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INTERNATIONAL MONETARY FUND

IRAQ

SELECTED ISSUES

January 9, 2023

Approved By
Middle East and Central Asia Department

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STRENGTHENING SUSTAINABILITY OF THE PUBLIC PENSION SYSTEM IN IRAQ[1]

This chapter assesses Iraq's national pension system by examining the fiscal burden of budget-financed pensions and providing a sustainability analysis of the contributory pension scheme for public sector workers. It also outlines reform options that can assist the authorities in containing the fiscal burden of the pension system, improving its adequacy, and reducing labor market distortions to remove barriers to private sector growth.

A. Background

1. Iraq's pension system comprises a fragmented mosaic of pension schemes owing to the country's difficult political history. In the wake of the 2003 war, the pension system was virtually dismantled, and regular pension payouts were replaced with emergency flat payments financed by the government budget. In subsequent years, the pension system was gradually restored and fine-tuned with key changes taking place in 2006, 2009, 2014, and 2019-20:

- The first post-2003 pension law was adopted in January 2006 and amended in December 2007, becoming known as the Unified Pension Law of 2007. The law split the pension system for public sector workers into two parts:
    - The so-called *"legacy pensions"*, which represented payments to public sector employees who retired before January 17, 2006. [2] These payments were paid out of the government budget and managed by the National Board of Pensions (NBP) that was formed under the Ministry of Finance (MoF); and
    - A new contributory, pay-as-you-go (PAYG) defined benefit pension scheme for civil servants, military and security personnel, and employees of state-owned enterprises (SOEs) retiring after January 17, 2006. Administration of the new contributory system was entrusted to the newly created State Pension Fund (SPF), an administrative unit under the NBP.[3]
- Three additional budget-financed schemes were created in October 2009 through Law No. 20 titled "Compensating the Victims of Military Operations, Military Accidents and Terrorist Actions",

[1] Prepared by Ali Abbas and Gee Hee Hong, as part of a tripartite collaboration between the IMF, ILO, and World Bank, with the support of the Government of Iraq. Options for reform of the broader national pension system including the pension scheme for private sector workers and other budget-financed schemes will be discussed in the forthcoming joint policy paper (IMF/ILO/World Bank) titled "Towards an inclusive, equitable and sustainable pension system in Iraq", produced by the three institutions under the IMF-ILO Global Partnership on Social Protection.

[2] While these beneficiaries had contributed to the previous pension system, their contributions were not transferred to the State Pension Fund.

[3] Contributions to the SPF were set at 7 percent of employees' earnings (sum of base salary and allowances), with the government contributing 12 percent of the same base. The mandatory retirement age was set at 63, with a vesting period of 15 years of service.

which made victims of war, terrorist acts, and political persecution by the former regime eligible for various forms of compensation. Eligibility was made retroactive to March 2003 and included the victims' families, notably parents, children, spouses, and siblings.

- The Unified Pension Law (Law 9/2014) that was adopted in February 2014 largely governs the current contributory pension scheme for public sector workers. The law left the institutional and financing arrangements of the pension system for public sector workers unchanged but updated pension parameters (rules and benefits), including an almost doubling of the minimum pension to ID 400,000 and introduction of pensions for retirees' survivors without a private source of income, profession, or position in the private sector.[4] Pension contributions were increased to 10 percent for employees and 15 percent for the state.

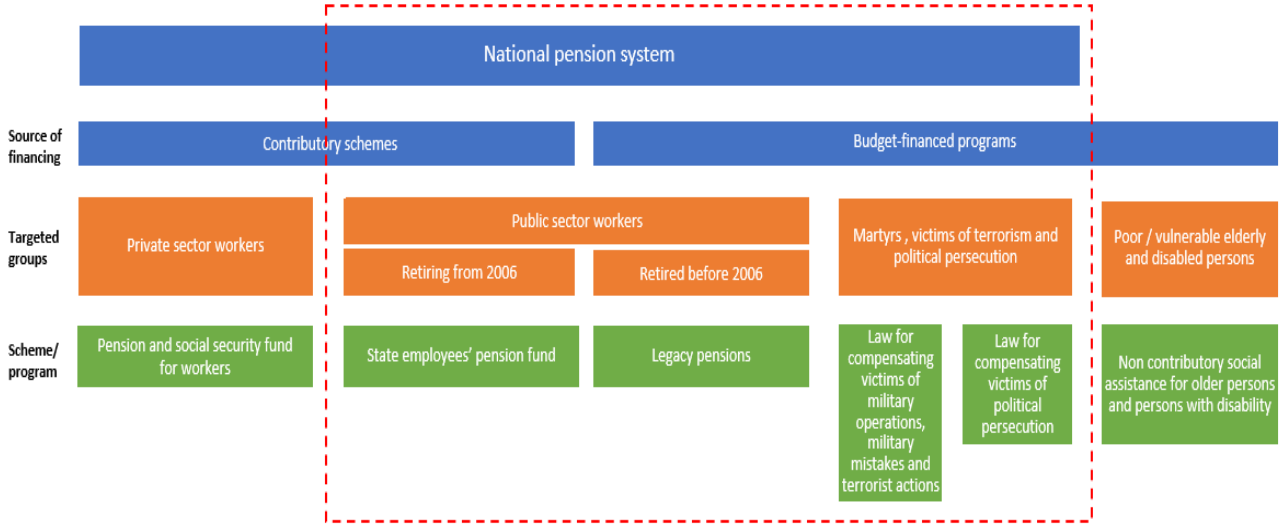
- An additional set of amendments to the pension law were introduced in January 2020 following widespread social unrest during the preceding months. They expanded eligibility and increased pension benefits while leaving the contribution rates unchanged. The mandatory retirement age was lowered from 63 to 60 and eligibility for early retirement was relaxed from 20 years of service and a minimum age of 50 to 15 years of service and a minimum age of 45. The minimum pension benefit was raised from ID 400,000 to ID 500,000.[5]

- A contributory private sector pension scheme completes Iraq's national pension system. It is regulated by the Law of Pensions and Social Security No. 39 of 1971, amended by Law No. 89 of 1979. Benefits and contributions are both lower than in the public sector, and currently the scheme effectively covers only 6 percent of all workers in the private sector. The forthcoming IMF-ILO-World Bank policy paper will take a deeper dive into issues related to the national pension system as a whole, interlinkages across the public, private, and budget-financed pension schemes, and instruments to fill the large coverage gap in the pension system.

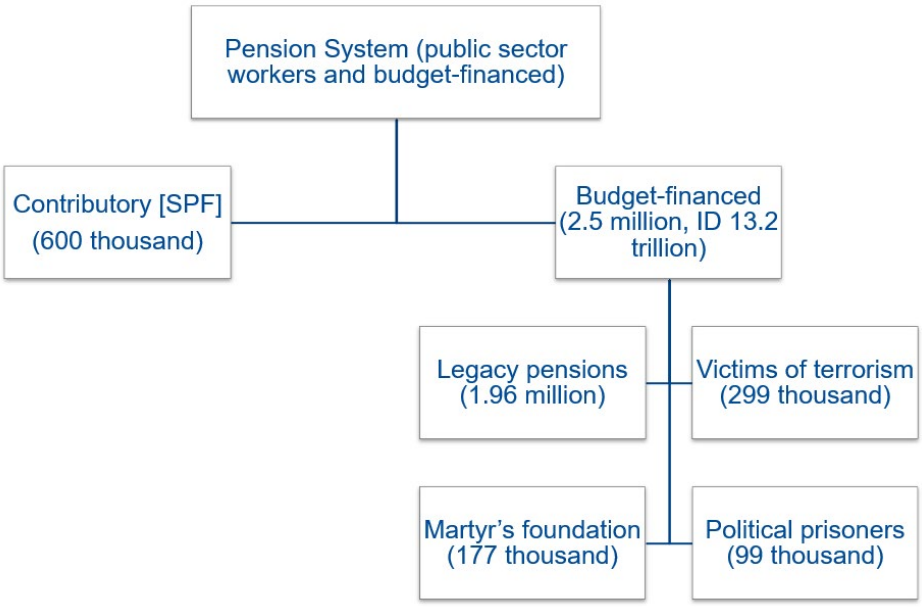
[4] Survivors include sons or brothers up to the age of 18 years (22 years if continuing with higher/secondary schooling, and 26 years if continuing with university education); daughters or sisters if unmarried and without a *Shari'a* provider; widowed, unmarried wives; and husband or father if they have a complete and permanent disability (disability included being above the age of 63).

[5] Pension payouts are not automatically indexed to inflation but are adjusted on an ad-hoc basis, with the most recent change (to minimum pensions) implemented in 2020.

Structure of Iraq's National Pension System



2. The pension system for public sector workers and budget-financed pension schemes (legacy pensions and others) cover almost 3.1 million beneficiaries, of which 0.6 million are beneficiaries of the contributory SPF (405 thousand primary beneficiaries, 199 thousand dependents). Of the more than 2.5 million beneficiaries of the budget-financed pension system, 1.96 million are recipients of legacy pensions, that is, those who retired prior to the reform of 2006. Victims of terrorism, martyrs and their families, and the politically persecuted form the remaining component of the budget-financed pension system which amounted to over 13 trillion ID (4.4 percent of GDP) in 2021.

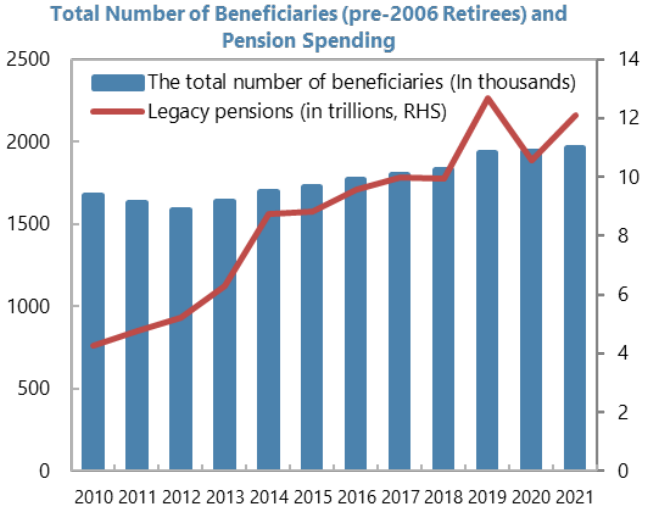


Pension System's Contributory (Public Sector) and Budget-financed Schemes

B. Fiscal Implications of Budget-Financed Pension Schemes

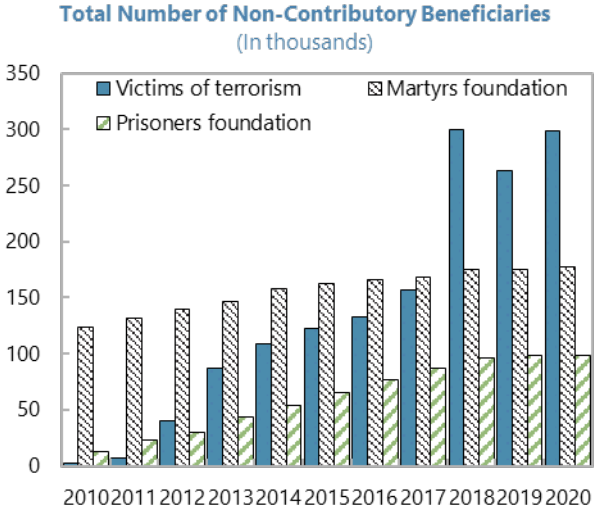
3. Budget-financed pension spending has increased in recent years:

- *Legacy pension payments rose due to generous survivor benefits and continued enrollment.* New primary beneficiaries, who were not originally identified as pre-2006 retirees due to weaknesses of the eligibility verification process, have been recognized in subsequent years and added to the system. In addition, benefits have been transferred to a wide range of dependents and survivors after the passing of the primary beneficiary. As a result, between 2010 and 2021, the number of legacy pension recipients increased by 17.5 percent, from 1.7 million to almost 2 million, while the overall legacy pension spending exceeded 10 trillion ID (3 percent of GDP). Legacy pensions are expected to stay elevated in the medium term, but gradually decline in the long term as the closed scheme winds down.



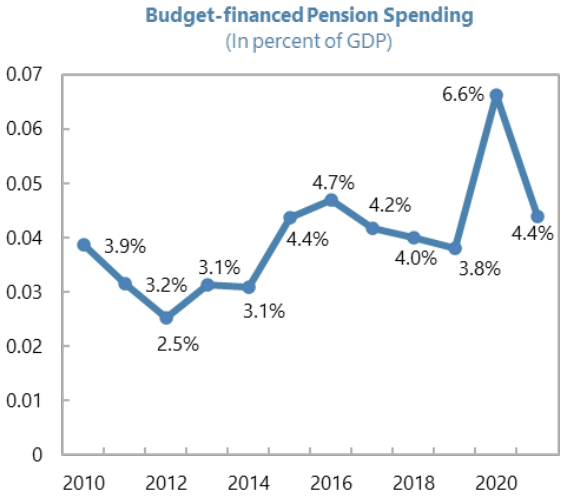
Source: IMF staff calculations using data from authorities.

- *The number of beneficiaries of other budget-financed pensions has also increased over the years.* The martyr's fund expanded in size in the wake of the war with ISIS, with the number of primary beneficiaries rising from 139,469 in 2013 to 176,884 in 2021. Alongside, the number of beneficiaries categorized as victims of terrorism has more than doubled since 2016, reaching an estimated 298,460 in 2021. Similarly, the number of beneficiaries deemed as victims of political persecution has increased ninefold to 100,000 between 2011 to 2021. Liabilities under these three budget-financed schemes amounted to more than 3 trillion ID in 2021 (1 percent of GDP). While actual payment amounts varied over time reflecting periods when budgetary financing was insufficient to meet claims – leading to a buildup of arrears – total pension claims from the budget-financed schemes have continued to trend upward.



Source: IMF staff calculations using data from authorities.

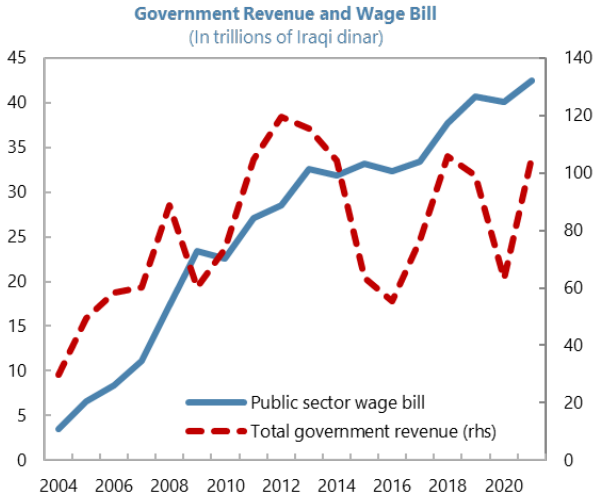
4. The fiscal costs of budget-financed pension schemes are expected to remain elevated. Legacy and other budget-financed pension schemes show significant persistence due to extensive survivor benefits, which appear generous in international comparison,[6] leading to a slow decay of the stock of pension liabilities. Further, while legacy pensions and pensions for political prisoners are expected to eventually unwind in the long term, potential worsening of the security situation could lead to a surge in the number of claimants under the schemes for martyrs and victims of terrorism.



Sources: Iraqi authorities and IMF staff.

C. Financial Sustainability of the Contributory Pension System for Public Sector Workers

5. Helped by the rising government payroll, the SPF has been able to mobilize sufficient revenues to cover its expenditures and build up a reserve fund, which exceeded ID 12 trillion at end-2018 (4.5 percent of GDP). Past surpluses of the SPF were partly due to the rapid and sustained growth of the government payroll with the attendant growth of contributions. Since 2006, owing to a variety of political economy factors and a social compact based on job creation by the government, the public sector payroll grew rapidly to reach 19.8 percent of GDP in 2020 (almost half of all current spending),[7] covering over 35 percent of the labor force.



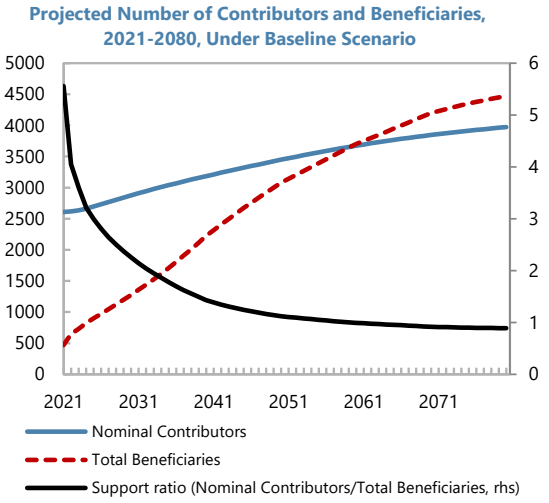
Sources: Iraqi authorities and IMF staff calculations.

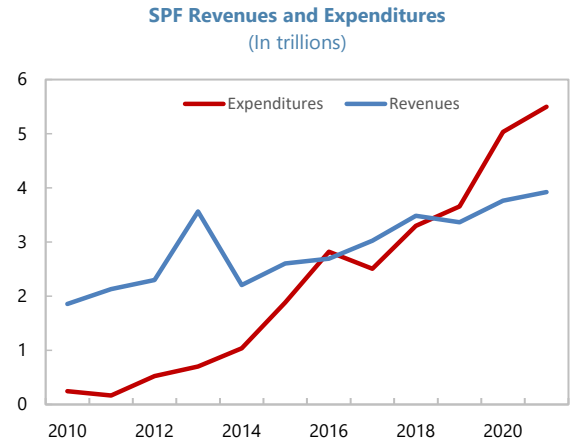
6. However, recent developments have begun to reverse this trend. First, the financial sustainability of the SPF has been eroded by the 2020 amendments to the public sector pension law

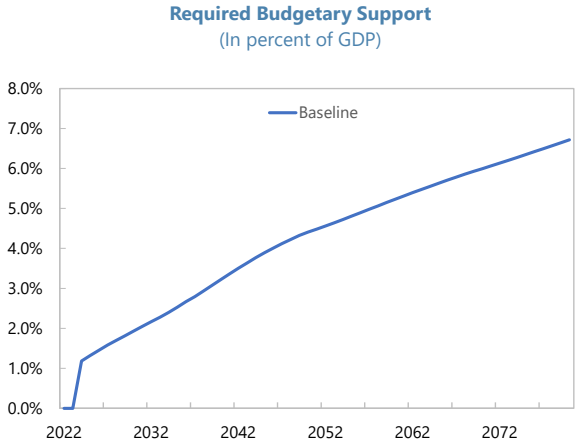
[6] For example, eligibility for survivor benefits covers single/widowed/divorced daughters, parents, and single sisters, etc. while in the rest of the world only spouses and children are generally defined as eligible. The qualifying conditions for survivors do not include an age limit or, in the case of spouses, a minimum number of years a person needs to be married to the principal beneficiary, while other countries, on average, use less permissive criteria for such entitlements. Finally, survivors typically receive 100 percent of the deceased's entitlements, in line with various MENA countries, significantly higher than is the norm in other regions of the world where entitlements are capped at 50 to 70 percent.

[7] Smoothening over the drop in the GDP denominator in 2020 and the atypical hiring freeze that affected the numerator in 2021, the three-year average wage bill during 2019-2021 was 16.2 percent of GDP.

that included expansion of eligibility, lowering of the retirement age – thus also reducing aggregate contributions – and increase in pension benefits. As a result, the SPF has begun to incur a widening deficit which reached ID 1.6 trillion (0.5 percent of GDP) in 2021. Baseline projections indicate that, under current trends, the SPF's expenditures will continue to outweigh its revenues and SPF reserves could be depleted by end-2024, requiring significant and increasing budgetary financing in the following years.[8]







Sources: Iraq authorities; ILO actuarial; and World Bank PROST models.

7. Financial sustainability of the SPF is also linked to the future path of government payroll, which should inform the calibration of future changes to the pension system:[9]

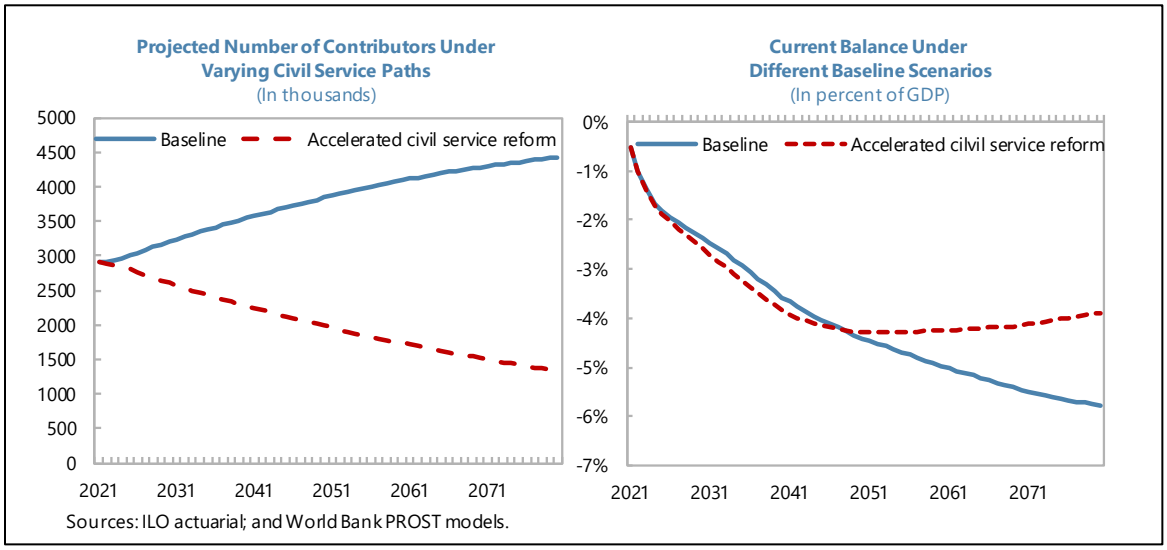
- In the baseline projection, which assumes that the percentage of the working age population entering the civil service each year decreases from 12 percent to 8 percent in the long term, but the overall payroll continues to grow due to robust overall population growth, the SPF deficit is expected to widen to about 4 percent of GDP over the next two decades and more than 6 percent of GDP by 2080.

- In a scenario of an accelerated wage bill reform and potential transition of public sector workers into the private sector – modeled as an attrition of the government workforce to almost half its

[8] SPF balances were simulated using ILO actuarial and World Bank PROST models.

[9] Baseline projections use results from the ILO's actuarial and World Bank PROST models and are based on the UN Population Division labor market and population forecasts for Iraq and IMF staff's macroeconomic projections.

current size by 2080 – the SPF deficit is projected to widen and peak at around 4 percent in the 2050s and then gradually decline. Accelerated civil service reforms would result in fewer employees (contributors) early in the time horizon, leading to larger SPF deficits relative to the baseline. However, with fewer public employees in the system now, the stock of pension liabilities will be lower in the future, since there will be fewer retirees, reducing the burden on the SPF and resulting in lower deficits after 2050 relative to baseline.

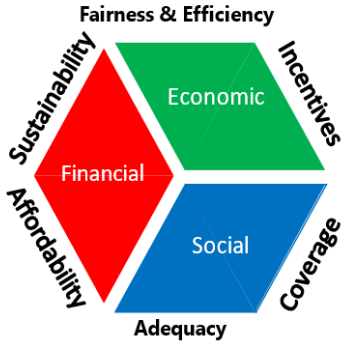


Sources: ILO actuarial; and World Bank PROST models.

D. Contours of a Possible Pension Reform

8. Reform of the pension system will need to balance principles of equity, efficiency, and financial sustainability, while ensuring adequacy and broad-based coverage of persons of old age.[10] Sustainability is key for intergenerational equity and ensuring that the burden on public finances remains manageable. An equitable pension system aims to ensure, for instance, that employees with the same age profile and career trajectory receive similar pensions in real terms during retirement. It also means that contributors in one generation are not overburdened in support of other generations, the uncovered are not forced to support the covered, and the more generously covered are not supported by those with less adequate protection.

Balancing Multiple Objectives of the Pension System



Source: IMF-ILO-World Bank presentation to the authorities (May 2022 IMF Staff Visit).

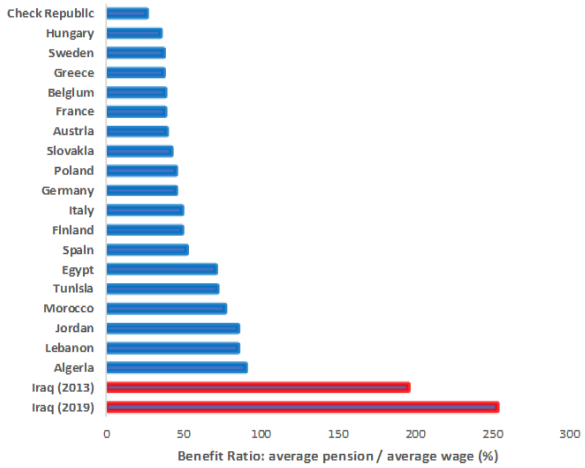
9. Consistent with these principles, over time, Iraq would benefit from bringing all pension schemes under an equitable, sustainable, and adequate system, with similar rules and

[10] Such principles are expressed and codified in internationally agreed Social Security Standards, such as ILO Convention 102 on Minimum Standards of Social Security, which Iraq is in the process of ratifying.

benefits across beneficiaries. Such a system should minimize distortions to people's incentives to work, contribute, and save while encouraging labor mobility across sectors and private sector growth.[11] The forthcoming joint policy paper by the IMF, World Bank, and the ILO will expand on this discussion, including outlining a possible roadmap toward a unified pension system in consultation with the authorities and social partners in Iraq.[12]

10. Such an ambitious and comprehensive reform is generally difficult to implement in one step owing to various political economy, capacity, and other constraints. Therefore, a gradual phase-in of pension reforms can be considered. In this context, the authorities should consider prioritizing the rationalization of the parameters of the pension scheme for public sector workers and equalizing pension system parameters across public and private sectors. This will improve the financial sustainability of the pension system for public sector employees in the early stages of the reform, strengthening public finances, and facilitate progressive integration of the two schemes across the public and private sectors.

11. The fiscal burden of budget-financed pension schemes can be contained by strengthening eligibility verification and bringing survivor benefits in line with international best practice. Budget-financed pension schemes in Iraq can be expected to persist, reflecting the unique political history of the country. A key challenge for the authorities is how to fit such a system within existing overall fiscal constraints. In this context, it would be important to continue strengthening the verification process based on clear and transparent criteria to ensure that benefits are paid only to individuals who are truly eligible. In parallel, survivor entitlements could be limited to immediate family members, and made time-bound instead of being lifelong in nature, as is the case in most other countries.



Sources: EC (European Commission) data; and World Bank pensions data.

12. The contributory pension system for public sector workers features larger payouts and shorter service duration requirements relative to international comparators. The average benefit ratio – average pension as a percentage of the average wage of contributors – is already among the highest in the region and has increased from 196 percent in 2013 to 253 percent in 2019, while the retirement age of 60 years is one of the lowest. That pension payments have been considerably increased in an ad-hoc manner has contributed to a further increase of this benefit ratio in recent years. In addition to the high benefit ratio, individual replacement rates are also high due to the use of only the last three-year

[11] Several countries in the region are moving towards integrating their public and private pension systems (or harmonizing parameters across the two), such as Jordan, Egypt, Bahrain, Saudi Arabia, and Oman.

[12] IMF, ILO, and World Bank. (forthcoming) "Towards an inclusive, equitable and sustainable pension system in Iraq". IMF-ILO Global Partnership on Social Protection.

average of an employee's salary for pension calculations, a high accrual rate, and the existence of numerous allowances that boost the overall payout.[13] These pension rules can lead to pension income oftentimes being higher than public sector workers' pre-retirement income (Box 1).

Box 1. Pension vs. Wage Income – Illustrative Example
(IMF-ILO-World Bank joint policy paper, forthcoming)

Simple calculation for pension benefits:
Suppose the average of a newly retired individual's basic salary for the last 3 years was **ID 1,200,000**, with a career average salary of **ID 900,000**.
Years of services = 30
Educational attainment = Master's degree

First, calculate the basic pension (without allowances) using the pension formula:
Basic Pension = (3-year salary average x accrual rate x (# of service months/12))/100
Basic Pension = (1,200,000 x 2.5 x 30) / 100= **ID 900,000**
Second, add the livelihood and education-related pension allowances:
In the above case, the pensioner has two allowances:

1. Livelihood allowance = 30% (1% for each year of service)
2. Education-related allowance = 15% (Master's degree, Article 35 in law 9)

Total Allowances Factor = 30% + 15% = 45%
Third, calculate the final pension:
Final Pension = Basic Pension x (1+Allowance Factor) = 900,000 x 1.45 = **ID 1,305,000**

13. The long-term sustainability and intergenerational equity of the SPF could be strengthened by parametric reforms based on international best practices and standards. Reform options toward this end can include eliminating regressive livelihood and education allowances, reducing the accrual rate from 2.5 to 2 percent, gradually extending the base used for pension calculations to include the entire career, increasing the retirement age to 65 for new entrants to the public sector (with subsequent increases linked to life expectancy), and applying actuarially fair factors for pension reductions in case of early retirement (Table 1). Widening deficits necessitate urgent action since a delay will increase fiscal costs of the SPF and require greater tightening in the future.

14. At the same time, adequacy and predictability of social protection provided by the pension system for public sector workers can be improved. Automatic cost-of-living adjustments based on CPI, linking minimum pensions to the minimum wage, and establishing a mechanism to maintain such a ratio as a floor—for example, set at 60 percent of the minimum wage—would provide better protection to the most vulnerable than the current practice of setting the minimum pension in nominal terms and providing ad-hoc periodic cost-of-living adjustments. The reforms can also rationalize the high average replacement rates and be framed within a multi-pillared system that

[13] These allowances are regressive, benefiting high-income employees more in retirement relative to other employees, and, in the case of the education allowance, for example, can lead to double counting: an employee with a higher level of education would expect higher wages over the course of their career (and higher pensions), and would get an additional boost in pension payouts due to the education allowance.

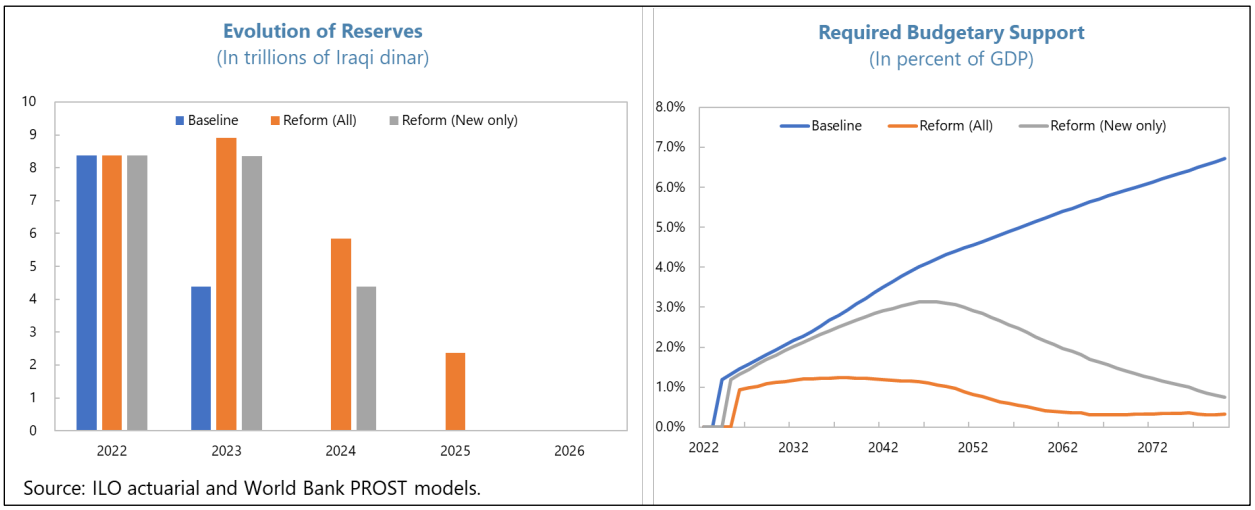
integrates contributory and non-contributory schemes to address adequacy and coverage gaps, especially for the most vulnerable.

Table 1. Iraq: Proposed Reform of Key Parameters of the Contributory Public Pension System

Public pension parameters	Current Law	Reforms
Retirement Age	50 (mandatory age 60)	Increase to 65 – for new entrants - and eventually link to life expectancy
Rules for Early Retirement	Disabled and women taking care of children can retire early without penalty	Apply actuarially fair factors for pension reductions for early retirement
Rules for Delayed Retirement	Mandatory retirement at 60 (with some exceptions)	Mandatory retirement at age 65
Post-retirement Indexation	Not specified in law (ad hoc)	Automatic indexation to inflation
Incremental Replacement Rate (Accrual Rate)	2.5%	2%
Number of Last Years for Wage Base Calculation	Last three years	Entire career average wage (gradual transition)
Minimum pension	500,000 ID (Note: Min wage as of 04/20/2022 is ID 350,000, so min. pension is 143% of min. wage).	50% of minimum wage with 15 years of contribution, increasing to 80% of minimum wage with 30 years of contribution
Livelihood allowance	1% of the pension per year of service	None
Education-related allowances	Additional boost of 5% (diploma), 10% (bachelors), 15% (masters), or 20% (doctorate)	None
Survivor benefits	80% for 1 eligible survivor 90% for 2 eligible survivors 100% for 3 or more survivors	Spouse and children (Category A): 60% for one survivor, 70% for two, 80% for three or more If no Category A dependents, then 10% goes to each Category B survivors (siblings, parents, etc.) up to a maximum of 20%

15. These reform options can preserve SPF reserves in the near term and reduce the burden on the government budget in the medium to long term, enhancing the SPF's sustainability. Relative to the SPF status quo provisions and the assumed baseline civil service path, the reform options can ensure that budgetary support for the SPF is contained in the medium term, and the fund approaches financial sustainability in the long term. While reserves are expected to be exhausted by 2024 in the baseline, reforms applied to all employees – new entrants and future service of current employees – will extend the life of SPF reserves by two years to 2026 (2025 if

reforms are applied only to new entrants).[14] Critically, the required budgetary support path thereafter is substantially lower in both reform scenarios relative to the baseline. The monotonic increase in required budgetary support in the baseline will put sizable pressure on public finances. Implementing parametric reforms for all members of the public sector will ensure that required budgetary support is contained at around 1 percent of GDP for the next three decades, gradually decreasing thereafter



Source: ILO actuarial and World Bank PROST models.

16. Reforming the rules around benefits and eligibility is particularly pertinent given challenges with enhancing the revenue stream of the SPF. The SPF receives revenues from two sources: (1) employer-employee contributions, and (2) returns on invested reserves. Contribution rates are already significant (10 percent for employees, 15 percent for employers). Increasing the employee share of contribution rates might run into political economy constraints. Increasing the employer share will only reallocate expenditure from pensions to wages in the budget. Further, the required aggregate long-term rates to balance the SPF are estimated to be exorbitantly high and not feasible.[15] Protection of SPF reserves from market volatility implies the need for low-risk investments which, in turn, will limit potential returns on invested reserves. Therefore, the focus of reforms should be on making the rules around eligibility and benefits equitable and adequate, simultaneously ensuring sustainability of the SPF.

17. Ultimately, a pension system that covers public and private sector workers with a common set of rationalized parameters will ensure an effective balancing of principles of reform. Effective incentives will enable economic participation, strengthen portability of benefits, and foster private sector development. Greater job security and a stronger pension system in the public sector distort incentives in the labor market, depriving the private sector of critical human resources and hampering its growth. Strengthening the portability of benefits between the public

[14] To recognize acquired rights and take into consideration political feasibility, reforms can be implemented gradually, with partial application of rule changes to current members. However, such a strategy must consider the trade off with intergenerational equity.

[15] Required contribution rates: 48.4% for next 10 years, 64.3% for next 20 years, and 78.9% for the next 30 years.

and private sectors will encourage labor mobility across sectors, help to rebalance labor markets, and promote private sector employment. Equalizing benefits across sectors will reduce incentives for the labor force to prefer the public sector over the private sector. Raising the retirement age will eliminate perverse incentives for individuals to retire early, reflect the increase in life expectancy more accurately, and increase intergenerational equity. Authorities should also consider measures to incentivize workers to retire later and contribute economically for longer in line with rising age expectancy, such as including higher benefits for later retirement, reducing obstacles for employers to retain or hire older workers, or increasing employability of older workers. In addition, the authorities should explore options to better assist old-age persons who are not covered by any of the pension schemes.[16]

18. A well-crafted transition plan will be key to the success of pension reforms. A gradual transition to a system with rules that are in line with international social security standards and best practices will loosen political economy constraints. Ensuring that the reform has the buy-in of a large group of stakeholders across the bureaucracy, political leadership and employees will increase credibility and protect it from political pressures during electoral cycles. These reforms will have to balance principles of financial sustainability with adequacy, coverage, efficiency, and equity. Further, long-term sustainability will also need to account for the evolution of the civil service path, private sector growth, and the private sector pension system. The impact of pension reforms on incentives to join the civil service, and the impact of civil service reform on the financial sustainability of the SPF will have to be jointly considered.

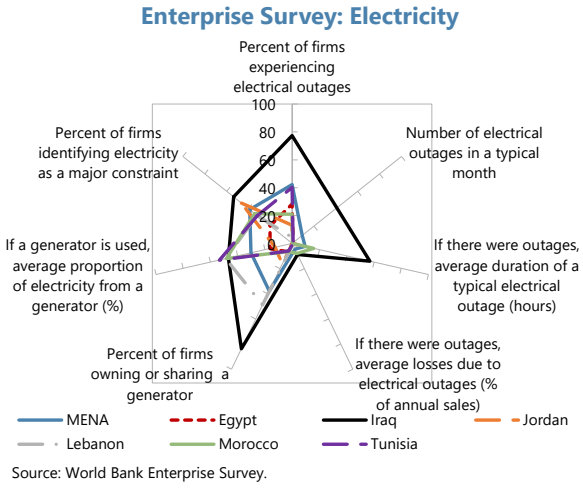
[16] Different mechanism designs to enhance coverage of the uninsured will be explored as part of the broader reform agenda to be discussed in the forthcoming IMF-ILO-World Bank joint policy paper. Such reforms can take the shape of measures to enhance the effective coverage of the private sector scheme, budget-financed pensions for the uncovered, or targeted cash transfers. Improving efficiency in allocation of public finances can expand fiscal space to extend coverage to the uninsured through the above measures.

THE FISCAL COST OF IRAQ'S ELECTRICITY SECTOR AND POTENTIAL GAINS FROM REFORM[1]

This chapter examines the fiscal burden stemming from the challenges of Iraq's electricity sector and discusses elements of a potential reform strategy to help the sector provide adequate supply while moving closer to cost recovery.

A. Background

1. Iraq's electricity sector imposes high social and economic costs on the country. Weak service provision has long been a source of grievance for the public as grid-supplied electricity coverage falls short of the 24 hours, prompting citizens and businesses to increasingly rely on costly, noisy and polluting private fuel-based neighborhood generators. In addition to contributing to Iraq's socio-economic fragilities, lack of reliable access to electricity has also constrained private sector development. More than half of Iraqi firms identify electricity as a major constraint, second only to Yemen in the region, according to Enterprise Surveys conducted by the World Bank. Expenditures on electricity consume sizable amounts of public and private resources, with some accounts estimating that more than $80 billion went into the sector since 2003 (Al-Khatteeb, 2015).



Source: World Bank Enterprise Survey.

2. The sector has been caught in a cycle of inefficiency, loss-making and under-investment. Weak maintenance and underinvestment result in inefficient production processes and financial losses, which, in turn, crowd out the resources needed for maintenance and efficiency enhancing investments. While most of Iraq's power generation capacity is designed to run on natural gas, the critical gas-to-power value chain remains underdeveloped, and around half of Iraq's associated gas is being flared with adverse environmental, health, fiscal and balance-of-payments outcomes.[2] As a result, many generation plants use less efficient and more polluting liquid fuels while the rest of the sector depends on imports of gas and electricity from neighbors.

3. There is an urgent need for comprehensive reforms which have been elusive in the past. Several plans for reform and commercialization were drawn over the years but were not

[1] Prepared by Moheb Malak.

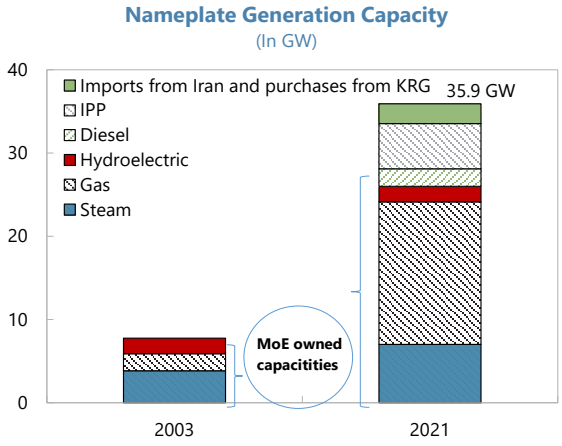
[2] Iraq is the second largest source of gas flaring after Russia, according to World Bank Global Gas Flaring Reduction Partnership (GGFR).

implemented due to security challenges, political instability, and governance issues. On the supply side, prioritization of generation in resource allocation combined with significant damage to large parts of the transmission and distribution grids further compounded technical and commercial losses.[3] Attempts to raise tariffs and increase private sector involvement were strongly resisted, and the authorities have been unable to stem electricity theft and improve collection. As a result, the sector remains dominated by the state and highly reliant on subsidies and budgetary support.

4. The paper focuses on the fiscal burden imposed by the sector, key elements of a reform strategy and potential fiscal gains. The rest of the paper is structured as follows: section B overviews the key trends in the sector, section C focuses on the fiscal cost of the sector, while section D looks at the potential fiscal impact of various reform strategies and makes policy recommendations to enhance the sector's fiscal sustainability.

B. Recent Trends in the Electricity Sector

5. Since 2003, Iraq has added sizable generation capacity in an effort to catch up with growing demand. Nameplate capacity has more than quadrupled since 2003 reaching 35.9 GW in 2021, of which, 20 GWs representing mostly gas-fired generation plants were added since 2003 through investment projects by the Ministry of Electricity (MoE). [4] More recently, in light of investment budget constraints, the authorities have enlisted independent power producers (IPPs) which contribute 5 GW. Interconnection lines with Iran and private producers in the Kurdistan region (KRI) add around 2.4 GW to available capacity. The bulk of Iraq's electricity is produced from fossil fuels: aside from 1.8 GW in hydroelectric capacity (which was installed prior to 2003) no major sources of renewable energy have been added in the past 18 years.



Sources: National Authorities and IMF staff calculations.

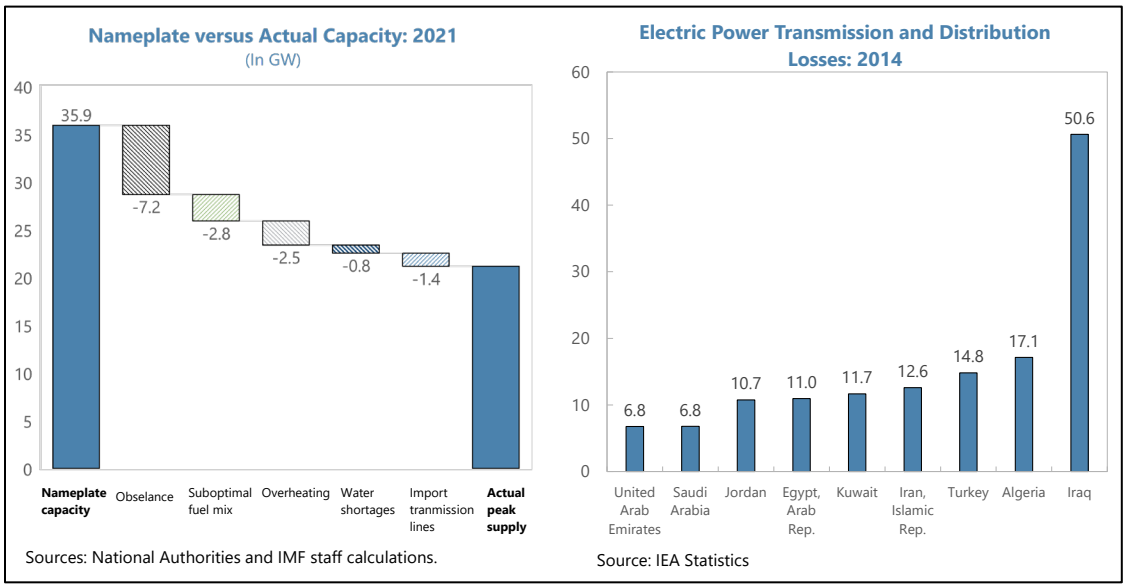
6. However, actual supply falls significantly short of nameplate capacity due to inefficiency.[5] Generated electricity peaked at 21.1 GW in 2021, only 59 percent of nameplate capacity. The under-utilization by 14.8 GW of total capacity is mainly attributed to (i) obsolesce and weak maintenance, (ii) use of suboptimal fuel mix, as liquid fuel is often used to operate gas-generation facilities to compensate for gas shortages, and (iii) turbine overheating, in the

[3] Almost one fifth of Iraq's electricity network was destroyed during the ISIS insurgency with damages amounting to US$7 billion according to the World Bank's Damage and Needs Assessment report.

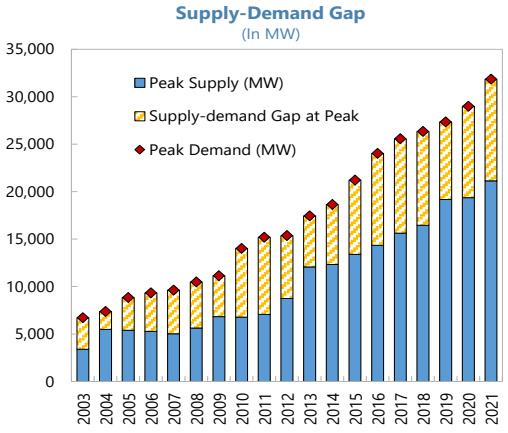
[4] Nameplate capacity refers to the maximum possible generation capacity under optimum conditions including regular maintenance, ideal temperature, and fuel input according to the manufacturer.

[5] Supply refers to actual electricity produced in the generation stage before technical and commercial losses in the transmission and distribution stages. Peak supply refers to the maximum rate of electricity generation, which usually takes place in the summer months, even if not sustained throughout the year.

absence of cooling facilities.[6] Moreover, technical losses across the supply chain are very high—at 23 percent compared to a peer average of around 14 percent. Another 41.4 percent of production is attributed to non-metered consumption or theft, so that only 35.6 percent of produced electricity is being sold to customers



7. As demand outpaced supply, the electricity deficit widened significantly over the past two decades.[7] Between 2003 and 2021, peak demand has grown by an estimated 25.1 GW compared to a 17.7 GW increase in supply. As a result, the electricity deficit has tripled from 3.3 GW 2003 to an all-time high of 10.7 GW in 2021.



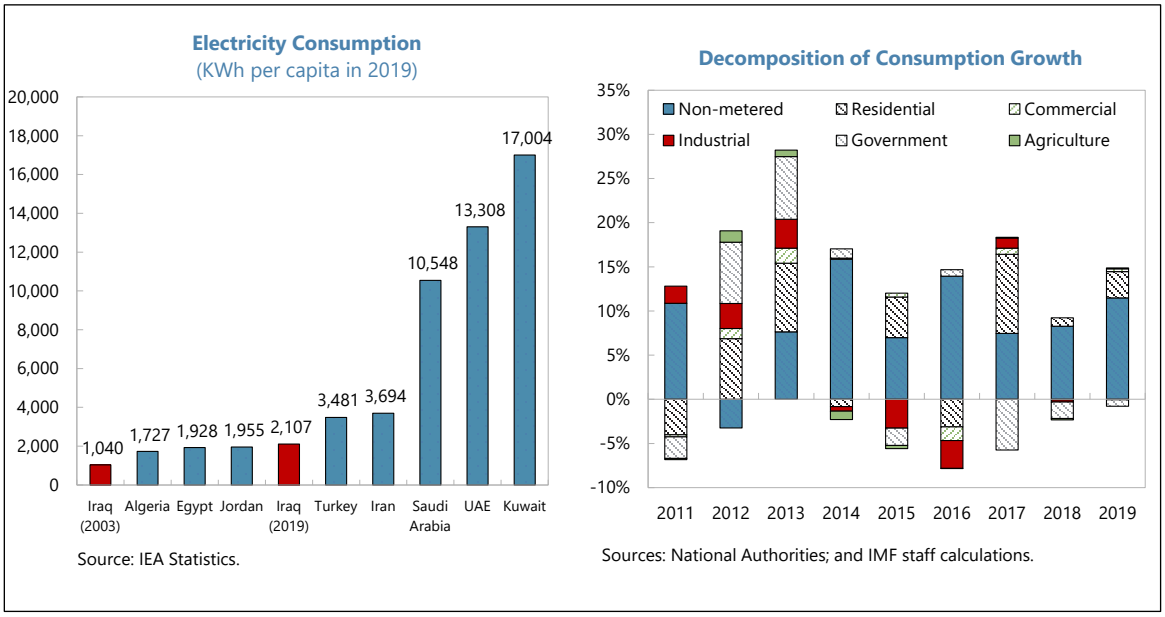
8. Neighbourhood generators and demand suppression have helped to close the gap between demand and supply. Small-scale generators, spread across neighbourhoods and operated with subsidized or free fuel, are estimated to have supplied the equivilant of 5 GW in off-grid electricty in 2018, covering roughly half of the electricity deficit. On top of being very noisy and polluting, the electricity produced by them is extremely expensive with tariffs equivilant to around 60-120 USD/kWh compared to an average tariff of around 0.8 USD/kWh applicable to the highest consumption bracket of grid-supplied electricity. High-cost electricity provided by generators is largely unregulated and imposes a heavy financial burden on consumers. The

[6] Unutilized capacity refers to the gap between nameplate capacity and peak supply.

[7] Estimates for actual demand are uncertain due to its suppression.

neighbourhood generator industry has grown in scale, and its revenues in 2018 were estimated at around US$ 4 billion—roughly four times what the official electricity sector had collected during the same period (IEA, 2019). The rest of the deficit is closed through consumption rationalization.

9. Economic and population growth coupled with absence of metering and demand management policies were the main drivers of the rapid demand growth. Iraq's per capita electricity consumption has doubled since 2003 to levels comparable with oil importers in the region, yet it remains lower than in oil-exporting regional peers, particularly countries of the Gulf Cooperation Council (GCC). Non-metered consumption has been the largest contributor to demand growth followed by residential customers. On the other hand, Government consumption has been declining on average since oil prices collapsed in 2014 reflecting government efforts to constrain spending and rationalize electricity demand.



10. To supplement public investments, the government has attracted private sector participation, although it gained traction mainly in the generation stage. Several attempts were made to involve the private sector across the value chain. A pilot for private sector management of distribution in Baghdad, for example, saw initial success before being overturned under pressure from vested interests, most importantly those connected to the neighborhood generator industry.[8] Private sector participation in generation, however, found significant traction with the authorities to overcome insufficient investment allocations for new generation capacities. Between 2018 and 2021,

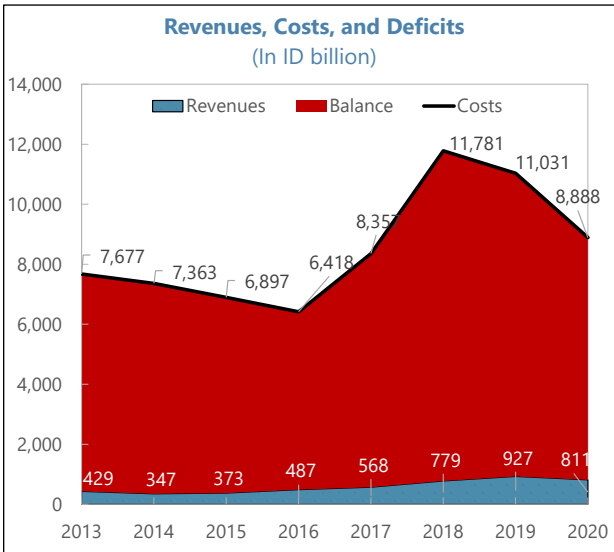
[8] In 2016, pilot projects were implemented in parts of Baghdad that increased tariffs in return for guaranteeing supply. Consumption of electricity was reduced by 30% and collection rates improved. But opposition from political and business groups has halted the pilot (KAPITA, 2021).

5 GWs in gas and fuel generation capacities were commissioned by 7 IPPs. The majority of IPPs are contracted on a take-or-pay basis and are supplied subsidized fuel by the Ministry of Oil (MoO).[9]

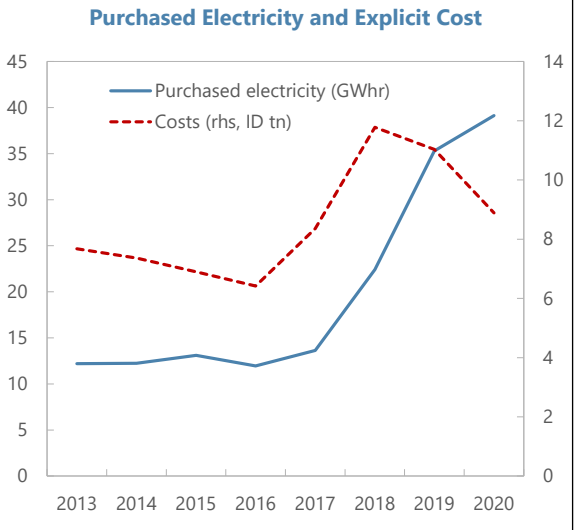
11. Imports of fuel and electricity have been rising to overcome insufficient fuel supply. The growing gas deficit amid rising demand and stagnating domestic supply prompted imports of Iranian gas starting in 2017, in addition to imports of electricity through four cross-border high voltage transmission lines. The accumulation of arrears, geopolitical tensions and climate shocks in Iran have often affected the reliability of imports resulting in occasional major power shortages. The federal government also purchases electricity from private producers in the KRI and, in recent months, announced plans to import electricity from Turkey, the GCC countries, and Jordan, as well as liquefied natural gas (LNG) from Qatar.

C. The Cost of the Electricity Sector

12. The electricity sector's costs far exceed its revenues and the deficit has been widening. Explicit **operational** costs[10] are often 10 times the sector's revenues or higher, implying significant losses and financing needs to maintain service provision. In 2019, for example, the total explicit operational costs amounted to ID 11.0 trillion ($9.3 billion or 4.0 percent of GDP), while revenues were less than ID 1 trillion. Moreover, explicit costs have increased significantly in recent years along with the rise in electricity purchases and imports.



Sources: National Authorities; and IMF staff calculations.

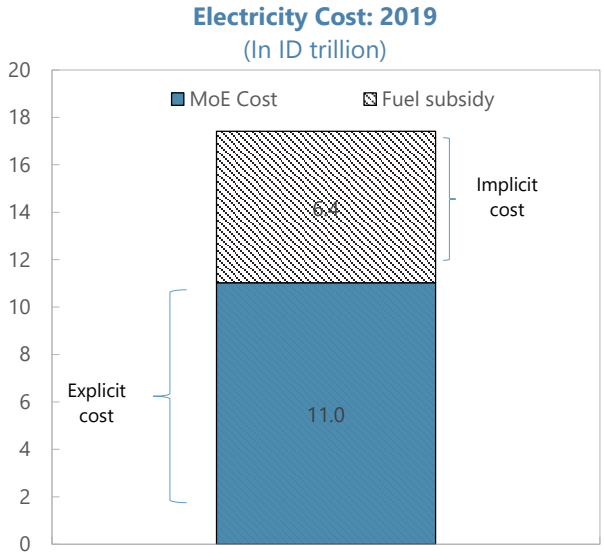


Sources: National Authorities; and IMF staff calculations.

[9] Under take-or-pay provisions, the offtaker or buyer, who in this case is the Iraqi government, is required to pay the IPP for a minimum portion of the standing capacity even if it did not receive the electricity, for example in case it failed to secure sufficient fuel supply or due to losses in the transmission network.

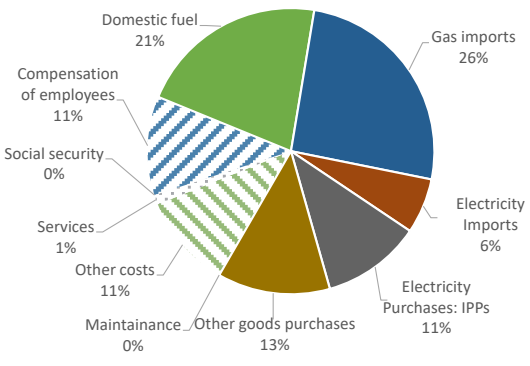
[10] Explicit operational costs, hereafter explicit costs, refer to operational costs excluding the implicit subsidy for domestic fuel used in generation as well as investment and capital costs. In contrast, total operational costs, hereafter total costs, are those including the implicit fuel subsidy but still exclude investment or capital costs. While total costs are a better measure of the sector's true financial burden, explicit costs better proxy MoE's operational financing needs.

13. In addition to the explicit cost, significant resources go into subsidizing domestic fuel used in electricity generation which further raise total costs. The MoO sells domestically produced natural gas, crude and fuel oil to the electricity sector at highly subsidized prices, which are fixed in Iraqi dinar regardless of movements in international energy prices or exchange rates. Natural gas is sold at the equivalent of $1.0/MMBTU (down from $1.3 before the dinar devaluation in 2020), while crude and fuel oil are sold at the equivalent of $5.5/barrel and $19/barrel respectively (down from $6.7 and $23.5 per barrel before the devaluation). In 2019, these prices represented 16, 11 and 46 percent of their respective international prices implying an additional cost of ID 6.4 trillion in implicit subsidy. By including the implicit cost, the total cost of the electricity sector in 2019 amounted to ID17.4 trillion (6.3 percent of GDP).

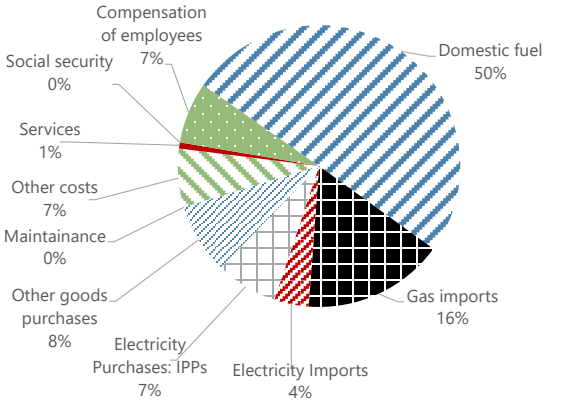


Sources: National Authorities; and IMF staff calculations.

14. Fuel and electricity purchases are the largest cost component. Fuel is the largest cost item with imported gas representing a quarter of explicit costs in 2019, followed by subsidized domestic fuel with 21 percent, even though the latter underlies 63 percent of generated electricity. Purchases and imports of electricity from IPPs, Iran and the KRG together make up a little more than another quarter of total cost. The last quarter is split between wages, which represent 11 percent, and other costs. Accounting for the implicit subsidy, domestic fuel becomes the largest cost item by 50 percent of total cost, which is more in line with its share in generated power.

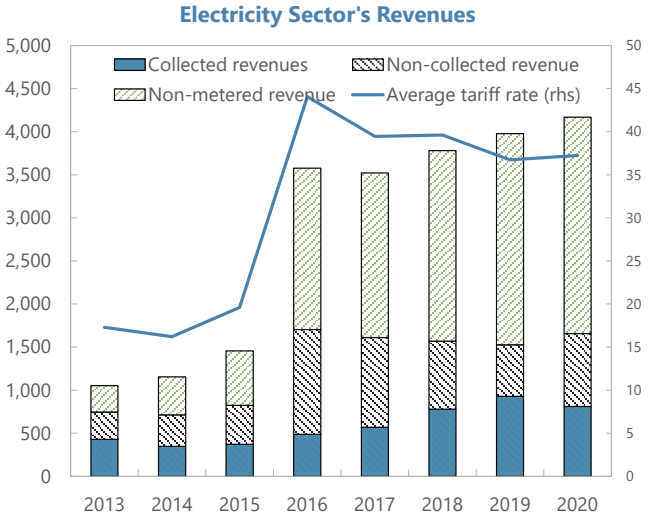


Sources: National Authorities; and IMF staff calculations.



Sources: National Authorities; and IMF staff calculations.

15. Meanwhile, the sector has struggled to mobilize tariff revenue. While collected revenues almost doubled between 2013 and 2020, they remain far short of costs or potential. In 2020, it is estimated that the sector supplied electricity, including non-metered consumption, valued at ID 4.2 trillion at prevailing tariff rates.[11] Of this amount, only about ID 1.7 trillion was billed to consumers and less than half (ID 0.8 trillion) collected. Since electricity demand has been driven by non-metered consumption, revenue has failed to benefit from the rapid expansion in supply. An attempt to increase tariffs in 2016, which was partially reversed in 2017, mostly led to increased electricity theft and non-payment with little impact on collected revenues.

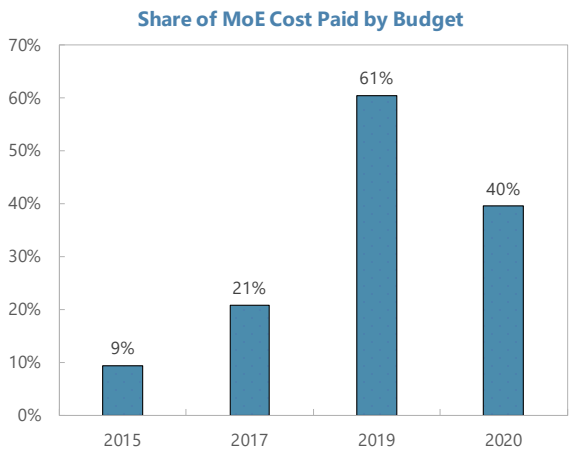


Sources: National Authorities and IMF staff calculations.

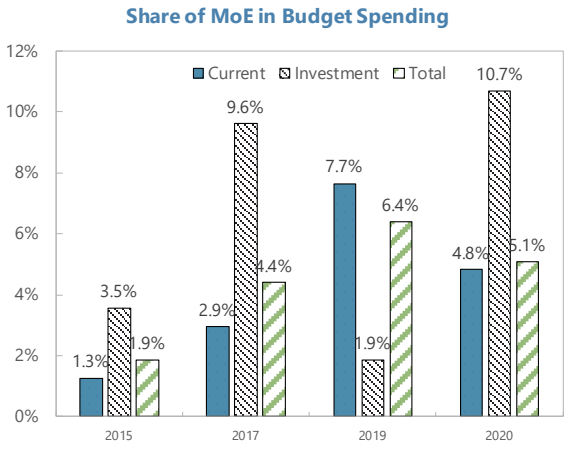
16. Through implicit subsidy and internal arrears, MoO underwrites a significant portion of the electricity sector costs which **are eventually passed on to the budget.** While the implicit subsidy is not recorded as an expenditure on the budget, crude oil and products directed to domestic electricity generation reduce the volumes available for export and hence affect export and budget revenues. Even at the subsidized prices, the electricity sector has been unable to fully pay domestic fuel bills to MoO. Inability to recover its costs or stop supplying domestic fuel, in order not to disrupt electricity supply, have prompted MoO to reduce distribution of dividends by its state-owned enterprises (SOEs) to MoF citing liquidity shortages. Cumulative arrears to the oil sector have been consistently rising over the years reaching around ID 23 trillion in 2021(7.7 percent of GDP).

17. The rising explicit costs and financing needs of the electricity sector have been increasingly borne by the government budget. In 2019, the budget covered ID 6.7 trillion or 60 percent of the electricity sector's explicit costs, up from only 9 percent in 2015. Spending on electricity represented 7.7 percent of the government's current expenditure envelope in 2019, up from only 1.3 percent in 2015. The budget prioritizes funding purchases of gas and electricity which represented 82 percent of the total purchases of goods envelope in the budget. In addition to current expenditures, the electricity sector is allocated a significant portion—as much as a tenth in some years—of the non-oil public investment budget. Since 2017, an average of 5 percent of the government's total expenditures were directed to the electricity sector. Purchases of goods for the electricity sector represented 82 percent of the total purchases of goods envelope in the budget.

[11] The estimate is calculated by applying the average effective tariff rate from the sold portion of supply to the non-metered volume.



Sources: National Authorities; and IMF staff calculations.



Sources: National Authorities; and IMF staff calculations.

18. Part of the deficit is financed through external arrears, especially when budget allocations are constrained. Since 2019, the sector started incurring arrears to Iran and IPPs which increased significantly in 2020, affecting the regularity of supply and leading to intensified power shortages in Iraq. The past stock of arrears was settled in 2022 using allocations from the Emergency Law for Food Security and Development but new arrears for the year have already been accumulated due to insufficient allocations for current import payments.

D. Strategies for Reform and Policy Recommendations

19. A continuation of past trends and policies could undermine the financial sustainability of the sector and public finances. Attempting to close the supply-demand gap, by adding fuel-based generation capacities, either through IPPs or directly by MoE, would see technical and financial losses multiply. Meeting the growing demand would require more than doubling 2021 supply by adding 19 GW over the medium term. Such an increase amid limited supply of natural gas would lower the share of gas in the fuel mix from 54 to 35 percent reducing plant productivity and fuel efficiency. Meanwhile, increased liquid fuel consumption would more than double to 0.9 mbd crowding out oil exports. Moreover, without significant upgrades, the transmission and distribution networks may not be able to handle the increased volumes; and with little ability to meter consumption and collect bills, costs will be difficult to recover. As a result, attempts to close the supply-demand gap using past strategies would lead to losses more than doubling to ID 55 trillion by 2027 (12.6 percent of GDP) from ID 19 trillion in 2021 (6.5 percent of GDP).

20. The authorities have begun to change track. Their US$31 billion reform and investment plan envisions adding 28 GW to supply to close the demand gap and build a strategic surplus buffer. The supply additions would come from efficiency enhancing investments (13 GW) and new power stations (25 GW), of which 3.5 GW would be based on solar energy. As part of the plan, domestic natural gas production will be significantly boosted through gas capture projects to enhance the fuel mix in new and current generation plants. The plan also envisages spending US$ 11.5 billion over the medium term to upgrade the transmission and distribution networks to reduce technical losses.

Table 1. Iraq: Electricity Sector Financial Balance

	2019	2020	2021	2022	2027		
	Act.	Prelim.		Est.	Current Policies	Authorities Plan	Reform
Peak Electricity Supply (GW)	19,170	19,365	21,145	26,036	45,386	45,732	41,895
Peak Electrcitiy Demand (GW)	27,346	29,260	32,000	33,920	45,391	45,391	41,869
Supply-Demand Gap (% of peak demand)	***-30%***	***-34%***	***-34%***	***-23%***	***0%***	***1%***	***0%***
Electricity billed (% of generated)	***0.39***	***0.40***	***0.44***	***0.44***	***44%***	***89%***	***89%***
	Financials (In billions of Iraqi dinars, unless otherwise stated)						
Average Tariff Rate (ID/KWHr)	36.25	37.23	42.26	42.26	42.26	42.26	61.88
Revenue Billed	1,526	1,657	2,110	2,773	4,835	9,805	13,151
Revenue Collected (1)	**927**	**811**	**1,733**	**2,068**	**3,604**	**7,310**	**11,705**
Less							
Total Cost, of which: (2)	**17,417**	**13,479**	**21,211**	**36,826**	**58,634**	**48,240**	**41,053**
To Oil sector:	**8,749**	**5,432**	**11,362**	**22,547**	**36,728**	**30,475**	**22,674**
Domestic fuel (subsidized)	2,363	1,586	2,107	2,671	4,790	4,306	3,542
Implicit fuel subsidy through MoO	6,386	3,846	9,255	19,876	31,938	26,169	19,132
Imports:	**3,509**	**3,248**	**3,756**	**7,337**	**6,640**	**6,640**	**6,640**
Imported fuel	2,819	2,519	2,759	5,575	5,163	5,163	5,163
Imported electricity	689	729	997	1,762	1,477	1,477	1,477
Electricity Purchases:	**1,236**	**1,403**	**1,832**	**2,553**	**9,337**	**5,196**	**6,638**
IPPs (fuel)	1,236	1,403	1,832	2,553	9,337	2,908	2,553
IPPs (renewable)	-	-	-	-	-	2,288	4,085
Other Costs	**3,924**	**3,397**	**4,262**	**4,389**	**5,929**	**5,929**	**5,101**
Explicit Deficit (2-4)	**(10,104)**	**(8,822)**	**(10,223)**	**(14,882)**	**(23,092)**	**(14,761)**	**(10,216)**
% of GDP	*-3.7%*	*-4.4%*	*-3.4%*	*-3.8%*	*-5.3%*	*-3.4%*	*-2.3%*
Total Deficit (1-2)	**(16,490)**	**(12,667)**	**(19,478)**	**(34,758)**	**(55,030)**	**(40,930)**	**(29,348)**
% of GDP	*-6.0%*	*-6.3%*	*-6.5%*	*-8.8%*	*-12.6%*	*-9.4%*	*-6.7%*
Memorandum items:							
Share of natural gas in fuel mix	*59.0%*	*63.7%*	*58.2%*	*53.7%*	*35.1%*	*51.1%*	*61.4%*
Liquid fuel consumption (kbpd)	208	187	221	326	856	593	386
Domestic natural gas (mn m3)	8,686	8,083	9,723	10,876	12,156	21,876	21,876
Investment cost[1/] (US$ bn)					-	31.2	20

1/ The current policies scenario assumes new capacities are contracted by IPP in return for a fee that includes capital cost, given lack of sufficient budget allocations for investments. The authorities plan for 2022-2027 costs US$ 31.2 bn in investments, of which US$20 bn are effeciency enhancing and are assumed in the reform scenario.

21. Nevertheless, these measures alone would not ensure financial sustainability. On top of the sizable investment costs, the operational deficit would rise to ID 41 bn by 2027 (9.4 percent of GDP) and significant amounts of liquid fuel will continue to be required to operate the additional capacities, even with domestic natural gas production doubled. In this context, the authorities' current plans could be further enhanced by prioritizing the following:

- *Maximizing the productivity of existing assets and fuel allocations through targeted investments and* a regular maintenance schedule. Reducing the underutilization of existing generation capacity and the excess technical losses would help to significantly narrow the supply demand gap. Prioritizing allocations for a regular maintenance schedule and targeted investments (e.g. by installing coolers to prevent overheating and converting single-cycle turbines to combined cycle) would significantly improve productivity without raising demand for fuel, hence yielding the most return on investments. In parallel, upgrading the transmission and distribution network will

be critical to reduce both excess technical and commercial losses, thus helping to contain demand and mobilize tariff revenues.

- *Accelerating gas capture plans* to avail more gas for generation. While the ability to use alternative fuels in gas-fired stations allows operational flexibility, it reduces turbine productivity and should be minimized. While requiring significant investments, capturing the gas that is currently being flared—in addition to significant environmental benefits—can potentially add more than 4 GW in power supply, free up significant oil volumes for exports, and reduce import dependence[12]. An important priority toward this end is streamlining and standardizing gas capture agreements to ensure transparency and investing in the infrastructure for the capture, storage, transportation, and treatment of the natural gas to be used in power plants.

- *Leveraging private resources and renewable sources of energy*. New generation capacity should primarily come from renewable energy sources which are more cost efficient and environmentally sustainable. Iraq is among the top countries in solar power potential. Rapid technological advancements in recent years have significantly brough down costs of renewable energy to levels competitive with fuel-based generation, while reducing pressure on fuel resources. Another particularly useful feature of solar energy for Iraq is that it can be deployed in different scales varying from large IPP-operated solar parks, as in regional peers, to small rooftop mounted cells, which could reduce citizen's reliance on neighborhood generators. Formulating a clear regulatory and contractual framework would help accelerate adoption including by streamlining land allocation and offtake agreements with IPPs and developing a net metering scheme to encourage rooftop installation by residential consumers. Additionally, as in other countries, the authorities could consider fiscal and monetary incentives for the purchase and financing of solar panels and energy efficient equipment.[13]

- *Strengthening demand management policies* to contain demand and help close the supply-demand gap through increased energy efficiency. Without measures to slow demand, the supply-demand gap will continue to be a moving goalpost. Combating non-metered consumption and electricity theft will be of paramount importance to the sustainability of any investment strategy. It will require accelerated upgrading of the distribution network and rolling-out of smart meters. Given the length of time needed to setup this infrastructure, it will be critical for the authorities to set the process in motion at the soonest. Revising the tariff structure so that vulnerable groups continue to receive low-cost lifeline service while tariffs for high consumption tiers reflect the economic cost of service will be the next step[14]. Time of day and day of week charges can help shift non-essential and industrial consumption to non-peak hours reducing overall peak demand. In parallel, promoting the adoption of energy efficient lighting, appliances

[12] The investment cost needed for gas capture and elimination of gas flaring in Iraq was estimating at $29 billion in the World Bank's 2022 Climate Change Development Report.

[13] The Central Bank of Iraq has recently launched a lending support program for green investments in the amount of ID 1 trillion.

[14] A World Bank commissioned report on "Cost of Service and Tariff Design/Rationalization Study for Electricity Supply in Iraq" includes more detailed recommendations for tariff design by consumer type.

and building materials is a no-regret measure that will help contain demand and save on consumers hefty neighborhood generator bills.

22. Staff estimates that such policies would allow a gradual reduction of the electricity sector's annual cost by an additional 2.6 percent of GDP over the medium term. Strong demand management measures would reduce the need to expand supply[15]. The increase in supply would primarily come from efficiency enhancing investments which would raise the productivity of current capacities. Renewable energy would make up the difference by adding 6 GW[16]. Capturing and redirecting flared gas to stations would significantly enhance fuel efficiency helping to contain costs. In parallel, improved quality of service and better management of an upgraded transmission and distribution network would facilitate metering, collection and tariff adjustment helping to mobilize tariff revenue and recover costs. As a result, the sector's deficit can be contained at ID 29 bn by 2027 (6.7 percent of GDP).

23. Strengthening of public financial management will be critical to enable electricity sector reforms. Centralized monitoring of all the sector's costs and liabilities, including implicit costs borne by MoO, at the Ministry of Finance will be essential to have a clear view of the total burden imposed by the sector, develop adequate financing plans and consolidation policies, and to avoid build-up of hidden costs and arrears. Alongside, a clear strategy to finance the sector's large investment needs and transparent implementation will be critical. Given the scarcity of financial and fuel resources, the strategy should look to sequence and prioritize investments and frontload those with significant efficiency enhancing gains. The strategy should also consider whether the public or the private sector is better suited to undertake each project and ensure efficient implementation within a public investment framework.

24. Intergovernmental coordination, public communication and transparency will be equally important. Close coordination between different government entities—most importantly the ministries of finance, planning, oil, and electricity—will be of particular importance in the allocation of costs and financing, the resolution of internal and external arrears as well as fuel provision and advancing on gas capture and renewable energy plans. In parallel, clear communication with the public and explicit recording of the sector's true cost in the budget would help inform societal debate and increase public buy-in for tariff collection and restructuring efforts. Transparent contractual and regulatory frameworks for gas capture and renewable energy generation would encourage private sector investments in these areas.

[15] Demand projections in this scenario assume an annual 10 percent increase in tariffs starting 2024 with a demand elasticity of -0.2.

[16] Iraq's Nationally Determined Contribution to the Paris Agreement (NDC) envisages adding 12 GW in renewable energy capacity by 2030.

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