Background paper:

Country Fact Sheet Tunisia

Energy and development at a glance 2018

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EXECUTIVE SUMMARY

Tunisia has embarked on an ambitious roadmap of tapping into its abundant domestic renewable energy (RE) sources for meeting its energy crisis. To that purpose, the Tunisian government has developed an energy strategy that seeks to rapidly expand the share of RE in the country’s electricity mix, increase energy efficiency and mitigate its carbon footprint. Additionally, the government recognizes in this strategy that the energy transition is an opportunity to spur sustainable economic development and to create new job opportunities. Persistent unemployment and the cutting back of subsidies in the face of increasing inflation has increasingly aggravated people’s economic stress and has severely strained their patience with the underperformance of their government in improving quality of life. Nonetheless, the Tunisian government has yet to fully embrace a more comprehensive socio-economic and political approach to the national energy transition beyond the mere technicalities.

Given the volatile socio-political and economic context, many critical challenges Tunisia is facing today, intersect in the envisioned energy transition. The energy transition is planned as a centralized state project. Hence, societal support for energy transition depends on rebuilding state-society relations and meeting public expectations concerning the improvement of the general quality of life. This includes critical challenges like mitigating pollution, ending endemic corruption, establishing an open, transparent and accountable governance system. As a consequence, this Working Paper argues, that the policies to achieve the goals of the national energy transition must look beyond the technical horizon to include socio-economic and political changes, both on the structural and procedural level as well as in regard to creating direct and indirect dynamics of change. The energy transition brings about the opportunity to institutionalize a national dialogue among societal interest groups on how to best move Tunisia along the path to sustainable development. This requires a cross-sectoral harmonization of policies and infrastructural investments on the national level and embedding energy projects in regional and local development plans to generate local synergies and benefits. Restoring public confidence into the state’s capacity and willingness to manage Tunisia’s transition on all societal levels is more than just about producing tangible outcomes. The highly centralized and monopolized electricity sector as well must commit to procedures of open, participatory governance, in particular when it comes to ensuring procedural justice in developing energy projects on the local level.
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<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACTE</td>
<td>Alliance of municipalities for energy transition</td>
</tr>
<tr>
<td>ANME</td>
<td>National Agency for Energy Conservation</td>
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<td>ANPE</td>
<td>National agency for environmental protection</td>
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<tr>
<td>ARP</td>
<td>Assembly of the representatives of the people</td>
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<tr>
<td>BOT</td>
<td>Build-Operate-Transfer</td>
</tr>
<tr>
<td>CITET</td>
<td>Tunis International Centre of Environmental Technologies</td>
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<tr>
<td>CNDD</td>
<td>National Commission for Sustainable Development</td>
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<tr>
<td>CPR</td>
<td>Congress for the Republic</td>
</tr>
<tr>
<td>CSP</td>
<td>Concentrated solar power</td>
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<td>DGE</td>
<td>Directorate-General for Energy</td>
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<tr>
<td>EE</td>
<td>Energy efficiency</td>
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<tr>
<td>EIA</td>
<td>Environmental impact assessment</td>
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<td>ELMED</td>
<td>Electricité Mediterranéenne</td>
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<td>ETAP</td>
<td>Tunisian Company of Oil Activities</td>
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<tr>
<td>EU</td>
<td>European Union</td>
</tr>
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<td>FNME</td>
<td>National Fund for Energy Control</td>
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<td>FTE</td>
<td>Energy Transition Fund</td>
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<tr>
<td>GCF</td>
<td>Green Climate Fund</td>
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<tr>
<td>GCT</td>
<td>Group Chimique Tunisien</td>
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<tr>
<td>GDP</td>
<td>Growth Domestic Product</td>
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<td>GHG</td>
<td>Greenhouse gas</td>
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<td>GIZ</td>
<td>German International Development Cooperation Agency</td>
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<tr>
<td>GWh</td>
<td>Gigawatt hour</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organization</td>
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<tr>
<td>INDC</td>
<td>Intended Nationally Determined Contributions</td>
</tr>
<tr>
<td>INLUCC</td>
<td>National Authority for Anti-Corruption</td>
</tr>
<tr>
<td>IPCCPL</td>
<td>Interim Commission on the Constitutionality of Draft Laws</td>
</tr>
<tr>
<td>IPP</td>
<td>Independent power producer</td>
</tr>
<tr>
<td>IVD</td>
<td>Truth and Dignity Commission</td>
</tr>
<tr>
<td>KfW</td>
<td>German Development Bank</td>
</tr>
<tr>
<td>Kt</td>
<td>Kiloton</td>
</tr>
<tr>
<td>Ktoe-lcv</td>
<td>Kilotons oil equivalent – lower calorific value</td>
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### ENERGY FOR THE FUTURE

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>Kw</td>
<td>Kilowatt</td>
</tr>
<tr>
<td>Kwp</td>
<td>Kilowatt peak</td>
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<tr>
<td>LNG</td>
<td>Liquefied natural gas</td>
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<tr>
<td>LV</td>
<td>Low voltage</td>
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<tr>
<td>MDCI</td>
<td>Ministry for Development, Investment and International Cooperation</td>
</tr>
<tr>
<td>MEATDD</td>
<td>Ministry for Equipment, Spatial Planning and Sustainable Development</td>
</tr>
<tr>
<td>MEMER</td>
<td>Ministry of Energy, Mines and Renewable Energy</td>
</tr>
<tr>
<td>MESRS</td>
<td>Ministry for Higher Education and Scientific Research</td>
</tr>
<tr>
<td>Mt</td>
<td>Million tons</td>
</tr>
<tr>
<td>MW</td>
<td>Megawatt</td>
</tr>
<tr>
<td>NCA</td>
<td>National Constituent Assembly</td>
</tr>
<tr>
<td>NDC</td>
<td>Nationally determined contributions</td>
</tr>
<tr>
<td>NEET</td>
<td>Not in education, employment or training</td>
</tr>
<tr>
<td>ONE</td>
<td>National Energy Office</td>
</tr>
<tr>
<td>OTEDD</td>
<td>Tunisian Observatory for Environment and Sustainable Development</td>
</tr>
<tr>
<td>PDU</td>
<td>Urban Mobility Plan</td>
</tr>
<tr>
<td>PPP</td>
<td>Public-private partnership</td>
</tr>
<tr>
<td>PROSOL</td>
<td>National Solar Programme for Solar Water Heaters</td>
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<tr>
<td>PROSOL ELEC</td>
<td>National Solar Programme for Electricity</td>
</tr>
<tr>
<td>PST</td>
<td>Tunisian Solar Plan</td>
</tr>
<tr>
<td>PV</td>
<td>Photovoltaic</td>
</tr>
<tr>
<td>RDC</td>
<td>Constitutional Democratic Rally</td>
</tr>
<tr>
<td>RE</td>
<td>Renewable energies</td>
</tr>
<tr>
<td>STEG</td>
<td>Tunisian Company of Electricity and Gas</td>
</tr>
<tr>
<td>STEG ER</td>
<td>Tunisian Company of Electricity and Gas for Renewable Energy</td>
</tr>
<tr>
<td>STIR</td>
<td>Tunisian Refining Industry Company</td>
</tr>
<tr>
<td>tCO₂eq</td>
<td>Tons CO₂ equivalent</td>
</tr>
<tr>
<td>UGTT</td>
<td>Tunisian General Labour Union</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>UTICA</td>
<td>Tunisian Confederation of Industry, Trade and Handicrafts</td>
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INTRODUCTION

Tunisia is moving forward with the expansion of its electricity production capacities by ambitiously increasing the share of renewable energies (RE). The government’s objective is not merely to overcome the energy crisis and to mitigate the emission of greenhouse gases (GHG) as Tunis committed with the international framework of the Paris Agreement. Tunisia’s transition towards sustainability in the electricity sector is embedded in the broader agenda to spur sustainable socio-economic development. Decisions made today concerning a society’s energy infrastructure determine the future economically, socially, ecologically and culturally. The political dimension as well comes into prominent play as to how and by whom decisions over massive investments and the distribution of benefits and burdens are made. Hence, decision-making concerning energy strategies, technologies and project planning are intrinsically intertwined with Tunisia’s developmental challenges on the social, economic, and political level.

This publication is part of a series of publications on Tunisia within the framework of the project “MENA SELECT”.¹ The project, covering Tunisia, Jordan and Morocco, conducted a total of nine multi-stakeholder workshops in each country. The objective of the project was a) to evaluate the potential of selected electricity-generation technologies to achieve broad societal support and b) to elicit differing and potentially conflicting interests, attitudes, expectations and perceptions of various societal interest groups that determine their support for energy transition policies.

In contribution to this objective, this Working Paper provides an overview of key challenges across several societal dimensions, which form the decision context of Tunisian energy transition. Since energy transitions are embedded in complex, parallel cross-sectoral dynamics of social change, it is imperative to understand the societal point of departure from which energy transitions are planned. These conditions determined the trajectories, the intended objectives and the design policies to shape the transition. They further contextualize the different interests and preferences of involved stakeholders. The conclusions from this Paper and the analysis of the field research were translated into policy recommendation to the Tunisian government.

First, the paper provides an understanding of the socio-political factors and dynamics of the ongoing political transformation since the end of the authoritarian regimes

¹ For information and access to the other publications please see [www.mena-select.info](http://www.mena-select.info). Besides this Background Paper and the aforementioned Policy Brief, the publication series relevant to Tunisia includes a criteria set of the technology evaluation (Schinke et al., 2017), a methodology paper (Döring, Schinke, Klawitter, Far, & Komendantova, 2018) as well as an analysis of the workshop series (Döring, Far, Marrouki, & El-Golli, 2018).
in January 2011. Public discourses in Tunisia are saturated by social dislocations and polarizations within broader society and the political landscape. They are further anchored in what constitutes the key developmental challenges: economic stagnation and environmental pollution. The second part introduces current energy planning schemes and the strategies to address Tunisia's developmental challenges from the energy perspective. The third chapter takes a closer look at the institutional framework of energy sector governance to arrive finally at mapping out essential conditions to the governance of Tunisia's energy transition.
1 CHALLENGES TO SUSTAINABLE DEVELOPMENT

1.1 Politics and society

1.1.1 Tunisia’s transformative challenges

After the social uprisings in 2010 and the ouster of Dictator Ben Ali, Tunisia has managed to put on track a challenging political transition towards democracy. After two successful parliamentary elections, one presidential election and one local election, the polity of this new democratic system has been nearly completed under a new constitution. The drafting process of the constitution was a complicated process with substantial participation of civil society. Disagreements among the parliamentary factions were ultimately settled through a “consensus commission”. The political discourse in Tunisia is marked since then by aiming for a national consensus approach, which has led to the formation of a joint government by the two political rivals Ennahdha and Nidaa Tounes. The unicameral parliament has 217 seats, elected from 33 constituencies, including the Tunisian six constituencies with 18 seats for the diaspora. The legislative sovereign of parliament is strong but still in the process of being fully moulded and cultivated (Carter Center, 2017). Head of the government is the Prime Minister, who is appointed by the President from the party with the majority of votes in parliamentary elections and gets elected by the assembly of the representatives of the people (ARP). Tunisia has come a long way, and though slowly and even though some crucial milestones, such as the full establishment of the constitutional court, are still pending. This function is still carried out by the Interim Commission on the Constitutionality of Draft Laws (IPCCPL).

Civil society and the general public were substantially and proactively involved in the process in a transparent and inclusive consultation process (Redissi & Boukhayatia, 2015). Civil society organizations established the Civil Constituent Assembly as a counterpart to the National Constituent Assembly (NCA). Civil society was able to make proposals and recommendations from to the commissions of the NCA, which were obliged to invite the petitioner to a hearing. With decree 88-2011, Tunisia issued the most open and enabling law on the freedom of associations of all Arab states. However, in July 2018, the government passed law 30-2018 that gives reason for concerns that the state is attempting to regain control over civil society development. The new law attaches new requirements of providing more detailed information upon registration to the newly established authority “Council of the National...
Registry”. The new council has the right to deny registration, and steep penalties including imprisonment are provided for cases of violation of the registration provisions. Regardless of the 2011 and 2018 laws on freedom of association, there are still some regulations enshrined in law 69-4 of 1969 that include questionable clauses, e.g. that the organizer of an assembly is responsible for participants’ actions against public order or threatened with imprisonment for holding assemblies without prior notification to the authorities (INCL, 2018).

After the revolution, Tunisia was willing to duly process its authoritarian past to seek reconciliation between people and the state. To that end, the Truth and Dignity Commission (Instance Vérité et Dignité, IVD) started its mission in 2014 to investigate gross human rights violations between 1955 and 2013. The IVD received over 62,000 submissions, and nearly 50,000 people reported in secret hearings. Many victims told their stories in public hearings that were broadcast on TV and the radio. Only one case has been brought to court though, while 23,000 victims agreed to mediation instead (Blaise, 2018). Despite strong empathic reactions of the Tunisian public to the hearings, the IVD has always faced political and social opposition from those close to the old regime.2 In April 2018, the ARP decided to conclude the IVD’s work without granting it an extension for another year, leaving a sense of unfinished reconciliation behind.

Tunisia is divided into 24 governorates (Arabic pl. wilayat) named after their capital and headed by the governor, who is appointed by the president based on the proposition of the minister of interior. On the intermediary level, governorates are divided into 264 delegations (Arabic pl. mutamadiyat), which are further divided into sectors (Arabic pl. imadat). Tunisia is further divided into 350 municipalities (Arabic pl. baladiyat). A cornerstone of the political transformation and at the same time for reinstating public faith in state institutions and political parties is the decentralization process. Chapter 7 of the constitution stipulates a decentralized system, in which municipalities, regions and districts (named local collectivities) are legal, administrative and financial entities ruled by elected councils, thus based on their own democratically legitimate sovereignty. Municipal and regional councils are supposed to be elected directly by the people, while the district councils are elected by their members.

2 The IVD’s public image was tainted by the ideological polarizations, as it was suspected to merely serve as a platform for previously oppressed Islamists. It also strongly opposed the administrative reconciliation law and its intention to basically grant immunity to corrupt political and economic elites and legalize their illegally obtained assets, which put the IVD in the centre of a heated public debate.
After municipal elections were postponed for over two years, they were finally held in May 2018 as key milestone. However, the elections for regional councils are yet to come. The process was delayed because parliament did not agree on the code of local government, which is supposed to aggregate all constitutional principles on the decentralized system into one legal framework (Baccouche, 2016). Expectations towards the decentralization process are high. It is a vital step for overcoming its authoritarian heritage by implementing participatory governance, mitigating regional disparities and improving public service delivery (Yerkes & Muasher, 2018). Facing these high stakes and expectations, implementing the decentralization framework fully now that there are elected local councils will prove critical for Tunisia’s future transformation. Moreover, the process forces political parties, which so far have only acted nationally (with only Ennahdha being the exception), to anchor themselves in municipalities with political programmes and in direct contact to citizens. Hence, the decentralization process, if done with a serious commitment by the state and political elites, can help to solve Tunisia’s political crisis.

1.1.2 Secular and Islamist polarization of politics

The success of the Islamists in the country’s first free elections marked a caesura for the political landscape of a secular–nationalist-ruled Tunisia. Popular fears emerged that the political transformation could be hijacked by Islamists, and Tunisia’s political discourse remains polarized by it. The Islamist Ennahdha party, very much aware of the political dynamics in other countries following electoral victories of Islamist groups, and pursued a cautious political strategy. Ennahdha’s proposal to have Sharia references in the constitution was met with fierce criticism, and the party abandoned that idea. The party even refrained from nominating an own candidate for the first presidential elections. Nidaa Tounes was founded in 2012 by a broad range of political and business actors, less based on a political programme, but rather as a broad secular alliance to counter the Islamist dominance. Originally not a runner up to the elections for the NCA, the emergence of Nidaa Tounes contributed to some turmoil and shift of bloc memberships in the NCA (Tavana & Russell, 2014). Faced also with internal controversies, Ennahdha tried to strengthen and promote its democratic, pluralistic and reformative profile in contrast to the established political class (El Ouazghari, 2014). A key marking point was the party’s 10th congress in May 2016, where after long internal debates, the members decided to prohibit its party leaders from being leaders of civil society organisations and to preach in mosques, leading to effective separation of politics and religion. Furthermore, the party opened its ranks to a broader range of supporters by lowering practical and normative membership requirements (Marks, 2016).
Concerns that Ennahdha would roll back women’s rights were unfounded. In contrast to other Arab countries, women’s rights have been an integral part of Tunisian secular-nationalist-modernist policies since the 1950ies under Habib Bourguiba (El Masri, 2015). This makes gender issues such an important political topic. Ennahdha, with its majority of seats in the NCA stood behind the controversial proposal of the social-democrats from Ettakatol to enshrine gender parity and the alternating placing of men and women on electoral lists. With Ennahdha having the highest share of women in its ranks, the proposal put the party at an advantage as it could easily fulfil this requirement. Despite this tactical advantage, it was still a major step forward for gender equality in Tunisian politics. 36 per cent of the 217 representatives in the ARP are women, and 47 per cent of local council positions are held by women (United Nations Women, 2018).

1.1.3 Socio-political volatility

The social-political atmosphere in Tunisia is tense as the political situation is volatile. In seven years since the revolution, Tunisia has seen six heads of government and multiple reshufflings of the cabinet and shifting of competencies among ministries. This has consequences for implementing substantial structural reforms as well as for coherent policy design. The local elections in May 2018 had considerable implications and sent a clear message of disappointment to the political class in Tunis. Ennahdha’s candidates won 28.6 per cent of the 7,212 local council seats in Tunisia’s 350 municipalities, Nidaa Tounes 22.1 per cent. The success of independent candidates, winning 32.9 per cent of the seats came as a surprise to the ruling parties. Additionally, voter turnout with only 33.7 per cent of registered voters was remarkably low. The local election results have repercussions on the power balances on the national level.3

Public support for the “national consensus” is dwindling. The cause for this, however, is not a growing public disbelief in democracy as the best political system for Tunisia. On the contrary, despite the widespread notion that democracy has its price in terms of political stability and economic performance, support for democracy increased (Robbins, 2016). It is rooted in increasing frustration over the government’s perceived incapability to improve the economic situation. Meanwhile, confidence in

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3 Though Nidaa Tounes and Ennahdha originally sought to extend their political cooperation to the municipal level (Middle East Eye, 2018), power relations on the national level shifted, also exemplifying the crisis within Tunisia’s political class. A power struggle between President Essebsi, the Nidaa Tounes leader Hafiz Gaid Essebsi and PM Youssef Chahed (supported by Ennahdha) irritated domestic politics in 2018, further increasing political volatility. Meanwhile, President Essebsi declared in an interview the end of the five year alliance with Ennahdha, which was denied by the Islamists stressing their support for political stability (Al Hilali, 2018).
state institutions and trust in political parties is deteriorating. This is exemplified by the belief of the overwhelming majority of Tunisians that things are not moving in the right direction (72 per cent) and the very low votes of confidence, state institutions, parties and political leaders receive (Center for Insights in Survey Research, 2017).

Corruption poses a major challenge to state–society relations. In 2017, the corruption perception index ranked Tunisia 74 out of 180 countries. The economy is dominated by some wealthy families and business networks. Under the authoritarian regime, key sectors of the economy were captured by business people of or close to the ruling families of Ben Ali and Trabelsi (Rijkers, Freund, & Nucifora, 2014). Tunisia has strongly committed to fighting corruption, which has penetrated state and economy institutions from the macro to the micro level. Rampant corruption was one of the main drivers of the 2010 uprisings. Tunisia installed the National Authority for Anti-Corruption (INLUCC) in 2011, commissioned to investigate and forward cases to courts. In July 2018, a law on illegal enrichment was passed obliging politicians to disclose their property (Reuters, 2018). However, there are mixed signals that threaten to undermine public confidence in its commitment to eradicating corruption. The “administrative reconciliation law”, passed in September 2017, grants immunity to political leaders and civil servants involved with the Ben Ali regime. Consequently, it has aggravated public mistrust and ongoing debates. The key argument behind the proposal of this law was to improve the climate of investment. Yet, the law is unsuitable to reconcile Tunisians with their authoritarian past and does not strengthen the transparent jurisdictional reappraisal of acts of corruption (Guellali, 2017; ICTJ, 2017). There was also a considerable contradiction in institutional mandates between INLUCC and the IVD. The latter was given jurisdiction over cases of corruption, which included the option for people accused of corruption to come to a financial settlement within the IVD-framework instead of facing allegations in court.

1.1.4 Tunisia’s security situation

Contrary to other Arab countries, Tunisia never experienced high levels of political violence or terrorism. The assassination of two leftist politicians in 2013 consequently shocked the Tunisian public and led to a major political crisis, ending the Ennahdha-led government over concerns the government was unable to maintain

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4 An earlier version of the law intended to also grant immunity to business people close the former regime. This was dropped in the version passed by parliament.
public order. Since a series of bloody terror attacks in 2015, Tunisia has been ruled in a state of emergency, which has been prolonged by presidential decision ever since. There are considerable concerns among the public and the government over Jihadi fighters returning from Syria. An estimated 7,000 Tunisians joined the ranks of so-called Islamic State (Macdonald & Waggoner, 2017), which makes Tunisia the proportionally biggest contributors to IS’s foreign fighters. Though grim livelihood prospects for young people might cater to the unproven causal link between economic deprivation and radicalization, given the political developments and the fact that Tunisia does not have a history of a deeply rooted radical militant Islamic movement, these numbers are unexpected even to Tunisians. Ennahdha is constantly confronted with allegations of being either directly supporting or covering up militant activities or at least being too yielding towards the threat.

The state of emergency, in place since November 2015 after a deadly attack on security forces, has been continuously prolonged via presidential order. It gives security forces the right to curtail civil society activities, e.g., the right to arrest citizens, ban strikes or public assemblies and interfere with the freedom of the press. Reports of human rights abuses committed by security forces (Amnesty International, 2017) sustain concerns regarding the ability of the security apparatus to reform and to rebuild trust into police forces (Grewal, 2018; ICG, 2015). The anti-terrorism-law of 2015 further undermines human rights and civic freedom. It has been criticized for being too vague and overly broad, thus giving opportunities for intentionally or unintentionally curtailing basic constitutional rights. It creates legally uncertain circumstances for journalist and whistle-blowers, it extends the police’s right to hold a person in custody without access to legal aid or a judge’s verdict for up to 15 days. Furthermore, it protects members of the security forces from criminal liability for using lethal force (ICJ, 2015).

The crisis was mediated by the Tunisian General Labour Union (UGTT), the Tunisian Confederation of Industry, Trade and Handicrafts (UTICA), the Tunisian League of Human Rights and the Tunisian Order of Lawyers, known as the National Dialogue Quartet and Nobel Peace Prize laureates in 2015.

When the debate discussed the response to fighters returning from Syria, the most common position among politicians was to put them all in jail. Ennahdha, instead, proposed to set up a de-radicalization programme, an idea, for which they faced massive criticism.
Constant outbreaks of protests and clashes with police forces across the country challenge the government and adding to tense and volatile state–society relations. Prolonged strikes and sit-ins threaten industrial productivity, national GDP and the trust of foreign investors. Additionally, smuggling across the Algerian and Libyan border, run by cartels, is perceived as a security threat to the country and linked to the war against terrorism. Security forces depend on receiving intel from local smuggling cartels to conduct anti-terrorism campaigns especially along the Tunisian–Libyan border (Armstrong, 2015). But the security apparatus and army lack the resources to effectively police the desert borders.

Tunisia has the lowest degree of militarization and the relatively smallest and underequipped armed forces within the regional context. The country is ranked 70 out 151 on the Global Militarization Index. Contrary to many other countries in the region, the Tunisian military played no political role. The authoritarian regimes of Bourguiba and Ben Ali were based on security forces of the Ministry of the Interior, whereas Tunisia’s military was historically marginalized and isolated. After decisively intervening in the popular uprising on the side of the protesters, the military did not seize direct political power, either, though a military coup was feared during the political crisis of 2013. Since 2012, the military has undergone significant changes reshaping civil–military relations, gaining more and more value to the state as is reflected in the evolution of the defence budget. It is supposed to reach 2.93 billion TD in 2019, almost

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7 In reaction to a wave of protests, President Essebsi ordered the National Guard to protect oil and gas fields as well as vital industrial complexes from protesters in May 2017.
8 http://ruestungsexport.info/map/
9 Power over the military was institutionalized and decentralized through Articles 77 and 78 of the constitution, which dissolve the president's direct and sole power over the military to include the prime minister and parliament. Further, more officers from the interior regions were put on high ranks to break the domination of officers from the privileged Sahel region, and the National Security Council was established (Grewal, 2016, p. 7f).
the same share as the Ministry of the Interior (Figure 1). Figure 17 in the Annex provides a comparison of the increase in military budget to other key sectors. Given the security threats and its new space to assume a more active involvement in domestic affairs, the military’s importance has been growing since 2012. Apart from a higher budget, it has been expanding its sphere of influence in lower state functions and civil society (Grewal, 2016). Interests of Tunisia’s international partners further contributed to this development. The country is seen as a regional key partner in the global war on terror and in preventing migration flows to Europe. Germany supplies military equipment, training and capacity-building for border control (BICC, 2017). The United States have seen Tunisia as a key regional partner for years, which has translated into high economic and military aid from Washington. Under the Trump administration, however, support took a steep fall (Figure 2). The military enjoys general popularity among Tunisians, but has recently been criticized for violent crack-downs of protests and prosecuting civilians before military courts. Hence, at this point, the military’s future role and civil–military relations are still under development.

Figure 2: US economic and military assistance to Tunisia.
Source: Security Assistance Monitor (https://securityassistance.org/tunisia)
1.2 Economic situation

Tunisia’s stagnating economic development is one of the most critical challenges the government has to face. GDP has shown a stable tendency to grow over the past three years, but public debt has reached over 70 per cent of the GDP, and the inflation rate is expected to reach 7.3 per cent in 2018 (Figure 3 Figure 5).\textsuperscript{10} The economic stagnation puts the Tunisian government in a critical dilemma, causing public impatience over socio-economic improvements and discontent with the government’s performance to improve livelihood perspectives. Despite increasing growth rates, economic development is not able to alleviate economic stress on a substantial basis. Tunisia is endowed with only limited natural resources. But this limitation is not considered to be a factor hindering economic growth, as long as the resources are managed sustainably.

\textbf{Figure 3: Evolution of Tunisia’s public dept.}
\textit{Source: Tunisian Ministry of Finance.}

According to a study conducted jointly by the African Development Bank and the governments of Tunisia and the United States, the main constraints are corruption, lack of rule of law and institutional accountability, ineffective regulations, insufficient social mobility and a hampered private sector (AFDB, GoT, & GoUS, 2013). The government is under critical pressure. In light of the origins of the revolution and the history of political oppression, the Tunisian public has quite high expectations and demands concerning job creation and improving general livelihood perspectives for the broad population. Tunisia very much depends on the support of international donors. The International Monetary Fund (IMF) granted US $2.9 billion in 2016 and demands committed and substantial economic reforms in return. While fundamental reforms and a consolidation of state finances are indeed necessary (OECD, 2018), they come at financial and social costs to the people, a development that further aggravates public discontent. With its new investment law passed in 2016 and its far-reaching liberalization framework, the

\textsuperscript{10} [http://www.finances.gov.tn/](Synthèse des Résultats des Finances Publiques (Budget de l’Etat).}
government intends to show confidence to investors and make Tunisia an attractive place for business as part of the global economy.

Tunisia needs to release the state from the financial burden of subsidies. Though inherently promoting the unequal distribution and failing as pro-poor policy while harming economic structures (Eibl, 2017), subsidies alongside with extensive public employment have been an integral part of Tunisia’s social contract. To ease social tensions, the government created 200,000 public service jobs, putting a further strain on the state budget and overburdening the public sector. After subsidies had reached a high level in 2013, the government is now drastically cutting them back (Figure 6), which resulted in an increase of consumer prices that hit poorer households rather hard. Massive protests broke out in January 2018 in many parts of the country in reaction to the government’s austerity policy.

Two vital economic sectors are tourism and the chemical industry. In 2016, 12.6 per cent of total employment was linked to the tourism industry, and the sector in total is responsible for 13.7 per cent of GDP (WTTC, 2017). After suffering losses due to the social uprisings in 2011 and the terror attacks in 2015 that killed dozens of tourists at the Bardo Museum and in Sousse, the sector is experiencing a revival. The phosphate industry has a very high strategic importance to Tunisia because it is a key contributor to national GDP and with its exports an important factor to the national trade balance.
The chemical industry also plays an important socio-economic and socio-political role. The state-owned mining company in Gafsa is the region’s main employer, and the state-owned industry is used by the government to offer employment and income to young people as a social job-creation measure (Boumiza, 2018). In demand for employment, young people and their families often organize sit-ins to blockade production, hitting Tunisia’s economy at a sensitive spot. This shows that given the limited employment opportunities, the public mindset is dominated by the idea that the state provides income generation. Before the breakdown of the phosphate industry due to the outbreak of social unrest, Tunisia was the fifth-largest exporter of phosphate products. The production of phosphate took a steep fall from 8.1 million tons in 2010 to 2.3 million tons in 2011. Production stagnated in the following years and reached a mere 3.7 million tons in 2016\textsuperscript{11} due to continuing social unrest.\textsuperscript{12}

Unemployment, in particular that of young people, is the most pressing economic challenge with high social explosive potential. Officially, 15.5 per cent were unemployed in the second quartile of 2018. There is a significant gender gap in employment rates. While 12.5 per cent of men had not jobs, the rate for women is drastically higher with 22.7 per cent (Table 1). A similar gap between the sexes can be seen for unemployment rates among people with higher education. A World Bank study presents some key factors for rural/urban and regional disparities, by looking at young people that are not in education, employment or training (NEET). Young people in rural areas have considerably lower

\textsuperscript{11} http://www.cpg.com.tn/#/production.
\textsuperscript{12} In reaction to ongoing blockages of industries by protesters, President Essebsi declared oil and gas fields as well as key industrial areas to military zones in May 2017, giving security forces the instrument to proceed harshly against threats to production.
\textsuperscript{13} In percent
educational and vocational levels and are much more discouraged from entering the job market. Many of the NEET youth are not even registered, meaning that they do not have access to unemployment services (World Bank, 2014, p. 25ff). These factual and perceived disparities of economic prospects and youth exclusion exacerbate social tensions.

The International Labour Organization estimates that 53.3 per cent of the total labour force work in the informal economy (ILO, 2018). While the informal sector accounted for 30 per cent of the national GDP, its share rose to 38 per cent in 2013 (Trabelsi, 2014), indicating its economic vigour and its importance in the face of insufficient developments in the formal sector. According to a World Bank study, the state loses 1.2 billion TD every year in public revenues (Ayadi, Benjamin, Bensassi, & Raballand, 2013). Ayadi, Benjamin, Bensassi, & Raballand (2013, p. 28) assess that given the social and economic importance of informal trade, that the costs of strengthening control at the borders is probably higher than the revenues which the state could gain from better control. Raising the obstacles for the informal cross-border economy would rather increase corruption. However, informal employees are largely isolated from accessing economic services, education and social security (Gallien, 2018). The established barriers between the formal and the informal economy thus result in lacking economic prospects as well as social exclusion for large parts of the population. The extensive informal economy is also a result of neo-liberal modernization politics in the 1980s. Structural modernisation programmes in agriculture and the reduction of public sector employees, resulted in a deterioration of living conditions in rural areas. The unemployed, low-skilled young generation turned to the informal sector (Gallien, 2018, p. 5). In conclusion, international donors should consider these lessons-learnt in developing their political and economic strategies towards Tunisia today.

The dire economic situation forces many Tunisians to migrate. Migration from Tunisia has always been relatively high. 25,000 Tunisians left their country to Europe in 2011 (Torelli, 2017). Though the migration level decreased significantly in the years to follow, numbers are still high. Tunisians made up the largest national group of refugees arriving in Italy between January and October 2018 (4,827 out of 22,473 people). Reasons for migration are primarily economic stagnation, lack of livelihood prospects, high youth unemployment and corruption.

1.3 Environmental challenges

Tunisia possesses scarce resources which are dwindling further. Environmental protection is deeply anchored in the Tunisian constitution. The preamble emphasizes the necessity to protect natural resources and a clean environment to ensure a peaceful life of future generations. It thus links environmental issues and sustainable development to a peaceful society. Article 45 of the Constitution states the right of the people to a clean and healthy environment and commits the state to undertaking necessary measures to eliminate pollution.

Water scarcity poses one major cross-cutting challenge for Tunisia’s future development. Resource protection and sustainable water management need to respond to by-annual demographic growth, increasing urbanization, intensive agriculture and industrial growth. Tunisia is characterized by a great variance in its climatic conditions from semi-humid in the far north to Saharan climate in the south. This results in a very different availability of water across the three major geographic regions. The northern parts possess 83 per cent of surface water, the central regions 12 per cent, and the south only five per cent, while availability in the south is expected to decline even more quickly by 2030 than in the other areas (ITES, 2014, pp. 45, 58). Studies predict that the availability of freshwater will decrease to 400 m$^3$ per capita per year in 2030. Over 65 per cent of the land is used for agricultural production, while only 18.3 per cent are arable land. 82 per cent of freshwater is consumed by the agricultural sector (Safouene & Lotfi, 2014), a sector that employs 15 per cent of the labour force (2015) and contributes an estimated 10.1 per cent to GDP. Resource protection, countering desertification and land degradation are high on the government’s agenda. Due to the variability of climate and predominantly arid conditions in a context of extreme water scarcity, Tunisia is particularly vulnerable to socio-economic and environmental impacts of climate change. The Tunisian government calculates impacts on productive capital mainly in the tourism and agricultural sector that could amount up to US $2 billion in losses annually (MEDD, 2015). Hence, the Tunisian government has made a firm commitments to contribute to mitigating global warming by reducing its greenhouse gas (GHG) emissions.

As laid down in the nationally determined contribution (NDCs), the Tunisian government intends to reduce the country’s emission intensity by 41 per cent compared to 2010. The government has set investment needs for emission mitigation and climate change adaption to US $19.4 billion. Tunisia emitted 36,567 kilotons (kt) of CO$_2$ in 2019.

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16 https://www.ilo.org/.
17 CIA World Factbook.
2012 (Ministry for Local Affairs and Environment, 2016). The total amount of GHG was 46,632 kt CO$_2$-eq. The energy sector alone emitted 25,172 kt of CO$_2$ in 2012, contributing 59 per cent of Tunisia’s total GHG emissions (Figure 7). Figure 18 in the Annex shows the increase of CO$_2$ emissions by sector, indicating the critical role of the energy sector. Hence, the energy sector plays a critical role in the government’s international commitments.

Environmental pollution poses a major challenge with several implications. Cities suffer from deficient solid waste management, leading to an increased pile-up of garbage in the streets. In consequence, people no longer care about correct waste disposal and the state seems unable to respond. In this, many Tunisians see an indication that public order is at risk. As a reaction, the government established an environmental police in summer 2017 (Al Monitor, 2017) mandated to sanction littering and illegal waste disposal with fines. The challenges of industrial pollution are best exemplified by the chemical industry. It contributes to 52 per cent of the air pollution, 70 per cent of water pollution and 60 per cent of soil pollution (Mahjoub, 2015). The state-owned company Group Chimique Tunisien (GCT) runs factories in four locations: Sfax, Skhira, Gabès and M’Dhilla. The phosphor factories produce phosphogypsum, a by-product of the process, which is usually stockpiled in landfills with considerable environmental impacts and high levels of radiation (Tayibi et al., 2009). In Gabès, however, thousands of tons are released into the sea every day, along with other industrial remnants. Decades of this practice have led to a significant deterioration of the maritime ecosystem (El Kateb et al., 2018). The Gulf of Gabès is one of the most polluted parts of the Mediterranean Sea. This level of pollution causes massive damages to the world’s only coast-side Oasis Chatt Essalem. Since
the factories in Sfax and Gabès are located within the cities, the local population severely suffers from atmospheric contamination from the production process and the landfill.

Fighting pollution and environmental degradation is a high priority to the government, and relevant regulatory frameworks and institutions are in place. The National Agency for Environmental Protection (ANPE), established in 1988, is the key player in environmental control. It is responsible for the implementation of environmental policies on resource use and the administration of their measures and mechanisms. Furthermore, it is in charge of controlling pollution by monitoring adequate mitigation measures. Thus it has the mandate to directly intervene in all sectors and take up measures to prosecute any violation (Law no. 88-91, 2 August 1988). However, even a well-equipped player like ANPE is subjected to political and economic consideration, which can result in an inconsequent enforcement of regulations. Table 2 lists the key actors responsible for environmental protection.

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Principal tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry for Local Affairs and Environment</td>
<td>Environmental policy design, environmental protection, promote sustainable development, improve environmental conditions and quality of life, risk prevention and environmental control of all sectors</td>
</tr>
<tr>
<td>National Agency for Environmental Protection (Agence National de Protection de l’Environnement, ANPE)</td>
<td>Implementation of environmental policies, administering measures and mechanisms, proposing amendments to policies, fight against sources of pollution and environmental degradation</td>
</tr>
<tr>
<td>National Office for Wastewater Treatment (Office National de l’Assainissement, ONAS)</td>
<td>Wastewater management and protection of water resources</td>
</tr>
<tr>
<td>National Agency for Waste Management (Agence Nationale de Gestion de Déchets, ANGED)</td>
<td>Management of public waste management programmes and infrastructures, including systems of recycling and valorization, awareness campaigns, assisting municipalities and companies.</td>
</tr>
<tr>
<td>National Agency for the Protection and Management of Coastal Areas (Agence de Protection et de l’Aménagement du Littoral, APAL)</td>
<td>Coast management, implementation of protective measures, research, monitoring maritime ecosystem, rehabilitation measures</td>
</tr>
<tr>
<td>International Center of Technologies and Environment (Centre International des Technologies et l’Environnement, CITET)</td>
<td>Development and promotion of new, eco-friendly technologies, research, national capacity building</td>
</tr>
<tr>
<td>Tunisian Observatory for Sustainable Development (L’Observatoire Tunisien du Développement Durable, OTEDD)</td>
<td>Coordination of national initiatives and programmes related to sustainable development, knowledge management, policy advise, public information, international focal point</td>
</tr>
</tbody>
</table>

*Source: Ministry of Local Affairs and Environment*
2 THE TUNISIAN ENERGY TRANSITION TOWARDS SUSTAINABILITY

2.1 Energy: Current situation

Tunisia’s energy resources consist mainly of fossil fuels (oil and natural gas). Since the year 2010, these primary energy resources have shown a significant and continuous decline (Figure 8). Total production decreased from 7,753 ktoe-lcv in 2010 to 4,986 ktoe-lcv in 2017, thus showing an annual decline of 8.5 per cent after the revolution. Oil production experienced an average annual decline of 3.3 per cent between 1992 and 2006, while the most significant drop of nine per cent occurred between 2007 and 2016 (Chebil, 2017). However, the appearance of a singular production peak in 2007 (4,648 ktoe-lcv) led to a momentary growth of 39.4 per cent. There is also a profound change in the structure of national resources between 1990 and 2006, with a reduced petroleum production in favour of natural gas.

![Figure 8: Tunisia’s primary energy sources. Source: ONE, 2017.](image)

Energy demand has grown strongly over the past 20 years as a result of the country’s socio-economic development and an economic and social policy of subsidies for all forms of energy. To understand the impact of the economic and social
development on energy demand, it is interesting to examine Figure 9, which depicts the evolution of consumption per capita.

![Graph showing primary energy consumption evolution per citizen in toe (tons oil equivalent).](image)

**Figure 9: Primary energy consumption evolution per citizen in toe (tons oil equivalent).**

*Source: ONE, 2016.*

Per capita consumption of primary energy is generally growing steadily over the period 1990 to 2014. There is a cyclical downturn in 2011, followed by a recovery and further increase after 2011. The evolution over the entire period was at an average annual rate of 1.8 per cent. Since 1990, the Tunisian primary energy consumption has increased in a roughly linear way, with approximately 4,500 ktoe-lcv in 1990, 6,700 ktoe-lcv in 2000 and 9,500 ktoe-lcv in 2017 (three per cent of annual increase) (Chebil, 2017). As shown in Figure 10, the sharpest increase is to be noticed in the gas sector, which represented 52 per cent of the primary energy supply in 2017. As a result, the share of oil, including crude oil and petroleum products, has slightly decreased. The share of coal and primary electricity has always been minimal and has reached zero at the time of writing (ONE, 2017). From 1990 to 2009, the demand for petroleum products was higher than that of gas. The trend reversed in 2009, when an oil-gas parity was observed.
The analysis of the resources and energy needs leads naturally to that of the energy balance. The balance of surplus energy up to the year 2000 has become deficit, and the rate of degradation has accelerated since 2010 to reach -3,875 ktoe in 2017 compared to -587 ktoe in 2010 (Figure 11).

The installed capacity was of 5,146 MW in 2017 with the largest share provided by natural gas-fired thermal power stations (4,735 MW). 78 MW were produced using oil and 311 MW came from renewable energy (ONE, 2017). Electricity, thus, is generated almost exclusively from combustible fossil fuels: 91 per cent natural gas, seven per cent heavy fuel with only a tiny share left to renewables (three per cent in 2016) (Harrabi, 2017).
In 2017, the state-owned Tunisian Company of Electricity and Gas (STEG) remained the major electricity producer, supplying 81 per cent of the demand, followed by independent power producer (IPP) who produced 18 per cent of the consumed electricity. The last 0.4 per cent is covered by third-party purchases (Figure 13).

As a net-importing country with a steadily increasing demand for energy, relying on a volatile global fuel market in a regionally sensitive geopolitical context, Tunisia has a vital interest in strengthening its own domestic RE resources. To solve its energy crisis, the Tunisian government is moving quickly along an ambitious energy transition plan.

### 2.2 Strategy, policy and key measures

The Tunisian energy transition is based on reaching the following targets by 2030:
\[
\begin{align*}
& 34 \text{ per cent primary energy demand reduction;} \\
& 30 \text{ per cent proportion of renewable energy in the electricity mix;} \\
& 42 \text{ per cent GHG emission reduction;} \\
& 23,000 \text{ jobs created.}
\end{align*}
\]

Tunisia is one of the few developing countries to have adopted a voluntarist energy control policy since the mid-1980s. This policy was reinforced by the law no. 2004-
72, 2 September 2004 on energy efficiency and has established energy efficiency as one of the national priorities and key element of sustainable development and is closely related to economic and social development. Energy management has thus become one of the pillars of the country’s sustainable development policy, as it has contributed to:

- Reducing overall energy intensity (0.323 toe / 1,000 TD in 2017) (ONE, 2017) and the vulnerability of the economy;
- Improving the country’s energy independence by diversifying its sources of supply (49 per cent in 2017) (ONE, 2017);
- International efforts to combat climate change by reducing GHG emissions from the energy sector;
- Participating in the creation of new jobs;
- Working for the positioning of Tunisia as a centre of expertise and regional industrial platform.

To consolidate, support and improve this strategy, Tunisia has put in place an institutional and regulatory system as well as financial incentives. As part of the financial incentives and in application of the law 2005-82, August 15, 2005, the National Fund for Energy Control (FNME) was established—which became the Energy Transition Fund (FTE) in 2013—, aiming at ‘supporting actions aimed at rationalizing energy consumption, promoting renewable energies and substituting energy’. This fund, managed by the National Agency for Energy Conservation (ANME), aims to provide extra-budgetary public support and subsidize investment actions aimed at the rational use of energy and the promotion of energy efficiency, renewable and alternative energies. There are three reasons for the increase in subsidy expenditure: The increase in imports due to the energy deficit increase, the increase in the price of a barrel of oil and the deterioration of the exchange rate.

As part of the institutional framework, ANME has granted financial aid to projects that are related to energy management. Examples include energy audits, the implementation of pilot demonstration, cogeneration, energy efficiency or programme contracts (1,480 until 2017) (El Hanchi, 2016). It has also granted specific tax benefits. Imported energy control equipment and products that have no locally produced equivalent are subject to minimum customs duties and are exempt from VAT (decree no. 2017-191). The suspension of VAT also applies to capital goods and energy-efficient products acquired locally.
2.3 Energy planning until 2030

In view of a considerable improvement in energy efficiency aiming at a better control of the energy demand and in the diversification of the energy mix for electricity production, Tunisia put in place its Solar Plan (PST) for the period 2010-2030. This plan covers all areas of energy efficiency in transport, buildings and energy-intensive industries as well as renewable energy fields (solar, onshore wind, biomass). Its implementation involves the public and private sectors and is supported by a range of administrative, regulatory and financial support mechanisms. Regarding installed capacity, the PST plans to reach an installed capacity of renewable energy in 2030 of the order of 3,815 MW with a penetration rate of 30 per cent in terms of electricity production (ANME, 2012) (Figure 14).

![Figure 14: Tunisia’s RE roadmap 2015-2030.](image)

The Tunisian Solar Plan (PST)’s execution is to take place in three phases.

2.3.1 Phase 1: 2010-2016

In this period, renewable energy played a minor role in the energy supply. The use of solar energy for thermal purposes is widespread in Tunisia and can be regarded as a success story. Since its launch in 2005, the ANME programme “PROSOL THERMIQUE”, meant to promote the installation of solar water heaters, has led to an installed capacity of 70,000 m² per year in this period (A. Baccouche, 2014).
For grid-connected renewables, the total installed capacity of renewable energy was an estimated of 312 MW in late 2016 (245 MW of wind energy, 62 MW of hydropower and 40 MW of PV). This constitutes six per cent of the total installed capacity, which contributed three per cent to annual electricity production in 2016: 474 GWh from onshore wind turbines, 45 GWh from hydropower and 63 GWh from solar PV.\textsuperscript{18}

There are two large wind parks in Tunisia, both operated by state utility STEG, one in the region of Bizerte in Metline and Kechabta with a capacity of 190 MW operational since 2012 and one in the region of Sidi Daoud, with a capacity of 55 MW, built in three phases between 2000 and 2009 (Attia, 2016).

Photovoltaics had reached a total capacity of 40 MW by the end of 2016 (El Khazen, 2017). It consisted of mostly small-scale private installations, with a capacity ranging between one kW and 10 kW. In low voltage, in the residential sector, the capacities ranged from one kW to 17 kW and in the commercial sector capacities were between ten and 30 kW. In medium voltage, capacities in the commercial sector ranged between 25 and 100 kW. As of early 2015, there had only been three operational PV installations with a capacity of at least 100 kW: A 149 kWp installation in Sfax, a 211 kWp installation operated by the Tunisian potable water supply company SONEDE and a 100 kWp installation in the region of Korba, both connected to medium voltage and installed by Tunisian companies. Energy efficiency for controlling primary energy intensity did not play a great role during this period. Indeed, there has been a growth in primary energy consumption from 9,500 ktoe in 2010 to 10,500 ktoe in 2016, an increase of 10 per cent. Similarly, energy dependence has increased from 15 per cent in 2010 to 49 per cent in 2016 (Harrouch, 2018).

\textsuperscript{18} IEA Web Data, https://www.iea.org/statistics/?country=TUNISIA&year=2016&category=Key%20indicators&indicator=RenewGenBySource&mode=chart&categoryBrowse=false&dataTable=RENEWABLES&showDataTable=false
Nevertheless, during this period, Tunisia ratified the Paris Agreement at the World Climate Summit in October 2016. In its contribution, Tunisia proposes reducing its greenhouse gas emissions across all sectors (energy, industrial processes, agriculture, forestry and other land use, waste) to lower its carbon intensity by 41 per cent in 2030, relative to the base year 2010 (Figure 15). Mitigation efforts will mainly centre on the energy sector, which alone accounts for 75 per cent of the emissions reductions contributing to this decrease in carbon intensity. As part of the energy transition policy advocated by the State, it is estimated that the energy sector will reduce its carbon intensity in 2030 by 46 per cent compared with 2010. Tunisia, which has already made significant strides towards mitigation in its baseline, is looking to reduce its carbon intensity unconditionally and through its own efforts by 13 per cent compared to 2010, i.e., by around 1/3 of its INDC. To achieve the rest of its objective, i.e., an additional drop in carbon intensity of 28 per cent in 2030 compared to 2010, Tunisia is relying on the support of the international community for funding, capacity-building and technology transfer. The reduction in emissions compared to the baseline scenario would be in the order of 26 million tCO$_2$-eq in 2030 and 207 million tCO$_2$-eq for the period 2015-2030. To implement the Tunisian contribution towards mitigation substantial funds must be mobilized—an estimated US $18 billion—to cover investment needs and to finance capacity-building programmes (MEDD, 2015).

2.3.2 Phase 2: 2017-2020

To achieve the intermediate target of 12 per cent penetration, in December 2016, the Ministry of Energy, Mines and Renewable Energy (MEMER) published the 2017-2020 programmes to install the capacity of an additional 1,000 MW renewable as follows (MEMER, 2016):

\[ \text{Wind energy (350 MW)} \]

- Concession regime: 100 MW in the context of calls for tenders;
- Authorization regime: 90 MW in the context of calls for projects;
- The Tunisian Company of Electricity and Gas (STEG): 80 MW;
- Self-production regime: 80 MW;

\[ \text{Solar photovoltaic (650MW)} \]

- Concession regime: 100 MW in the context of calls for tenders;
- Authorization regime: 120 MW in the context of calls for projects;
- STEG: 300 MW;
- Self-production regime: 130 MW.
The implementation of this programme is based on a multitude of access options to the electricity grid to attract the maximum number of investors to the program (Table 3). In other words, six regimes have been provided for in the framework of the law no. 2015-12 on renewable energy for electricity generation, the decree no. 2016-1123 and implementing regulations, each targeting a category of investors, as shown in the following table. All practical arrangements have also been published and have been operational since 2017 for self-production and authorization regimes, for the concession regime. The tendering rules were published in the first half of 2018.

**Table 3: Regime of access to the grid.**

<table>
<thead>
<tr>
<th>Regime for access to grid</th>
<th>Type of investors targeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Metering regime connected in LV grid</td>
<td>Households investing in PV installations on their roofs and connected to the LV grid.</td>
</tr>
<tr>
<td>Self-production regime, in MV and LV</td>
<td>Companies from different economic sectors investing in self-production facilities to improve competitiveness of their activities and control internal costs.</td>
</tr>
<tr>
<td>Authorization regime, based on calls for small projects, with relatively simplified procedures.</td>
<td>Citizens, cooperatives and small local investors who develop small-scale projects for independent production and sale to the electricity company (STEG) as part of a PPA</td>
</tr>
<tr>
<td>Authorization regime for medium-sized projects (Max 10 MW for PV and 30 MW for wind power)</td>
<td>National and international investors interested in medium-sized projects in independent production and sale to STEG as part of a PPA</td>
</tr>
<tr>
<td>Concession regime</td>
<td>Major international investors interested in large-scale projects concession (Build-Operate-Transfer/BOT) over 25 years investment and operation</td>
</tr>
<tr>
<td>Public Investment</td>
<td>National Electricity Company (STEG) investing in major renewable energy projects as part of its future equipment and infrastructure program</td>
</tr>
</tbody>
</table>

**Table 4: Expected RE installed capacity by 2020.**

<table>
<thead>
<tr>
<th></th>
<th>Wind</th>
<th>PV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concessions</td>
<td>500</td>
<td>500</td>
<td>1,000</td>
</tr>
<tr>
<td>Authorizations</td>
<td>90</td>
<td>120</td>
<td>210</td>
</tr>
<tr>
<td>Auto-generation</td>
<td>80</td>
<td>130</td>
<td>210</td>
</tr>
<tr>
<td>STEG</td>
<td>80</td>
<td>300</td>
<td>380</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>750</td>
<td>1050</td>
<td>1,800</td>
</tr>
</tbody>
</table>

Published in 2018, MEMER set the renewable electricity capacity to be installed during the 2017-2020 period at 1800 MW (MEMER, 2018). This objective is divided by technology and by regime as shown in Table 4 (in MW). Figure 19 in the Annex shows the locations of the individual RE projects and their respective regime type.
At the time of writing, two calls for projects concerning the authorization regime (64 MW PV) and the concession regime (500 MW PV and 500 MW wind) were launched. This period is expected to achieve an energy saving of 805 ktoe in 2020 against 290 ktoe in 2016 and a reduction of CO₂ emissions of around 1.9 MtCO₂-eq. in 2020 against 0.7 MtCO₂-eq. in 2016 (ANME, 2012).

2.3.3 Phase 3: 2020-2030

To fulfil the objectives of the Tunisian Solar Plan (PST), the Tunisian government under the patronage of the head of government has organized two national conferences with the participation of all stakeholders. One was on the theme of accelerating the implementation of energy efficiency programs (April 2018) and the second was on accelerating renewable energy projects in Tunisia (December 2017). The recommendations proposed during these two major events made it possible to draw up an action plan in the short and medium term (MEMER, 2018). Here are the main actions selected:

**Concerning the renewable energy projects**

- Install, between 2021 and 2025, an additional 1,250 MW of renewable energies: This figure can only be achieved by setting up more concession projects for wind and photovoltaic, reviewing the power purchase agreement (PPA), simplifying procedures and reviewing the excess and transportation purchase rates;

- Construct a pumped storage station in Oued el Melah (Beja) with a capacity of 400 MW by STEG;

- Operationalize and restructure the Energy Transition Fund (FTE): Decree no. 983 of 26 July 2017 was published to broaden eligibility for the FTE and diversify its methods of intervention by adding credit and equity participation. In the short term, this decree must be made operational by developing a clear and transparent manual of procedures. As the manager of the FTE, ANME should be restructured to support the significant change in the FTE allocations;

- Prepare and present a renewable energy programme for the Green Climate Fund (GCF): The GCF could be one of the important opportunities for financing the PST because it provides financing means on attractive terms and conditions in the form of donations or long-term loans with very low interest rates;

- Develop a code of renewable energies and bring coherence to all legislation: The scattering of provisions between various legal texts and the lack of consistency between the texts makes it very difficult for investors to understand the procedures;
Establish a monitoring and evaluation mechanism: To be able to monitor the implementation of the action plan aiming to accelerate the Tunisian Solar Plan and evaluate its progress, MEMER recommended to set up a "task force". This mechanism will ensure continuous monitoring and periodic reporting to ensure results in accelerating the implementation of the PST with a view to achieving its objectives by 2030.

Concerning the energy efficiency programme (ANME, 2018)

- Launch the ACTE programme "Alliance of Municipalities for Energy Transition": This programme was designed to help municipalities control and implement local strategies for achieving energy and climate goals. 350 municipalities will be audited in this context.
- Increase the installed capacity of cogeneration to 730 MW in 2030 compared to 100 MW in 2017.
- Increase the number of programme contracts to 2,500 in the three sectors of industry, services and transportation compared to 1,400 in 2017.
- Implement a smart grid development programme by STEG. A pilot phase will be launched in Sfax’s city with the installation of 400 smart meters.
- Launch a programme to reduce the energy bill for low-income households: This programme will concern nearly one million families whose consumption is less than 100 KWh per month.
- Gradually scale up the approach that is based on the Energy Management System (ISO 50001) to all companies subject to periodic energy audit requirements.
- Ban the use of incandescent light bulbs from 2018 and replace half of the bulb stock in residential and commercial buildings with LEDs by 2030.
- Scale up efficient public lighting.
- Increase energy efficiency for household appliances, mainly by banning the marketing of those with poor energy performance and rapidly replacing the inefficient stock of refrigerators and air conditioners with energy efficient ones.
- Reinforce the current thermal regulation for collective residential buildings and commercial buildings.
- Release the PROMO-ISOL programme aimed at insulating 1.85 million existing buildings.
- Establish and implement the Urban Mobility Plan (PDU) in 15 Tunisian cities of more than 100,000 inhabitants.
- Introduce and promote the widespread use of hybrid and electric vehicles.
- Improve the efficiency of agricultural machinery and fishing units.
Tunisia has also joined regional interconnection initiatives with European electricity grids through its ELMED project. This project concerns an electricity interconnection between Tunisia and Italy with a European subsidy granted in 2018 (Webmanagercenter, 2018). The total cost of the project is estimated at 600 million euros.

Today, institutions and public opinion are aware of how important the challenges facing the energy sector are and the fact that we have entered a world where energy is scarce and expensive and can, in some cases, be a constraint on the environment. It is therefore vital to devise new responses to the challenges that lie ahead.

The new vision of the energy sector, initiated by MEMER, became flesh in the launch of a national debate and consultation with all components of the energy sector including civil society. Beyond 2030 and to ensure sustainable energy planning, it is vital for the Tunisian government to favour a national policy to promote the sector in the face of increasing demand, instability of the oil market and the decline in fossil fuel resources. Indeed, the current energy system in Tunisia is at the heart of global problems, and its evolution goes hand in hand with unacceptable risks and challenges that are difficult to surmount. Thus, to better assert a new sustainable energy strategy and in addition to ensuring our energy security, a new direction of energy policy in Tunisia must meet the following challenges:

- The challenges of supplying the country in a safe, continuous, and cost-effective way;
- The guarantee of social cohesion and the fight against precariousness by ensuring access for everybody to energy;
- Economic rationality through the adoption of a model of low-energy economic development and the strengthening of efforts to diversify the energy mix through the use of new energy resources;
- Development of binding approaches for a rationalization of consumption and energy efficiency in all economic activities at the regional level;
- Ongoing development in technical skills for the companies in the sector and their economic competitiveness at the national and regional level;
- Developing our research and innovation capacity in the sector;
- Ecological rationality, in particular, the fight against climate change and the protection of the environment;
- Good governance, opting for transparency, participation of all actors, accountability, efficiency and coherence.
Yet another challenge is that of maximizing the country’s geographical position. Tunisia is close to countries rich in energy resources. It is also close to a southern Europe thirsty for clean energy. These advantages make it an energy hub that allows it to play a key role in strengthening and developing bilateral cooperation in a multilateral context.

### 2.4 National frameworks for sustainable development

Since independence, Tunisia has pursued a policy of protecting and enhancing the environment and its natural resources. This policy was framed during the first decades of independence by actions oriented towards rehabilitating and conserving the natural capital which society badly needed. The programmes at that time were oriented mainly towards the conservation of water and soil and to the rehabilitation of the plant cover and, more so, forests which had suffered much in colonial times. It was not until the 1980s and after a significant commitment by the government to industrialize the country that a new wave of environmental awareness arose.

In 1993, a National Commission for Sustainable Development (CNDD) was created. It has complemented the institutional framework implemented methodically since 1988 for environmental protection and the implementation of sustainable development. This commission is a coordinating body between the various national actors to reconcile economic and social development, preserve natural resources and improve the living environment of the citizens. In 1996, in view of its commitment to decentralization and the growing role of the regions in the planning of economic and social development, Tunisia opted for the establishment of the National Agenda 21 (Kahloun, 2013). Its aim is to provide cities and communities with more general local development planning tools and to encourage them to integrate more and more into their socio-economic development policies. Currently, more than 100 cities and rural communities are continuing their processes of developing and implementing their local agendas.

In the framework of MEMER’s new vision of the energy sector, the Tunisian Observatory of the Environment and Sustainable Development (OTEDD) (MEDD, 2015) was created as a UNDP project in 1995, with a recurring project cycle of three years. At the end of the project in 1999, OTEDD was taken over by ANPE. As a result, a national report on the state of the environment is published annually in addition to a multitude of regional reports produced (among others regional environmental plans, regional indicators on quality of life, plans against desertification).

The national five-year development plans formed the foundation document for the country’s development policy. Indeed, since the 8th development plan (1992-1996), Tunisia has integrated the concept of the environment in its development policy; the
concept of sustainable development since the 10th plan (2002-2006). It should be noted that a Regional Environmental Development Programme (PRE) was launched in 2004 by the Ministry of the Environment in cooperation with the German International Development Cooperation Agency (GIZ) and the Ministry of the Interior which allowed the preparation of an environmental strategy in each of the 24 governorates of Tunisia, validated by the Regional Development Councils. These strategies have been integrated and taken into account in the preparation of the regional economic and social development plan.

After the revolution of 14 January 2011 and during the 11th development plan (2007-2016), regional consultations were conducted by the government during 2012. The aim was to identify priority projects and programmes for the development of regions that aim to cope with social problems in an economically difficult situation. It was found that the projects selected contributed to the mobilization of natural resources, which would put additional pressure on ecosystems and natural environments and could put in danger the sustainability of socio-economic activities. As a result, and to inform decision-makers and alert them to environmental risks, in April 2012, ANPE carried out a synthetic diagnosis of the environmental situation of each governorate (Halle, Allali, & Staatsen, 2012). It appears from this scoreboard that post-revolution environmental degradation has accelerated since 14 January 2011, mainly because of the difficulty experienced by the public authority in its monitoring and protection mission and the low level of awareness of a large number of citizens.

The environmental approach developed over the last thirty years has not favoured integrated approaches and systemic visions in which the various components are interconnected. Policies in environmental areas lack a clear and transversal overall vision and coherence. They are often fragmentary, isolated from development processes and planned without the involvement of the actors concerned, with little consideration of regional and local specificities. The absence of integrated planning mechanisms and tools, such as strategic environmental assessments that are not regulated in Tunisia, rather hinders the expected gradual integration of sustainable development. In 2017, Tunisia was ranked 59th in the "Energy Sustainability Index" developed annually by the World Energy Council (WEC, 2017).

In the context of democratic transition, Tunisia had to enter into serious reforms to promote real sustainable development. This sustainable development should be economically dynamic, job-creating, fair, inclusive, sustainable and responsible. Energy is at the heart of the national strategy of sustainable development and one of the main components seen its close link with all activities contributing to economic and social development, its impact on the ecological balance and its indisputable effect on the quality of water, health, agriculture and biodiversity. Indeed, by analyzing the
main sustainable development programmes (MEATDD, 2014) posted by Tunisia by 2020, the involvement of the energy theme is well represented in:

- The introduction of sustainable consumption and production integrating the concept of a green economy;
- Sustainable management of natural resources;
- Promotion of a more balanced spatial planning based on efficient and sustainable transport;
- Promotion of a better quality of life for citizens;
- The development of energy efficiency and the promotion of renewable energies;
- Building capacity for adaptation to climate change;
- Adaptation of governance for a better promotion of sustainable development.

Sustainable development in Tunisia has constantly suffered from institutional isolation, because it has been confined to committees or environmental departments that have not developed privileged links and remarkable synergy with other departments in charge of development processes. Today, and on the basis of this observation, it is essential to reposition sustainable development on the Tunisian political-administrative scene by raising it to higher levels of decision-making and making it the essential framework for planning and programming.\textsuperscript{19}

\section{Governance of the Electricity Sector}

\subsection{Institutional framework}

Several public institutions play a role in the energy sector in Tunisia. Table 5 summarizes the key actors and their tasks in this regard. As the electricity sector is characterized by the strong monopoly of STEG in the production, transportation and distribution of electricity, the position of STEG is determinant in the strategic evolution of the sector. STEG is also very strong in the nomination of key decision-makers in the sector mainly in public institutions and particularly in the General Directorates of the ministry, these nominated are looking on the future interest of the institution they came from.

A main actor and crucial player missing for the electricity sector is an impartial regulation authority which can give more transparency to the sector and resolves the

\textsuperscript{19} \url{http://www.environnement.gov.tn/index.php?id=130&L=1#.W_5-f-KNxPY}
conflicts between the public and private sector. The Tunisian government and ministry in charge of energy had tried to set up such authority but the power of STEG and the strategic interest aiming to maintain the key position in the sector has slowed down the process of such a high-level decision. STEG’s primary objective is to maintain the ‘business as usual’ situation in which it has the strong role and position allowing it to conserve its monopoly in the sector.

Table 5: Main stakeholders and actors in the energy sector.

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Principal tasks</th>
</tr>
</thead>
</table>
| Ministry of Energy, Mines and Renewable Energy (MEMER), Directorate General for Electricity and Renewable Energy                                           | \ Definition of strategic guidelines for energy sector  \
|                                                                                                                                                                                                             | Energy supply security of the country  \
|                                                                                                                                                                                                             | Definition of electricity tariffs  \
|                                                                                                                                                                                                             | Definition of RE purchase price and transmission tariff for surplus electricity produced by auto-producers  \
|                                                                                                                                                                                                             | Decision for granting premiums through the Energy Transition Fund  \
|                                                                                                                                                                                                             | Participation in the elaboration of RE laws and regulations  \
|                                                                                                                                                                                                             | Examination of the requests for the realization of private production and self-consumption of electricity from renewable energies and following their execution  |
| Tunisian Company of Oil Activities (ETAP)                                                                                                         | Control and participate in all hydrocarbons related operations, including:  \
|                                                                                                                                                                                                             | Promoting hydrocarbon sector in Tunisia  \
|                                                                                                                                                                                                             | Management of national patrimony  \
|                                                                                                                                                                                                             | Conducting studies of developing discoveries  \
|                                                                                                                                                                                                             | Developing oil and gas productions, in which ETAP is partner  \
|                                                                                                                                                                                                             | Promoting and developing marginal fields  \
|                                                                                                                                                                                                             | Supplying national market with natural gas and crude oil  |
| Tunisian Refining Industry Company (STIR)                                                                                                         | \ Implementation of policies developed by the ministry in the fields of energy efficiency and renewable energy  \
|                                                                                                                                                                                                             | Proposal for regulations governing renewable energy  \
|                                                                                                                                                                                                             | Management of the Energy Transition Fund  \
|                                                                                                                                                                                                             | Management of specific renewable energy programs (PROSOL, PROSOL-Elec)  \
|                                                                                                                                                                                                             | Conducting studies on the development of renewable energies  \
|                                                                                                                                                                                                             | Awareness and training  |
| National Agency for Energy Conservation (ANME)                                                                                                     | Fixing connecting technical conditions to the electricity grid  \
|                                                                                                                                                                                                             | Implementation and operation of renewable energy projects  \
|                                                                                                                                                                                                             | Contribution to the implementation of renewable energy programs (PROSOL, PROSOL-Elec)  |
| Tunisian Company of Electricity and Gas (STEG)                                                                                                     | \ Support STEG in RE projects realization  \
|                                                                                                                                                                                                             | Facilitate RE projects for the private sector  \
|                                                                                                                                                                                                             | Technical assistance to investors in RE fields  |
| Tunisian company of Electricity and Gas for Renewable Energy (STEG ER)                                                                             | Approval of Energy Transition Fund grant applications  |
| Technical Advisory Committee (chaired by ANME)                                                                                                     | Decision for grant tax benefits  \
|                                                                                                                                                                                                             | Collection of funds for the Energy Transition Fund  |
| Ministry of Finance                                                                                                                               | IPP Unit assures the secretariat  \
|                                                                                                                                                                                                             | Approval of the technical aspects of RE projects  \
|                                                                                                                                                                                                             | Follow up the technical aspects of RE projects  |
| Renewable Energy Committee chaired by the ministry in charge of Energy                                                                           | \ Conflicts regarding the RE power generation projects  \
|                                                                                                                                                                                                             | Receive the compliances from investors  |
| Specialized authority in charge of RE power generation conflicts                                                                              | |
3.2 Regulatory framework

The main laws and decrees governing the energy sector are presented in Table 7 in the Annex.

**Power sector law**

After independence and since 1962, STEG has been given the task of producing, transmitting and distributing electricity, a task that had previously been carried out by seven licensed companies responsible for supplying the major regions of the country. Its regulatory framework is set out in decree-law no. 62-08, 3 April 1962. The nationalization of the entire energy sector was justified by the need to harmonize the treatment of electricity production across the country. The first article stipulates that “the production, transmission, distribution, import and export of electricity and fuel gas shall be nationalised”.

In the 1980s, like many other countries affected by the oil crisis, Tunisia moved towards the promotion of various energy policy programmes and action plans. However, it was not until the advent of law no. 96-27, 1 April 1996 that STEG’s quasi-monopoly gave way to the introduction into the market of IPPs who were granted electricity production licences permitting them to sell the electricity they produced exclusively to STEG.

**Energy conservation laws**

Law no. 2004-72, 2 September 2004 on energy conservation introduced energy conservation as “one of the national priorities in that it constitutes a principal element of sustainable development and is closely linked with economic and social development […].” It prescribes energy audits for intensive consumers in industry and tertiary sectors. The law was later reinforced by law no. 2009-7, 9 February 2009 including investment subsidy to some energy efficiency and renewable measures.

**Energy transition fund laws**

The Energy Transition Fund (FTE) was first created in 2005 under the name of National Fund for Energy Conservation, by law no. 2005-82, 15 August 2005. It was later reinforced by law no. 2013-54, published in 2017. Its main role is to provide stable resources to support energy efficiency and renewable energy measures.

According to this law, seven main financial resources feed FTE:

- Tax revenues on first registration of passenger cars in Tunisia;
Tax revenue from duties on import or local production of air conditioning appliances;
Tax revenue on incandescent light bulbs;
Resources coming from the Fund’s investment activities;
Donations and subsidies from natural and legal persons for the benefit of the Fund;
Taxes due on the import of engines and spare parts;
Taxes on energy products consumed;

That same law also provided that the FTE may be financed by any other resource that would be allocated for the benefit of the Fund under the existing legislation, especially funding provided in the framework of international cooperation.

The rules on the institutional setup, functioning and the modalities of intervention of the FTE were set up in decree no. 2017-983 of 26 July 2017.

By decree no. 2017-983, support provided by the FTE may be granted in the form of:
Direct premiums on tangible and intangible investments;
Additional credits to loans granted by banking institutions;
Investment fund in the form of refundable contributions or equity investment;
Funding of national projects and programmes initiated by the state and local communities.

Decree no. 2017-983 presented all the details regarding the contribution of the FTE for these different operating procedures.

**Law for electricity-generation from renewable energy**

In 2015, Tunisia adopted a new legislation on clean electricity production. Law no. 12, May 11, 2015 on electricity produced from renewable energy sources promotes the development of renewable energy and encourages private sector investment by liberalizing the production (and export) of clean energy. This new law provides for three regulatory regimes: (i) self-production/consumption projects, (ii) IPPs to meet the needs of local consumption and (iii) IPPs intended for export.

This law provides several legal texts that are essential for its implementation (decrees, orders, and decisions).

According to law no. 2015-12, all renewable energy projects are to be developed under one of the four different legal regimes:

Energy self-consumption:
Installations connected to the low voltage grid need approval from STEG;
Installations connected to the medium and high voltage grid require an authorization from MEMER:

Licensing: IPP for local consumption ≤ Power Max:
- A prior agreement is granted by MEMER following a call for projects. This agreement is valid for two years for PV projects and three years for wind projects during which the developer will have to form the project company and complete the plant. An authorization from the ministry is needed to operate and produce electricity after the commissioning test made by the STEG.

Concession: IPP for local consumption > Power Max:
- The MEMER implements a concession after a public call for tender;
- Contracts are submitted to parliament for validation;

Concession for energy export projects:
- The MEMER grants a concession after a call for tender;
- Contracts are submitted to parliament for validation.

For PV self-consumption projects connected to the low-voltage grid, the main regulatory and administrative provisions are as follows:

Eligible self-producers: All STEG customers connected to the LV network;

Maximum output: The power output must not exceed the subscribed power of the subscriber at STEG;

Technical requirements: The installation must technically comply with the provisions for the connection and injection of installations connected to the low-voltage network (Decision of the Minister of Energy of 07 June 2014);

Approval: Project request needs approval from STEG;

Contractual document between the self-producer and STEG: A standard contract regulates the off-taking of excess power on the low-voltage grid. After signing of the contract, the generating party has one year to install the system. The contract can be renewed for another year;

Compensation of injected electricity: No direct purchase is foreseen but rather a credit of injected kWh on the electricity bill in the framework of a Net-metering principle;

Specific provisions for photovoltaic solar installations.
The entire legal framework is already set up in Tunisia, and the government launched the first round for authorization in 2017; 64 MW are already under implementation. The concession regime is also launched for 1,000 MW PV and wind.

### 3.3 Electricity market structure

The state-owned STEG, under the supervision of MEMER, is the leading actor in the Tunisian electricity market. It is Tunisia’s main producer, transmitter and distributor of electricity. Such a framework has simplified the energy market that is currently composed of few key stakeholders. It is relevant to point out that STEG’s monopoly status was undermined when the market was opened to independent power producers (IPPs) in 1996. However, not many IPPs have been established since then, and STEG remains the sole buyer and distributor of electricity. Moreover, the company performs most of the power-generation, accounting for 79 per cent of total production, in 2015. At the same time, STEG-ER manages part of the renewable and alternative energy production. Currently, IPPs represent 19 per cent of the total electricity-generation (see Figure 16). However, their contribution is limited to the production for either self-consumption or to sell electricity to STEG. The Tunisian private sector’s participation in the electricity market is very much restricted by STEG, i.e. *de facto* by the state. The transformation of the electricity sector, its pace, form, direction and outcome depends very much on STEG as the most dominant player. The marginalization of the private sector hinders domestic industry and business development.

![Figure 16: Tunisia’s electricity market structure.](source: ONE, 2017)
Electricity prices are not subject to market forces, but to state decision. The regulation of consumer prices has always been an essential element of Tunisian pro-poor policies. Every year, the ministry of industry establishes energy prices at the national level taking into account international oil and gas prices, the financial balance of businesses and subsidies provided by the government (Table 6). The sale prices are not high enough to cover the costs of electricity production and distribution. That is why STEG is supported by public subsidies. However, the government has planned a yearly increase in electricity prices to gradually reduce subsidies in this sector. Following this process, the tariff is increased by an average of seven per cent yearly. Indeed, in the sector of high and medium voltage electricity, the government plans to reduce subsidies for power until they are fully removed in three to six years. Nevertheless, the government did not increase tariffs in 2015 and 2016.

Table 6: Tunisian electricity tariffs (in TD).

<table>
<thead>
<tr>
<th>Low voltage</th>
<th>Power fees (DT/kVA/month)</th>
<th>Electricity price per amount of kWh consumed (DT/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1-50</td>
</tr>
<tr>
<td>1-2 kVA, and C\leq100 kWh/month</td>
<td>Residential</td>
<td>0.7</td>
</tr>
<tr>
<td>1-2 kVA and C\geq100 kWh/month (&gt; 2 kVA)</td>
<td>Residential</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>Non residential</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medium Voltage</th>
<th>Power fees (DT/kVA/month)</th>
<th>Electricity price per amount of kWh consumed (DT/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniform</td>
<td>5</td>
<td>0.212</td>
</tr>
<tr>
<td>Time table</td>
<td>11</td>
<td>0.215</td>
</tr>
<tr>
<td>Pumping for irrigation</td>
<td>-</td>
<td>0.244</td>
</tr>
<tr>
<td>Agriculture irrigation</td>
<td>-</td>
<td>0.164</td>
</tr>
<tr>
<td>Emergency services</td>
<td>6</td>
<td>0.23</td>
</tr>
</tbody>
</table>

3.4 Legislative framework for participatory governance in energy projects

During the discussion of the Tunisian Solar Plan (PST) and the target definition toward 2030, MEMER organized a national dialogue around the energy sector, exploring conditions, constraints, potential and opportunities between 2013 and 2014. This dialogue covered all the national territory, targeted to collect special needs of the community and comments on the retained scenario and defined objectives included in the Tunisian Solar Plan.

The main process of structured public consultation activity in the context of large-scale energy projects is initiated with an Environmental Impact Assessment (EIA), managed by the National Agency for Environment Protection (ANPE). There are no national specific laws and regulations in place to ensure community participation in energy projects. The only participatory process is through parliament (ARP) that has to approve investments concerning the exploitation of natural resources according to Article 13 of the constitution.

It is useful to underline the role of civil society in the context of the evolution of the energy sector. Some NGOs are relatively active in the field and try to initiate sensitivity activities to enhance awareness and to raise the knowledge of the community. It is also necessary to underline the at times highly important role of international donors and financing organizations in setting rules and requirements in public consultation processes related to the financed projects.

During the process of project authorization, the general public and civil society such as the labour union (UGTT) or the union of employers (UTICA) can provide public institutions such as the MEMER or ANPE with comments on specific aspects or justifications for a decision review. With the constitutional right of access to information (law no. 22-2016), the Tunisian government has made available to all citizens information platforms via the Internet and also implemented open data access to:

- Legal information on constitution, laws, decrees, orders (www.legislation.tn);
- Data on energy, mine and industry (http://data.industrie.gov.tn).

Procedural justice in energy planning and project implementation is not institutionalized. There is no specific legislative framework that organizes participatory processes either on the national (managing multi-stakeholder dialogues in energy planning) or on the local level (energy project development and implementation). According to the code of spatial planning and urban development and law no. 94-87, 26 July 1994 on the creation of local development councils, local communities have a considerable degree of freedom as regards managing local development and
influencing projects that affect their communal interests. This power of partial self-determination, however, is limited when it comes to projects of national interest. Though Article 2 of law no. 94-87 specifies that local and rural development councils have to be involved in matters of economic, social, environmental and cultural impacts of development initiatives and projects, this stipulation was never translated into a regulatory framework or extended to broader public inclusion. There is neither a framework of procedures and mechanisms for participation during the planning and authorization phase of energy projects that state and private project developers must adhere to. Nor is there a framework for effective grievance mechanisms. Consequently, there is also no superordinate institution in charge of developing such a framework and that could serve as a monitoring entity to ensure compliance and draw lessons-learnt for improving governance approaches in project planning. This is particularly sensitive when it comes to the evaluation of environmental, social and economic impacts of energy projects. Environmental impact studies are mandatory according to law no. 88-91, 2 August 1988 on the creation of ANPE and decree no. 2005-1991, 11 July 2005. Neither law, however, incorporates social or economic impacts either on the regional or on the local scale. Nor does the legislation on EIAs specify how local communities should be involved in assessing adverse impacts, how these can be avoided, which benefits can be expected and how positive synergies can be generated.

Though a national framework is missing, some Tunisian municipalities have gathered experiences with such procedures of both local public participation and assessing social impacts. The Ministry of the Interior developed a guideline for local communities to design and implement public consultation processes as part of the national programme of urban development and local governance (Ministry of Interior, 2015). The programme established handbooks for communities on how to implement participatory governance as well as conduct an environmental and social impact assessment according to World Bank standards. However, these guidelines are neither enshrined in national laws nor are they applicable to national infrastructure projects. In the document, the Ministry of the Interior clearly identifies specific deficiencies in participatory and accountable governance. With the available experiences and guidelines, the Tunisian government has the basis to establish a regulatory framework for participatory governance in energy project development.
CONCLUSION

Tunisia's energy transition is embedded in socio-political dislocations and volatile dynamics, which in turn are aggravated by pressing economic conditions. The high expectations for an improvement of general living conditions that people have put in the democratic process have so far not been met. The manifest polarization of the political camps, and social and regional disparities among regions cause a deterioration of the public mood and lead to growing frustration with the governments’ performance. The government faces the dilemma that even if reforms were carried out more quickly, the structural changes would be unlikely to immediately provide the tangible impact that could ease social tensions. In addition to internal pressures and tensions within the elite, the government is under pressure to accommodate demands for massive reforms from international donors. Their implementation, however, leads to direct consequences for the people.

However, it is not the democratic change itself that the people call into question, but the ability of the state and the political and economic elites to implement the necessary reforms and structural changes in the interest of the general public. The urgent challenges are essential criteria in general for a renewal of the state-society relationship and, in particular, for a socially compatible energy transition. The system of corruption that penetrated all state levels must be systematically come to terms with and combated. Massive pollution must be met with a tightening of and consequently following the rule of law. There is the need for a new pro-poor policy since the economy cannot be revived to a level that can set off the negative impacts of the gradual removal of subsidies. In the face of the focus on achieving tangible outcomes, the procedural dimension must not be neglected. Confidence in the state and the political class gets rebuilt just as much through establishing an open participatory governance approach.

This also applies to the energy transition, which in principle is a project of the central state with little creative influence of the private sector or subordinate state levels. Tunisia has set an ambitious goal, which is accompanied by major structural changes. That the energy sector is of vital importance to Tunisia’s sustainable development—if designed to generate beneficial impacts and synergies with regard to the challenges above—is well-established in current government strategies. Yet, sustainable development as a strategic objective of government policies lacks steering and coordination across sectors through a high-level commission and can thus hardly achieve integrated policies. The understanding of how much social acceptance and thus also social sustainability depends on participative processes of planning and implementing concrete projects is still underdeveloped. So far, the institutionalization of inclusive and participatory governance practices in planning...
and implementation at all levels is lacking, although the necessity of such approaches is fully recognized in the key political documents. At the national level, there have been several multi-stakeholder dialogues to discuss the targets of the Tunisian Solar Plan at all levels. However, these formats have never been institutionalized as a permanent process for monitoring and evaluating energy and development policies, in which various interest groups collaborate constructively on managing the energy transition. For the local level, too, there is no regulatory framework for involving local actors and the local public in the development and implementation of concrete projects, although there is a need for local structures and experience.

The social, economic, political and environmental challenges require a more integrated approach to national energy planning so that energy transition becomes the driver for sustainable green development it is hoped to be. It is not a technical cure for Tunisia’s growing pains. But it does offer the potential to substantially contribute to sustainable development if the involved state actors play an enabling role in two aspects: First, by looking beyond the techno-economic to the socio-ecological dimension and second, by understanding this endeavour of social change as part of Tunisia’s socio-political transformation.
REFERENCES


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ANNEXES

Figure 17: Tunisia’s increase of military budget in perspective.

Figure 18: Development of Tunisia’s CO₂ emissions by sector 2000-2010.
Figure 19: Map and regime of RE projects planned until 2022.

Source: (Zgolli, 2018)
# Table 7: Laws and regulations governing the electricity sector

<table>
<thead>
<tr>
<th>Topic</th>
<th>Law</th>
<th>Date</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law on energy production</td>
<td>Law no. 62-08</td>
<td>1962</td>
<td>Creation of STEG, establishing its monopoly of the generation, transport, distribution and exportation of electricity.</td>
</tr>
<tr>
<td>Independent Production (IPP)</td>
<td>Law no. 96-27</td>
<td>01/04/1996</td>
<td>Authorizes the state to grant independent producers (IPP) concessions for power generation for exclusive sale to STEG by a power purchasing agreement (PPA) (only applicable to conventional electricity generation, not RE).</td>
</tr>
<tr>
<td></td>
<td>Law no. 2015-12</td>
<td>11/05/2015</td>
<td>Legal framework for the development of RE projects.</td>
</tr>
<tr>
<td>Law on Cogeneration</td>
<td>Decree no. 2002-3232</td>
<td>03/01/2002</td>
<td>Decree of application Approving the specifications on the technical terms for connection and discharge of electrical energy from cogeneration power plants to the national grid.</td>
</tr>
<tr>
<td></td>
<td>Law no. 2004-72</td>
<td>02/08/2004</td>
<td>Introduces essential elements for promoting cogeneration for production, transmission and sales of electricity.</td>
</tr>
<tr>
<td></td>
<td>Law no. 2004-72 Bylaw</td>
<td>02/08/2004</td>
<td>Introduces essential elements for promoting cogeneration for production, transmission and sales of electricity. Fixes transmission and sale tariffs of electricity surplus delivery to STEG and technical conditions for connection to the national power grid.</td>
</tr>
<tr>
<td></td>
<td>Law no. 2009-7 Bylaw</td>
<td>09/02/2009</td>
<td>Controls transmission, rates of transport and sale tariffs of electricity surplus delivery to STEG by technical conditions for connection to the national power grid and tariffs of the sale of surplus production to STEG. Introduces essential elements for promoting renewable energies, in particular for the production, transmission, and sale of electricity.</td>
</tr>
<tr>
<td></td>
<td>Decree no. 2009-362</td>
<td>09/02/2009</td>
<td>Introduces investment aids for the realization of electricity production projects from RE sources.</td>
</tr>
<tr>
<td></td>
<td>Decree no. 2009-362</td>
<td>09/02/2009</td>
<td>Introduces investment aids for the realization of electricity production projects from RE sources.</td>
</tr>
<tr>
<td></td>
<td>Decree no. 2009-2773</td>
<td>28/09/2009</td>
<td>Fixes conditions of power transmission, sale of surpluses to STEG and the upper limits of these surpluses. Prices set by the Minister of Energy.</td>
</tr>
<tr>
<td></td>
<td>Grid code</td>
<td>12/05/2011</td>
<td>Technical specifications for the connection of cogeneration and RE production to the grid.</td>
</tr>
<tr>
<td></td>
<td>Law No. 2015-12</td>
<td>11/05/2015</td>
<td>Legal framework for the development of RE projects.</td>
</tr>
<tr>
<td></td>
<td>Law no. 2015-12</td>
<td>11/05/2015</td>
<td>Legal framework for the development of RE projects.</td>
</tr>
<tr>
<td><strong>Law on auto-production</strong></td>
<td>Decree 2016</td>
<td>August 2016</td>
<td>Application decree of the law no.2015-12.</td>
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<tr>
<td>Law no. 2004-72</td>
<td>02/08/2004</td>
<td></td>
<td>Grants the right to auto-producers to transport the electricity produced by cogeneration or RE installation to the location of self-consumption (only) and the right to sell the excess to STEG within limits set by a decree.</td>
</tr>
<tr>
<td>Law no. 2004-72</td>
<td>02/08/2004</td>
<td></td>
<td>Allows the publication of new legislation and regulation to support energy conservation actions.</td>
</tr>
<tr>
<td><strong>Law establishing the National Fund for Energy Conservation (FNME)</strong></td>
<td>Law no. 2005-82</td>
<td>15/08/2005</td>
<td>Creation of the National Fund for Energy Conservation (FNME), regulating financial assistance for energy conversion.</td>
</tr>
<tr>
<td>Decree no. 2005-2234</td>
<td>22/08/2005</td>
<td></td>
<td>Fixes the rate and amounts of premiums of actions regarding the FNME and the modalities of granting them.</td>
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<tr>
<td>Law no. 2005-106</td>
<td>19/12/2005</td>
<td></td>
<td>Article 12 and 13 stipulates that FNME intends to finance energy efficiency operations, promote renewable energy and energy substitution. The fund is supposed to provide subsidies for transactions targeted in the Article 1 of the Law no.2005-82.</td>
</tr>
<tr>
<td>Law no. 2005-82</td>
<td>15/08/2005</td>
<td></td>
<td>Establishes an energy management system.</td>
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<tr>
<td><strong>Approvals and permits</strong></td>
<td>Decree no. 2005-1991</td>
<td>11/07/2005</td>
<td>Environmental impact assessments (EIA): Power plants with more than 300 MW installed capacity require an EIA with approval from ANPE.</td>
</tr>
<tr>
<td>Decree no. 64-9</td>
<td>17/01/1964</td>
<td></td>
<td>Grid license: Connection fees to the national grid are the responsibility of the subscriber.</td>
</tr>
<tr>
<td>Law no. 2008-23</td>
<td>01/04/2008</td>
<td></td>
<td>Land permits: Determine rules for a concession contract to set up a project on a land in public domain.</td>
</tr>
<tr>
<td><strong>Constitution</strong></td>
<td>Article 12</td>
<td>26/01/2014</td>
<td>Establishes the rational use of natural resources.</td>
</tr>
<tr>
<td></td>
<td>Article 13</td>
<td>26/01/2014</td>
<td>Stipulates that natural resources belong to the Tunisian people. Investments concerning natural resources require approval of ARP.</td>
</tr>
<tr>
<td></td>
<td>Article 32</td>
<td>26/01/2014</td>
<td>Formulates the right of access to information.</td>
</tr>
<tr>
<td></td>
<td>Article 45</td>
<td>26/01/2014</td>
<td>Stipulates the right to a clean environment and the commitment of the state to take all necessary measures against pollution.</td>
</tr>
</tbody>
</table>