurs and their trade associations used the new political liberties and accused state institutions (ANME and STEG) of incompetence or even corruption, which increasingly created and reinforced a negative public image of the PROSOL instruments (Rocher/Verdeil 2019, 242).²¹ All programs are still in place; they have increased the number of recipients every year, yet faced serious problems posed by Tunisia's fiscal crisis that worsened in the course of the Covid-19 pandemic and Russia's war on Ukraine (Borde et al. 2023, Süß/Weipert-Fenner 2022).²² New programs have now been initiated to target low-income households in particular. This clashes not only with domestic needs but also with international pledges: at the COP26 in 2021 Tunisia committed to the conditional reduction of carbon intensity of 45% by 2030, and an unconditional reduction of 27% (compared to 2010).

Besides the PROSOL instruments that supported small-scale, decentralized green energy production, the first large wind and solar energy parks were also initiated back during the Ben Ali regime. Generally speaking, wind power plants are located in the north of the country (Nabeul, Metline and Bizerte governorates), while solar plants have been built in the south (Tozeur governorate) (Ben Ammar 2022, 12). After the revolution, the local population in some areas used their new won freedom to voice grievances about construction works and a lack of any local share of profits, development and jobs. Yet it was not only the lack of prior consultation by an authoritarian regime that led to public dissent once the dictator was toppled. Authoritarian methods of utility bill collection (including cutting off consumers from the grid) were directly criticized by one third of the population who refused to pay their bills, a phenomenon that kept on growing.²³ The patronage networks of old elites that were still strong in the STEG also caused criticism. From within STEG and its union came criticism in the other direction, as opposition to an allegedly already ongoing privatization of STEG via its private subsidiary STEG RE led to the cancellation of labor contracts with STEG RE and an exodus of workers back to the public mother ship STEG (Rocher/Verdeil 2013, 285).

All in all, the energy transition took up speed after the revolution, including debates and also heated conflicts about the path it took. One major step in this development was the 2015 law (2015–12) that on the one hand updated the Tunisian Solar Plan of 2009, setting more ambitious goals of 30% RE in 2030, particularly ambitious compared to the starting point of 3% generated by two wind farms.²⁴ But it also brought about major changes, particularly with the 2019 law on the improvement of investment in the climate. This turned electricity into a commodity which companies could produce and sell via the grid (*auto-production*). Furthermore, agricultural land could be used for RE production (Ben Ammar 2022, 14) – all contested issues, as will be discussed later.

21 Their analysis ends with 2016. How the relations between private business and state institutions evolved afterwards has yet to be assessed.

22 PROSOL's annual numbers of installed solar water heaters decreased after 2012. Data for PROSOL are only available until 2019.

23 <https://news-tunisia.tunisienumerique.com/tunisia-steg-wages-a-war-of-no-mercy-against-unpaid-bills/>.

24 The Solar Plan of 2015 was the result of negotiations between STEG, ANME and the GIZ (El Amine 2023).

Green hydrogen: A story of its own

While we have seen that the development of solar and wind energy began roughly twenty years ago as a result of domestic incentives, green hydrogen is a relatively new topic in Tunisia and still a future technology. Yet, with the aforementioned EU Green Deal and REPowerEU, the demand side triggered the rapid development of a green hydrogen economy in Tunisia. In December 2020, Germany and Tunisia signed a Memorandum of Understanding (MoU) for a Power-to-X alliance.²⁵ One important result was the development of a green hydrogen strategy that the Tunisian government, more precisely the Ministry of Industry, Mines and Energy, drew up together with the GIZ, which was finally published in May 2024.²⁶ It sets out the ambitious goal of producing six million tons of GH₂ for exports and an additional two million tons for the local market in 2050. One cornerstone of the strategy entails the creation of “hydrogen valleys”: “regionally co-located network[s] of hydrogen production, distribution, and end-use infrastructure” (Carr et al. 2024, 2). These will be located in the south of Tunisia.

Since the release of the strategy, MoUs for large-scale GH₂ projects have been mushrooming. On 28 May 2024, the Tunisian Government signed a Memorandum of Understanding (MoU) with the French companies TotalEnergies and the Eren Group, as well as with Verbund, Austria’s major electricity company, for the exploration of a large-scale GH₂ project initially aiming to produce 200,000 tons of GH₂.²⁷ Fully operational in 2030, one million tons are to be produced and exported directly to Europe via pipelines. On 31 May 2024, another MoU was signed with Saudi ACWA Power to launch a GW-scale green hydrogen project. In the first phase, the project aims to produce 200,000 tons of green hydrogen per year, and will comprise four GW of renewables and two GW of electrolysis.²⁸ In July 2024, six more MoUs were signed with international investors from Belgium, Britain, France, and Germany.²⁹ In December 2024, a first international conference was held in Gabes by the Tunisian minister of industry, mines and energy, bringing together investors, industry, academics, and various international development agencies.³⁰ On 25 January 2025, Germany, Algeria, Italy, Austria and Tunisia signed a Joint Declaration of Intent (JDoI) to establish what they called the “SouthH₂ Corridor,” a direct pipeline connection for gaseous hydrogen of 3300 km between North Africa and the three European countries. The project involved several companies, among them Italian gas grid operator SNAM.³¹

In short: It is fair to say that the green hydrogen economy is gaining momentum.

²⁵ Power-to-X includes various derivatives from renewable energy, including green hydrogen and climate-neutral fuels.

²⁶ GIZ project “Promoting a green hydrogen economy in Tunisia” 2022–2025. <https://www.giz.de/en/worldwide/109262.html>.

²⁷ <https://totalenergies.com/news/press-releases/green-hydrogen-te-h2-partners-verbund-large-project-tunisia>.

²⁸ <https://www.acwapower.com/news/acwa-power-and-tunisian-government-sign-mou-for-major-green-hydrogen-project-en/>.

²⁹ <https://www.offshore-energy.biz/six-hydrogen-production-deals-concluded-in-tunisia/>.

³⁰ <https://www.webdo.tn/fr/actualite/national/la-tunisie-mise-sur-l-hydrogene-vert-pour-impulser-sa-transition-energetique/218102>.

³¹ <https://www.reuters.com/markets/commodities/italy-germany-austria-tunisia-algeria-back-hydrogen-grid-project-2025-01-21/>; Saudi-Arabia’s ACWA Power also joined in here with a green ammonia terminal in Italy: <https://www.offshore-energy.biz/acwa-power-and-snam-form-green-hydrogen-and-ammonia-alliance/>.

2.3 WHAT DO THE PEOPLE WANT? PUBLIC OPINION ON THE ENERGY TRANSITION

This report seeks to combine the perspectives of activists with lines of conflict on the national and sub-national levels, and integrate views of different actors, political and economic elites and a broader set of stakeholders, from business and labor associations to NGOs and social movements down to the local level of activism outside organizations. This shift also requires a look at public opinion data on the subject. Two well-established survey projects, the Arab Barometer and the Afro Barometer, both cover Tunisia with their respective, diverging questionnaires. It is important to note, however, that energy itself has not been a topic in these surveys. The data we can analyze are related to climate change or on environmental questions, and even these are still a novelty in both survey projects, with the Arab Barometer including them in the context of government performance since the seventh wave of 2021, while the Afro Barometer asked about it on an even less regular basis but included special survey modules in the ninth wave of 2023. This means we do not have longitudinal data and cannot identify any trajectories.

According to the latest wave of the Arab Barometer (AB), by far the greatest environmental concern of Tunisians in 2023 was water scarcity (around 60%), in the form of water pollution, lack of water and polluted waterways (AB 2024, 32), stressing once more the urgency of water as laid out before. Only 14% named climate change as a major concern.³² Furthermore, only 11% of respondents thought climate change was responsible for water scarcity. However, when asked directly, more than two thirds of the respondents declared that they were concerned about the effects of climate change on both their mental and physical well-being. Particularly extreme temperatures (84%) were seen as a huge problem, even more so by women (89%) than men (79%) (AB 2024, 33). Eleven percent of respondents saw climate change as the reason for the (high) levels of food insecurity in the country. At the same time, almost 20% of respondents acknowledged no associations with the term climate change (AB 2024, 34). In the Afro Barometer 2023, a whopping 80% of the respondents had not even heard of climate change.

According to the Arab Barometer, Tunisians attributed the same level of responsibility for climate change to Western and Tunisian business (around 70%), followed by Western governments (65%), Western citizens (57%), Tunisian citizens (55%), and lastly, the Tunisian government (53%). At the same time, when asked about the responsibility to address climate change, the Tunisian government ranked first (82%), followed by Western business (81%) and Western governments (79%). Ordinary citizens in the West and Tunisia were also held responsible here (74% and 72%, respectively) (AB 2024, 36).

Over 70% of the respondents wanted the Tunisian government to do more to deal with climate change. When asked about concrete steps to take, alternative energy resources were named by 90%. In contrast, only 40 % were in favor of phasing out fossil fuels. When the Afro Barometer asked whether the top priority should be the protection of the environment or creating employment (with unemployment having been the most pressing social problem for decades now, particularly among

32 However, compared to the survey two years ago, we see an increase of 6% (AB 2022, 48).

young educated people, see Weipert-Fenner 2020), the results were almost equal: 45% in favor of environmental protection and prevention of pollution, 44% in favor of creating jobs.³³ On the one hand, one might interpret this result as Tunisians being divided on the subject (Adou 2023). On the other hand, it could underline the importance attributed to environmental issues in general. We will come back to the reconciliation of economic and ecological goals later in the paper.

In sum, the data show a striking awareness of climate change and its effects on everyday lives (and grievances), although general knowledge on the topic is limited. When looking for concrete measures, alternative energy sources to fossil fuels are widely supported. This is important to keep in mind when we now turn to the conflict lines identified in the context of green hydrogen.

3. CONFLICT LINES IN THE GREEN ENERGY TRANSITION

As laid out in the survey overview, while knowledge about climate change might be limited, support for the energy transition in general is relatively high. This means that conflicts in the context of RE could be interpreted not as resistance against green energy as such but disagreement about how the transition is taking place. Based on the analysis of interviews and of primary data, three major conflict lines became visible that structure the GH2 economy and that of RE more generally: 1) center vs periphery, 2) public vs private sector, 3) foreign vs national. To be sure, these dimensions can also overlap and impact each other.

3.1 CENTER VS. PERIPHERY: CONFLICTS ON THE LOCAL LEVEL

One crucial part of Tunisia's democratization period was an ambitious decentralization process that was also supposed to establish a greater balance between the rather wealthy coastal regions and the socioeconomically marginalized interior regions (Kherigi 2020). The first milestone after the revolution was the Local Authorities Law, in spite of many obstacles and shortcomings in the legislative process and in the final outcome (Karray 2025). This process was turned upside down with President Saied's self-coup in 2021 and the following dissolution of the Ministry of Local Affairs, followed by the dissolution of elected municipal councils in March 2023. A new National Council for Regions and Districts was elected in December 2023. Yet, in spite of the president's rhetoric of building up the country again from the bottom, the reality is quite the contrary. Without financial and administrative room for maneuver, the local and regional level remains dysfunctional and keeps decision-making in the hands of the national executive (Arbi 2023).

The energy transition mirrors the centralized structure of Tunisia in its focus on large-scale projects, with decentralized programs like PROSOL playing only a minor role. What is moving forward are mega projects, as all interviewees agreed. It is still true what Moisseron et al. stated back in 2018:

³³ <https://www.afrobarometer.org/articles/les-tunisiens-restent-mitiges-quand-la-preservation-de-lenvironnement-entrave-la-creation-demplois/>.

“Instead of promoting peer-to-peer, small and smart units, the Tunisian government goes for large solar or wind power stations easily controlled by the authorities” (2018, 7). The quote highlights how energy and infrastructure policies are interrelated with questions of rule that we will come back to.

These projects have long perpetuated the established model of exploiting the periphery while profits are made in the coastal region, particularly the capital. So far, conflicts directly related to RE production reflect the pattern known from the old extractivism such as in the Gafsa phosphate mining basin or oil fields in Tataouine in the south (Cherif 2017, Hamdi/Weipert-Fenner 2020, Weipert-Fenner 2022): Resistance on the local level relates to the lack of local development and profits from the resource exploitation for the local population, which still has to deal with negative side effects in the form of environmental pollution. The same applies to RE projects: Activists criticize domestic imbalances and asymmetries, complaining that profits of RE would not stay with the local communities but go to the capital, similar to those from phosphate mining and oil. In the context of green hydrogen projects, the first local public protest was witnessed in Gabes in December 2024. The Gulf of Gabes has suffered for decades from phosphate production, which has had immense negative effects on maritime ecology, on fishing, and on the health of the local population. The local “Stop Pollution” campaign movement along with the ultra fans of a local football club staged protests against green hydrogen, expressing their deep mistrust towards promises that the new technology would bring wealth while protecting the environment. Their negative experiences in the context of phosphate led to the Gabes region’s rejection of development as a hydrogen valley as envisaged in the green hydrogen strategy (Ben Naser 2025).

The other lessons for green hydrogen regarding resistance on the local level can be drawn from solar and wind energy production. The conflicts we have seen so far had to do with the land usage of RE facilities without local communities profiting from them either directly (e.g., through cheap energy for local inhabitants) or indirectly, as for instance from higher tax revenues for the municipality that could be reinvested in services or infrastructure. As a result, local communities like in Bourj al-Salhi, a village in Cap Bon, have seen struggles of the local population for more than a decade now.³⁴ In Bizerte, the construction of a wind farm negatively affected the local community (noise, wind turbines following apart) without providing any prospects for jobs or regional development (El Amine 2023). In the context of solar energy, too, local communities have not profited from energy production but even faced increased water stress, for instance in Tozeur (El Amine 2023). One interviewee gave the example of a local village head who was appointed director of the RE site, but remarked that since the company was based in the capital, the flow of gains would follow the well-known path that has led to the marginalization of interior regions (INTERVIEW X). Significantly, all these examples are RE sites that were run by public sector companies or at least as public-private partnerships.

Local resistance has taken various forms, mostly sit-ins and demonstrations, yet mainly at very low intensity without significant effects on the national political discourse. However, there were also other more disruptive forms such as the refusal to pay utility bills, or, very prominently, of STEG workers refusing to connect the solar park in Tataouine to the national grid in 2020. Here, as will be

34 <https://inkyfada.com/en/2021/04/20/wind-turbines-cap-bon-tunisia/>.

discussed in more detail in the next section, the resistance against privatization of the electricity sector feared by UGTT and STEG unionists was a major driving force, yet went hand in hand with the local community (Ben Rouine/Roche 2023, 208). However, after two years, activists said the national UGTT began backtracking and building pressure on activists to find a solution. Only STEG unionists kept up their resistance until the police employed force to connect the RE production sites to the national grid (INTERVIEW X).

The lesson for STEG unionists was to cooperate with and to lobby for energy topics among local communities. Together with social movement activists and civil society organizations they founded the Working Group for Energy Democracy, a small circle of activists who try to bring the topic of energy to local communities, inform them and create awareness about a topic that has long remained the ambit of experts. The activists believe that mobilizing the local communities is crucial for energy democracy. In their view, every citizen should play an active part, in producing energy and feeding it into the grid. Their activism is not about protecting the public sector but about partnerships between public sector and local communities – as a counterweight to public-private partnerships (INTERVIEW X).

The latter point deserves further scrutiny. The concept of energy democracy is a very recent one, dating back to the mid-2010s. Energy democracy can have different meanings, yet the majority of scholars and activists globally think of it in terms of decision-making power on energy questions (mostly production) attributed to local communities, combined with participation and deliberation mechanisms (van Veelen and van der Horst 2018, Wahlund/Palm 2022).³⁵ Energy democracy in an autocracy or under conditions of autocratization has not widely been discussed so far (exceptions such as a case study on Thailand tell us that applying it to autocracies is possible in principle (Delina 2022)), yet it is fair to say that research is still at an early stage. Interesting aspects to investigate further are how a critical view on decentralization, to which MENA scholars (Clark 2018, Demmelhuber/Sturm 2021, Shalaby et al. 2020) have contributed in the last decade, can enrich a sometimes overly positive view of the local level and processes of decentralization. Another interesting aspect is how activists from a unionist background see the public sector and the local level as allies. Further research would need to find out how local communities share the preference for the public sector over the private sector. This is related to an ongoing struggle of state-society and state-economy relations as discussed in the following section.

3.2 THE PRIVATE VS. THE PUBLIC SECTOR

One major line of conflict deals with the role of the public and the private sector in constructing and running renewable energies, a question that becomes relevant in the context of a new green hydrogen economy. This is related to Tunisia's historical experiences with an authoritarian developmental state after independence in the 1950s and 60s. As mentioned previously, the expansion of socio-economic benefits to large parts of the population in order to generate loyalty to an increasingly author-

35 Activists also use elements of energy sovereignty without explicitly using the term. Energy sovereignty takes an individual rights approach to energy instead of collective rights on the local level. This could be an interesting point for further analysis.

itarian regime was carried out by public sector companies. The authoritarian bargain also entailed a promise of employment in the civil service to university graduates, which even today is still associated with social prestige, job safety and a (relatively) decent social protection package. With growing fiscal difficulties and international donors' push for cuts in state expenditures from the 1980s on, the quality of public services and the number of jobs in state-owned companies and the civil service declined. At the same time, the private sector did not create sufficient jobs with similar decent working conditions. This is why, although expectations towards the state to deliver on social welfare functions have been disappointed for decades, they are still alive and influential in social mobilization among the unemployed (Weipert-Fenner 2020).³⁶ This positive orientation towards the public sector as geared towards the public good meets with the strong anti-privatization stance of the Tunisian Trade Union Federation, whose power base are companies in the public sector. Along these lines, the still state-owned company STEG and its General Federation of Electricity and Gas (FGEG) are generally positioned on the side of UGTT.

The World Bank has been calling for privatization of the electricity sector since the early 2000s (Rocher/Verdeil 2013, 283). However, it was not until after the revolution that debates about the topic took center stage when ANME and the GIZ, NGOs, and researchers pushed for a greater role of the private sector in the energy market. Private actors at the time were worried about the dependence on access to the grid provided by STEG (El Amine 2023, 2; Moisseron et al. 2018).

In the interviews conducted after the revolution, Rocher/Verdeil collected criticism about STEG as being resistant to technological innovation and too inflexible in procedures. At the same time, the energy sovereignty that had mattered strongly in the postcolonial context and had protected STEG from private competitors was now seen as a value of the past. Others criticized the involvement and influence of former regime elites in the higher echelons of STEG prior to the revolution (Rocher/Verdeil 2013, 286–287).

One important actor in this struggle is the General Federation of Electricity and Gas (FGEG), the union where STEG workers are organized. FGEG is generally held to be clearly against privatization (Moisseron et al. 2018, 9). Some activists I interviewed were indeed clearly against any privatization in the sector, pointing to the profit orientation of private investors, which they found contradictory to the idea of energy as an existential need of citizens. However, it is noteworthy that activists expressed much more nuanced views. First of all, activists felt they were fighting a gradual privatization process hidden behind consecutive legislative changes. Steps towards privatization were seen in the 2015 Tunisian Solar Plan that introduced the self-production of energy, which is often seen as a hidden formula for the privatization of energy production. However, while the Solar Plan of 2015 saw the role of STEG as an intermediary between producer and consumer, the legal changes of 2019 now allowed a producer to sell directly to customers by using the STEG grid.

36 Future comparative studies should take into account different experiences with and expectations of the state (see also van Veelen, van der Horst 2018).

Activists also criticized the way the state-owned STEG was disadvantaged. The fees for private producers using the STEG grid were lowered by the former Ministry of Energy, allegedly after pressure from the World Bank, leaving STEG in a financially unsustainable situation (INTERVIEW X). At the same time, loans to STEG from the World Bank served only the purpose of preparing the grid for export (INTERVIEW X).³⁷ The development of the electricity infrastructure was financed by development organizations to pave the way for further investment by private business and thereby created barriers for participation of citizens in energy production. Relatedly, another conversation partner did not see any direct improvement for electricity provision as a result of a GH2 economy as GH2 production required high voltage, while Tunisia has a low voltage national grid (INTERVIEW X). This means that investments in a GH2 economy will not directly benefit the electricity provision in Tunisia.

There is also fear of private-public partnerships (PPP) as a starting point for privatization. This argument is found, for instance, in the reasoning against desalination, where new projects are already implemented in the form of PPPs (INTERVIEW X). Other activists see the STEG unionists' activism as being not about protecting the public sector but about partnerships between the public sector and local communities – as a counterweight to public-private partnerships (INTERVIEW X). Other arguments question the sole reliance on the private sector. One interviewee suggested giving different models a try and assessing after a certain period which performed best – the private sector, the state-owned enterprise STEG, or the new model of communitarian companies (*al-sharikat al-ahliyya*), a model promoted in general by President Saied that has remained underdeveloped in the context of the energy transition for some time; according to press reports, this is about to change.³⁸ The communitarian companies that were introduced by Kais Saied might sound like social and solidarity economics, yet as critical voices make clear, they show traits of autocratization: instead of local and regional autonomy, they constitute a new vehicle for centralized authoritarian control over the economy and over the regional and local levels. Regional development and local needs will most probably not be the priority of such projects.³⁹

While the views presented reflect a rather expected divide between pro and contra privatization, a closer look reveals more complex divisions. STEG unionists are very active in the fight against privatization. The UGTT, the trade union federation, generally supports the anti-privatization stance, but not to the same degree as STEG activists. In particular, the refusal to connect RE facilities to the national grid was not something UGTT wanted to persist with for very long. Activists criticized UGTT for not remaining firm on the subject, although the mainstream media attributed the resistance to UGTT, with the STEG union seen as under the federation's umbrella.⁴⁰ At the same time, the UGTT is known to be a complex actor, with its sectoral unions and regional and local units retaining a considerable degree of autonomy (Beinin 2016). Finally, it remains to be seen how far UGTT can and would go in the future to support resistance against privatization in the energy sector: over the last two years, UGTT has lost

37 This is currently materializing with a transmission grid between Italy and Tunisia, the multi-donor ELMED project: <https://elmedproject.com/>.

38 <https://lapresse.tn/2024/02/28/entreprises-communautaires-un-nouveau-modele-de-developpement-alternatif/>.

39 <https://english.legal-agenda.com/tunisia-communitarian-companies-justice-or-domination/>.

40 <https://kapitalis.com/tunisie/2022/03/20/pourquoi-lugtt-refuse-la-privatisation-des-entreprises-publiques/>.

a great deal of power, as it was cut off from its traditionally close ties to political decision-making. It is also currently facing a serious internal leadership crisis.⁴¹

Divisions within the public sector, local communities rising up against projects that are at least partly run by state-owned enterprises (see section 3.1): such observations call for a closer look at the stakeholders involved, their preferences, and their motivations. Particularly, further research on local communities in the context of future GH2 projects located in hydrogen valleys will need to investigate the extent to which their alignment with unionists from the public sector is grounded on shared interests, i.e., if local residents really care about who is carrying out RE projects or if they are more concerned with how this is done. Against this background, procedures and regulations need to be drafted and modified, including to create consultation mechanisms with and financial compensation (taxes, royalties) for local communities.

Often, it was not the involvement of private actors per se that caused resistance but rather the – for STEG seemingly ruinous – way in which this was carried out. It might also be worth considering a stronger political economy perspective on who exactly is behind the different stakeholder groups, including clientelist networks. More generally, instead of insisting on one option (private or public), one might also consider the one activist's suggestion not to put all eggs in one basket but to give different types of economic actors a share in the transition process and to compare their performance.

3.3 FOREIGN VS. NATIONAL INTERESTS

One crucial element of energy politics is sovereignty. This is particularly relevant for postcolonial countries. It therefore should come as no surprise that the general view of activists regarding the role of foreign actors like development cooperation agencies and private business is generally negative. They believe that external actors perpetuate old forms of exploitation, and that the international division of labor was supposed to remain the same. They argue that Tunisia should be a market for goods from Europe in the field of RE as well – the technology, machines, any other equipment should come from the North. Activists have also referred to the exploitation of other parts of the world for the supply of critical raw materials that are needed for the energy transition, such as lithium, citing cases like Chile and Congo, and forced labor in the production of solar panels as in the case of the Uighurs in China (INTERVIEW X).

International programs of organizations such as the GIZ or World Bank, they argue, would not provide any incentives for building up Tunisian production of the technology needed for RE. This also has to do with the costs of the new technology and, relatedly, state finances. It was criticized that the technology introduced was very expensive and could be financed only by even more loans (INTERVIEW X). Tunisia already faces a growing fiscal crisis with a large share of foreign debt.⁴² Re-

41 <https://nawaat.org/2025/02/11/tunisia-ugtt-threatened-in-its-very-existence/>.

42 For a closer analysis of conflicts concerning the state budget, see Weipert-Fenner 2025, and for the discussion of debts in the transition period, Fernández-Molina 2019.

current IMF lending, much of it provided on the condition of cuts to social spending, has met with increasing resistance over the years and contributed to the rise of a nationalist populism that calls for national sovereignty (ICG 2020, Weipert-Fenner et al. 2025). President Saïed has also rejected IMF agreements, and at times EU funding. However, other lending programs and EU assistance were accepted (Nawaat 2024).⁴³ A closer look at the finances of a green hydrogen economy will therefore be crucial, particularly as many interview partners stressed that Tunisian business would not have the means for such heavy investments. The NGO Forum Tunisien pour les Droits Economiques et Sociaux (FTDES) stressed that an export-oriented GH2 economy would entail only low value-added production in Tunisia. Employment effects would be only temporary and limited to the construction phase (FTDES 2024).

Interestingly, the role of foreign investors in the GH2 economy was not problematized as much as that of development agencies, although the current flow of GH2 projects is driven mainly by foreign companies. While European companies are well represented here, Saudi investors, for instance, have also initiated major projects. In the RE sector more broadly, companies from Morocco and the United Arab Emirates have also played a role. It will be interesting to follow how future investors from non-European countries are perceived by Tunisian activists. Foreign investors were problematized in the context of the modifications to existing legal frameworks following the Tunisian Solar Plan, which allowed foreign investors to exploit agricultural land as long as they founded a company in Tunisia. Given the high dependence on food imports and food insecurity in Tunisia, this change was regarded as very dangerous for the Tunisian population (Working Group for Energy Democracy 2023).

However, the focus so far has been on Europe and development agencies, and as one activist put it: “This is not cooperation, it’s domination” (INTERVIEW X). Another activist identified a similar relation in regard to water issues. While desalination in the context of GH2 production is presented as a win-win example, as the local population would also profit from freshwater production, the activist highlighted the high water consumption in the field of agriculture that massively contributed to the water crisis. This, in turn, was connected to the fruits and vegetables Tunisia was exporting to Europe; most of which, like tomatoes, require large quantities of water. Tunisia thereby exported water only for Europe’s needs (INTERVIEW X).

The potentially negative policy outcomes were strongly associated with the GIZ and its prominent role in co-drafting the GH2 strategy with the Tunisian government. As the hydrogen economy becomes more and more international with investors from Europe, most prominently Austria and Italy, but also France, one must wait and see how views might develop vis-a-vis other international actors. So far, the focus of criticism has been on the GIZ; as one interviewee explicitly said, he/she saw the GIZ as an agency of the German government that would naturally and even legitimately follow German interests (INTERVIEW X). Other activists speak of the organization literally as an enemy or devil, exerting a huge influence on the government by working directly in the ministries (INTERVIEW X). This critique was illustrated by the protests in front of the GIZ energy cluster on 24 April 2024, on World Anti-Colonialism Day, with protesters chanting “GIZ, go home.” This was taken as resistance

43 <https://nawaat.org/2024/08/22/kais-saied-et-lendettement-tout-sauf-le-fmi/>.

against a neocolonial role of the development agency in the energy transition as well as against Germany's arms sales to Israel in the course of the Israel-Gaza war.⁴⁴

The critique mainly addressed the GIZ's active role in drawing up the green hydrogen strategy behind closed doors, which was seen as an exclusionary process. However, accounts about participation differ strongly. While some criticized the GIZ for not having included civil society in the strategy process (Delpuech 2022), other observers of the process defended the GIZ: While it was true that the involvement of non-state actors in the initial phase was limited to researchers from the natural sciences and the private sector, during the development of the GH2 strategy training and information were also provided to journalists to facilitate press coverage on the topic. The green hydrogen strategy draft issued in October 2023 was discussed with civil society organizations as well. At the same time, some activists said they would refuse collaboration with the GIZ even if offered. Others saw the truth somewhere in between: the way the green hydrogen strategy was managed was seen as a step forward towards inclusion when compared to the Tunisian Solar Plan of 2015, which had been drawn up completely behind closed doors.

This observation is particularly interesting when taking into account the massive political change that occurred between 2015 and 2022/23. While Tunisia's democratization process in the mid-2010s was still generally providing political liberties and freedom, from 2021 on the situation changed drastically. With the re-autocratization process of Kais Saied, scapegoating led to repression, first against Islamists but increasingly of the bureaucracy and allegedly corrupt elements therein. In background talks people mentioned an atmosphere of fear that made it generally risky to engage in far-reaching reforms, or even to promote public debate about reforms that eventually could backfire against the state officials in charge of the process. I think it is important to evaluate the limited circle of non-state actors integrated in the debate about green hydrogen against this background. Still, one important takeaway is to think more systematically about whom to include in the process. The focus on the natural sciences to represent all of academia is particularly problematic, as it excludes many relevant social, economic and political aspects which social scientists could bring into the debate. Energy is not a technical issue alone and therefore requires broader participation and different academic perspectives. On the other hand, as soon as energy is understood as a political issue, the context of autocratization will come in more strongly and the inclusion of critical voices to the process would tend to become even less likely.

The other lesson from the GIZ example is the growing resistance against European involvement, which is read through a postcolonial perspective. This is in line with the populist discourse that stresses national sovereignty and unity which brought Kais Saied to power (ICG 2020). At the same time, state officials cooperating with the GIZ (and potentially other agencies like the French AFD) are forced into a risky position. However, the latest developments do not support any idea that the president is against such cooperative arrangements. Since the new Minister for Industry, Mines and Energy Fatma Thabet came to office in February 2024, negotiations with foreign governments and

44 <https://africasacountry.com/2024/08/resisting-the-new-green-colonialism>.

investors have accelerated, a development that could not have taken place without the president's blessing. Yet, the president himself has made no public appearances or statements in this context.

As much as the political context allows, a public debate is needed to define the role of foreign agencies and companies. Currently, a populist presidential discourse hides what is actually going on: foreign actors, and among them many Europeans, are rushing towards RE and the new GH2 economy in particular. Who makes the profits? To what extent and how do Tunisians in general and local communities in particular profit from the projects? Many claims are often advanced, such as the development of a local value chain that would allow for job creation on a significant level, yet specific measures and steps are missing so far. And how can RE for export be reconciled with the domestic need for energy, which is growing in terms of energy consumption, but also in terms of reducing state subsidies in the energy sector? Will revenues from GH2 (and RE) exports be sufficient to improve the fiscal situation and also to invest in RE production for national needs?

4. A GH2 ECONOMY IN TUNISIA: CHANCES AND LIMITATIONS OF CONFLICT MANAGEMENT AND PREVENTION

It is fair to say that socioeconomic and environmental activists in Tunisia are very critical about the accelerating introduction of a GH2 economy driven by the incentive of exports to the EU. They also warn not to take RE as the "magic solution." There are also hidden costs largely excluded from the debate, as the state-owned electricity provider would have to compensate for power fluctuations given the irregular flow of green energy coming from either wind or solar power (INTERVIEW X). Still, there is a broad consensus that RE should be an important part of the domestic energy mix.

The question is how to get there: if, how and to what extent an export-driven GH2 economy could play a positive role in this process, and what role the private sector should play. Looking at the relevant actors in Tunisia, there is a clear division between the Ministry of Industry, Mines and Energy, the National Agency for Energy Management (ANME), private business and foreign agencies and investors on the one hand, who welcome the export perspective; and the public sector, and local communities, trade unionists and socioeconomic and environmental NGOs on the other hand, who see both quite critically.

As laid out in section 2, Tunisia has pursued RE projects for fifteen years, yet the larger scale and faster development are now clearly driven by demand from Europe. Can both the domestic and the external drive for renewable energy be reconciled? And if so, how can the initiatives that are currently popping up be shaped such that they take the three major conflict lines identified here into account? The even greater challenge is how and why this could happen in the context of re-autocratization under a populist president who is neither interested in local autonomy nor taking a clear stance on economic issues, and who is contradictory in his foreign policy relations, with anti-European/Western discourses (and at times actions) followed by *realpolitik* and pragmatic cooperation (such as in the MoU between the EU and Tunisia 2023, better known as the "migration deal").

Should we hope for private investors that take the lines of conflict in Tunisia seriously? While corporate social responsibility has grown in importance over the years globally, it would be naïve to believe that Saudi or Chinese investors would subscribe to these values. Given the global competition between the US and China – and Europe’s attempts to remain a global political and economic power between them, it seems fairly unrealistic to hope for European companies to add higher costs to their RE projects or even refrain from business to prevent negative effects on the local level in Tunisia. One potential way forward could be a greater UN presence, most probably through the inter-agency mechanism UN Energy, which has so far been largely absent from the energy transition in North Africa, but intends to become more active with its new action plan for 2025 (UN 2025).

Another immediate access point could be conflict prevention as a measure to improve the investment climate. Consultations and negotiations with the local communities affected by RE projects before their actual construction could help not only to prevent conflict but also to make investments safer. Bringing the trade union federation and its affiliate electric union to the negotiation table would help even more. Many critical points raised by activists interviewed could be tackled and compromises potentially found. However, again, if outright repression is an option in an authoritarian context, the incentives for compromises by foreign investors with good relations to the president might be rather low.

One lever, I would argue, is in the hands of the EU and member states’ governments, the way they set up policies and conditions for their own rush towards RE from North Africa. For instance, in the EU Delegated Act for the definition of green hydrogen, the idea was to prevent GH2 from being produced from RE taken out of the domestic energy mix. Instead, new RE capacities would have to be built up to produce green hydrogen. The easiest way to comply with this now is to create new RE facilities independent of the domestic energy market. This is why the “green hydrogen valleys” have been proposed, through which GH2 would not have any negative impact on the domestic energy transition, a view one interviewee positively noted (INTERVIEW X). While this might be true, I would argue that this regulation also did not provide any incentives for a positive impact. Through this model, investments in RE could mainly go into energy export, leaving Tunisia still at a share of 5% of RE in its domestic energy mix. Tying export capacities of RE to an increase of RE share in the domestic market would set a different incentive structure from which Tunisians could benefit. For instance, a certain share of RE produced would need to be fed into the national grid and remain there, while the other percentages could be turned into GH2. As a downside from the perspective of private investors, feeding into the national grid means making a deal with STEG. However, with the current introduction of the CBAM (Carbon Border Adjustment Mechanism) that drives up prices for goods with a large CO2 footprint in the EU, green energy for domestic industry is key for Tunisian exports to the EU to remain competitive.

Thinking more in-depth about concrete projects, EU and member states could add conditions to the projects they initiate that would enhance societal peace. They could learn here from mobilization against the old extractivism, where a few demands are already recurring, such as demands that a fixed share of profits be reinvested in the municipality affected, and/or jobs created in these projects (Weipert-Fenner 2020). In addition, the provision of cheap energy to the local community could pro-

mote economic activities, particularly in the marginalized areas where most RE projects are located. Again, a certain share of profits remaining in the locality where the RE is produced could be set as a condition for projects funded by the EU and European countries.

All of these ideas and suggestions, however, face political realities that do not make an inclusive and participatory approach to a GH2 economy very likely. As the call for energy democracy focuses mainly on the local community level, the question arises as to how the autocratization course of the president, which – in spite of his grassroots rhetoric – concentrates power in his hands, could allow for autonomous decisions on energy. This also includes the public debate needed for energy democracy. As critics have rightly pointed out, a romanticized idea of the local level as per se democratic is misleading, and it is very likely that energy democracy would entail conflicting views on how energy should be produced and consumed. An open debate would be key, yet the civic space in Tunisia has been shrinking fast and dramatically since 2021. The increasing repression of activists and politicians, journalists and lawyers makes a critical take on the energy transition very difficult. Energy topics are also quite complex, and given the limited resources of many activists and NGOs, many of them have just begun to work on the topic of GH2 and to build up expertise.

Not having strong public counterweights will make it easy for decision-makers in Europe to keep on propagating the win-win narrative around the export of RE and GH2. The interest in engaging with critical civil society organizations might have further decreased with the anti-Western/European resentments amplified by the Israel-Gaza war. It also generally makes it rather unlikely that actors in favor of the GH2 economy will seek transparent communication and debate about foreign agencies' role in the build-up of the GH2 economy. Given the populist discourse from the president, this could also backfire on the top political levels if it becomes too visible and obviously contradicts the narrative of national self-sufficiency.

This analysis of the three major lines of conflict has shown the conflict potential related directly and indirectly to a GH2 economy. It also revealed that many points which cause resistance could be worked on in negotiations, keeping the door open to all sorts of actors. The energy transition is new terrain for everyone; flexibility and adaptability are key here. Also, the normative baseline on which a Tunisian government should work is not entirely clear. As discussed in section 3, it was mostly energy democracy as a concept that came up in the conversations, while many publications use the concept of just transition. As previously mentioned, much work needs to be done to understand what kind of concepts of energy democracy prevail in different contexts, and which parts might be missing but could be helpful in developing a comprehensive assessment of green energy policies and concrete projects. This could also prevent us from falling into an overly simplistic view of local politics, or specific actor groups such as trade unions, civil society organizations, the private sector, or foreign investors. All of these levels and actors are embedded in a political regime that just returned to authoritarianism. All of them have to work in the logic of the regime (while different pathways are always possible). Yet it is important to understand the interconnections between rule and power, and how to reconcile different needs and interests to prevent conflicts and enhance social justice. While democracy and democratization are often thought of as requirements of a just transition (TNI 2020), the green transition in Tunisia – as in all other North African countries – will have to be thought

through in (albeit very different) authoritarian contexts. Huge challenges come along with this, making a constructive conflict management and prevention rather unlikely. It will be even more important in the future to track and analyze the development of a GH2 economy and constantly challenge decision-makers in Europe on their win-win view of green energy imports.

LIST OF ABBREVIATIONS

ANME	Agence Nationale pour la Maîtrise de l'Énergie (National Agency for Energy Management)
CBAM	Carbon Border Adjustment Mechanism
ETAP	Entreprise Tunisienne d'Activités Pétrolières (Tunisian Company for Petroleum Activities)
FGEG	Fédération Générale de l'Electricité et du Gaz (General Federation of Electricity and Gas)
GH2	green hydrogen
H2	hydrogen
IMF	International Monetary Fund
UGTT	Union Générale Tunisienne du Travail (Tunisian General Labor Union)
RE	renewable energy
STEG	Société Tunisienne de l'Électricité et de Gaz (Tunisian Company of Gas and Electricity)

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GREEN HYDROGEN PRODUCTION IN TUNISIA: THE INTERPLAY OF OLD AND NEW LINES OF CONFLICT

Irene Weipert-Fenner

With the Green Deal and the energy crisis caused by Russia's war in Ukraine, the EU has accelerated the transition towards importing renewable energy, including green hydrogen, from North Africa. EU decision-makers portray the energy transition as a win-win situation, while civil society actors and scholars criticize these developments as "green extractivism" and "green colonialism".

Using Tunisia as an example, the author shows that green hydrogen exports are closely linked to ongoing domestic political struggles over the political economy and must be seen in the context of a post-colonial energy history. She identifies the three main lines of conflict and discusses opportunities and limitations for conflict prevention that EU countries have a responsibility to address in their energy policies.

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