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MARCH 2015

**TURN A LIGHT ON:
ELECTRICITY SECTOR REFORM IN IRAQ**

LUAY AL-KHATTEEB AND HARRY ISTEPANIAN

B | Foreign Policy
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TURN A LIGHT ON: ELECTRICITY SECTOR REFORM IN IRAQ

LUAY AL-KHATTEEB AND HARRY ISTEPANIAN¹

IRAQ'S ELECTRICITY: IS AND BEYOND

In June 2014, the Islamic State (IS), formerly known as the Islamic State of Iraq and al-Sham, swiftly took control of Iraq's second largest city, Mosul, along with several other cities in the north and west of the country. The crisis has battered the country's ambitious economic development plans, including efforts to reform a fragile electricity sector which has suffered lengthy blackouts for decades.

By May of 2014, the government was confident that Iraqis would finally benefit from 24 hours of electricity supply based on its plan to add 8,000 megawatts (MW) of generation capacity to reach 20,000 MW by the end of 2015.² In the wake of IS's advance, however, the Ministry of Electricity instead announced grid losses of more than 8,000 MW. Most Iraqis are now back to having electricity that runs five to eight hours a day at best, wary of fresh promises from the ministry that production will rebound to 12,000 MW by summer 2015. This long-standing gap between electrical supply and demand is estimated to have caused some \$40 billion in annual losses for the Iraqi economy.³

The newly appointed government of Prime Minister Haidar al-Abadi faces an enormous challenge in providing basic services, including

electricity. Military operations against ISIS, waves of internally displaced persons (IDPs), and the decline in global oil prices have badly affected Iraq's state-run economy, in which the oil sector has long provided more than 95 percent of government revenues and 80 percent of foreign exchange earnings.⁴ Most if not all ongoing projects have been brought to a standstill, and foreign contractors have already pulled out from at least six generation projects which would have provided over 2,500 MW in energy.⁵ This has undermined the country's economic and social development plans, with investment money in the electricity sector cut by half to just three billion dollars in 2015, according to recently released federal budget figures.⁶ Transmission lines are again targets for insurgent attacks, while several thermal, hydro, and gas-fired power stations in dangerous and unstable provinces such as Salahuddin, Ninevah, Anbar, and Kirkuk, have been forced to shut down due to heavy fighting, causing the 8,000 MW losses cited by the ministry.⁷

Iraq's electricity problem is not new; the sector has suffered from decades of bad management, poor policies, and the lack of proper planning for the future. The violence and instability engendered by IS have only exacerbated the problem. As the government's spending priorities have shifted towards security, however,

¹ Luay J. Al-Khatteeb is non-resident fellow at the Brookings Doha Center and director of the Iraq Energy Institute. Harry H. Istepanian is senior fellow at the Iraq Energy Institute. The authors would like to thank Iraq Energy Institute for providing access to data and reports. They would also like to thank colleagues at the Brookings Energy Security Initiative and the Brookings Doha Center for their comments, edits, and feedback.

² Harry Istepanian, "Iraq's Electricity: From Crisis to ISIS," *Power Engineering International* 22, no. 8 (2014), 32-37.

³ Parsons Brinckerhoff, "Republic of Iraq, Ministry of Electricity, Iraq and KRG Electricity Master Plans," Final Report, Executive Summary, vol. 1 (December 2010).

⁴ International Energy Agency (IEA), *Iraq Energy Outlook—World Energy Outlook Special Report* (Paris: International Energy Agency, 2012), 19.

⁵ These include the power plants Mansuriya (730 MW), Sadr-2 (320 MW), Gayarah (750 MW), Baiji (960 MW), Akkaz (250 MW), and Salah ad-Din (630 MW).

⁶ Government of Iraq, "2015 Federal Budget," Parliament of Iraq, January 2015, <<http://ar.parliament.iq/CP/Websites/Laws/Documents/moazanh-2015.pdf>>.

⁷ The affected power stations are Baiji, Al Shemal, Mulla Abdullah, Al Mansuriya, Al Anbar, Haditha Dam, Hemrin Dam, and Mosul Dam.

Iraqi Prime Minister Haidar Al-Abadi must recognize that defeating IS will require more than confronting immediate security threats. Progress toward greater security and political stabilization should be accompanied by the rapid development of local economies and restoration of basic services in the areas which are currently under IS control. The payoff from the government’s investments must be noticeable for residents to quickly perceive benefits to the re-establishment of state-authority. Investments in Iraq’s energy grid would provide just such a payoff.

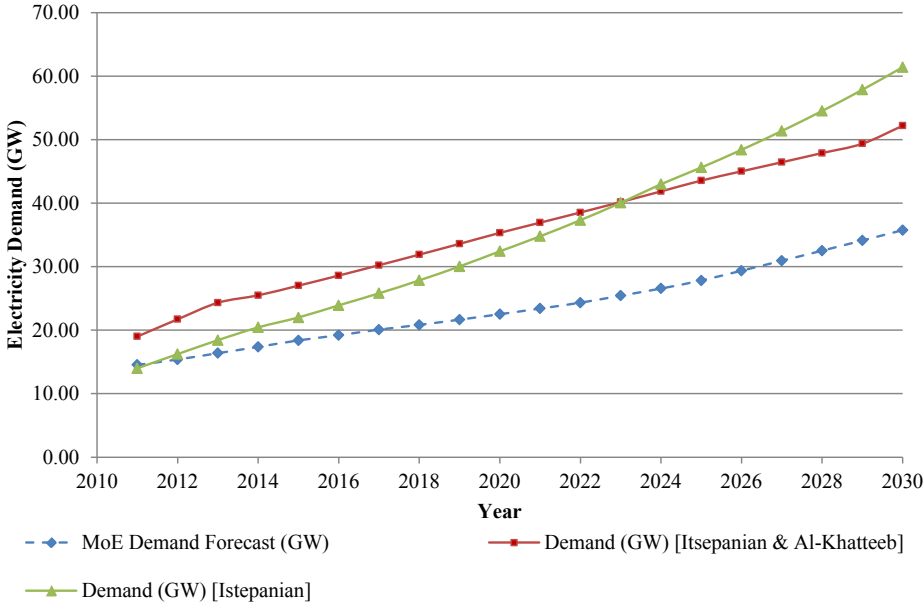
ELECTRICITY SHORTAGE: WIDENING AND DEEPENING

The core dynamic of Iraq’s electricity crisis is simple: an ever-widening gap between supply and demand. There is no accurate estimate for actual demand due to its suppression by institutional and economic constraints on consumption and the lack of accurate historical data since the 1990s. In two recent studies,

though, the authors have estimated demand at anywhere between 50 and 70 percent higher than originally anticipated by the ministry’s Master Plan (Fig. 1), taking into account factors such as shifting demographics and suppressed demand.⁸ Total peak demand is likely to reach anywhere between 50,000 to 60,000 MW by 2030 while the ministry forecasts peak demand as a mere 35,000 MW.⁹ In addition to continuous population growth (Fig. 2), the substantial jump in GDP growth after 2003, mainly due to the increase in crude oil prices, has contributed to the increase in the demand for electricity (Fig. 3).

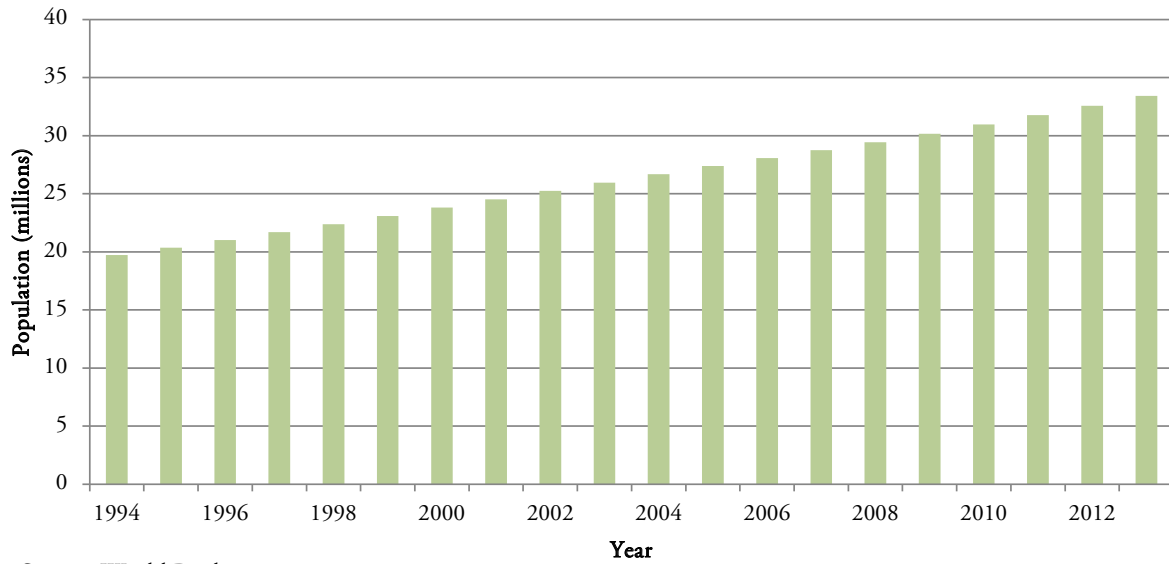
This trend will no doubt be blunted, and investments in the electricity sector undercut, by the costs of the current conflict and oil prices sliding to below \$60 a barrel.¹⁰ The International Monetary Fund (IMF) has already predicted that Iraq’s economy is likely to shrink by 2.7 percent by 2014 (following 4.2% growth in 2013), with further declines to follow.¹¹ Non-

Figure 1: Electricity Demand Forecast



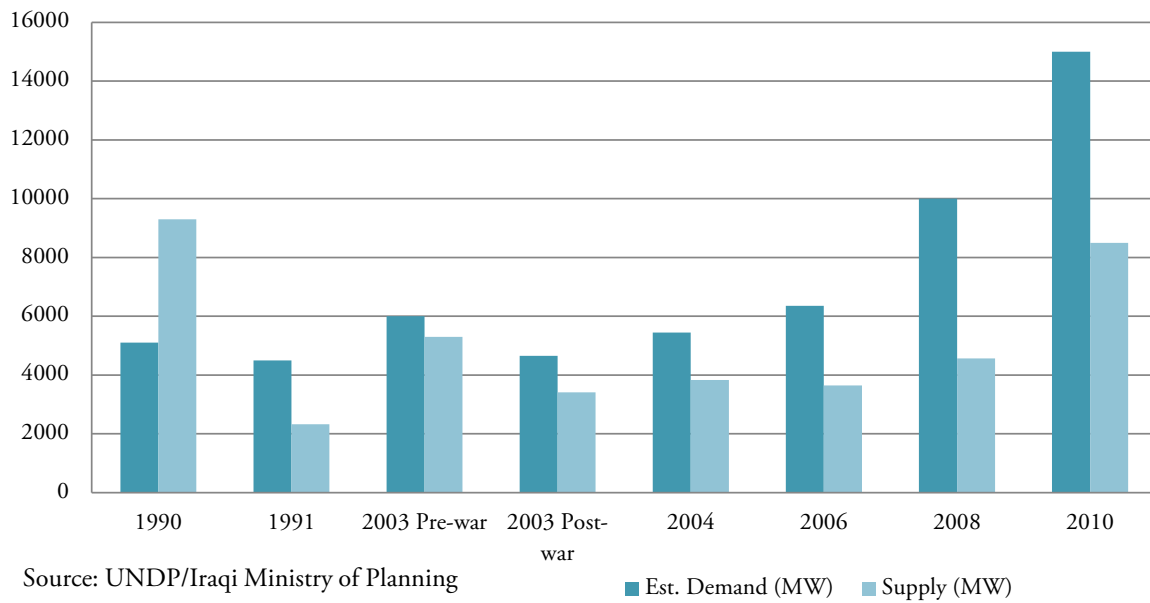
⁸ Harry Istepanian, “Iraq’s Electricity Crisis,” *The Electricity Journal* 27, no. 4 (2014), 51-69; Harry Istepanian and Luay Al-Khatteeb, “Electricity Consumption and Economic Growth in Iraq” (presentation, Power-Gen Middle East conference, Abu Dhabi, October 2014).
⁹ Parsons Brinckerhoff, “Iraq and KRG Electricity Master Plans.”
¹⁰ Adnan Al-Janabi and Luay Al-Khatteeb, “The 2015 Budget: Financial Challenges and Opportunities for Economic Reform,” 29 December 2014, <<http://www.brookings.edu/research/opinions/2014/12/29-iraq-budget-2015-alkhatteeb-aljanabi>>.
¹¹ International Monetary Fund (IMF), “World Economic Outlook—Legacies, Clouds, Uncertainties,” October 2014, <<http://www.imf.org/external/pubs/ft/weo/2014/02/pdf/text.pdf>>.

Figure 2: Iraq's Estimated Population (2003 – 2030)



Source: World Bank

Figure 3: Electricity Supply/Demand (1991 – 2010)¹²



Source: UNDP/Iraqi Ministry of Planning

■ Est. Demand (MW) ■ Supply (MW)

¹² UNDP/Ministry of Electricity.

oil GDP growth has also likely shrunk after growing by over 7% in 2013. Still, growth is forecasted to pick up again to a modest 1.5% in 2016 off an expected rise in oil prices.

FAILURE TO PLAN

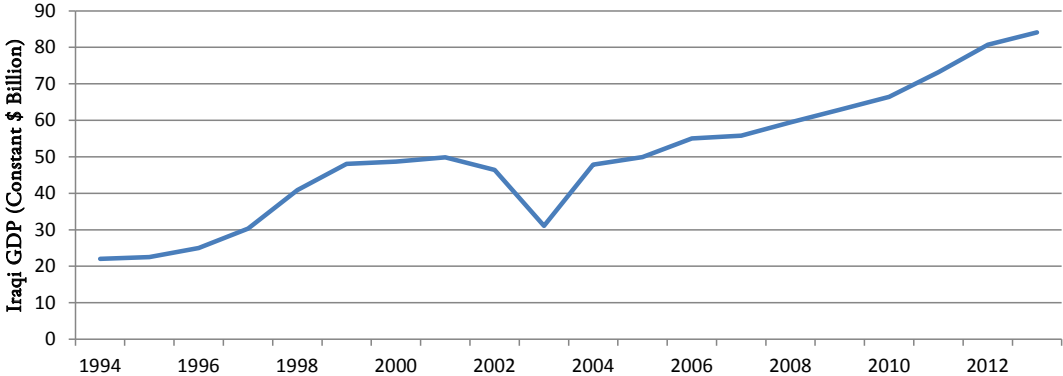
Since the 1990s, after Iraq’s invasion of Kuwait, the subsequent international military response, and the sanctions imposed by the United Nations, the country’s well-established legal, regulatory, political, and economic institutions have been in decline—including state-owned electricity enterprises.¹³ Furthermore, the fallout of the U.S. invasion in 2003 has seen an increasingly sectarianized Iraqi government, undermining the institutional autonomy of the public entities. Control over the electricity sector was centralized in 2004 with the establishment of the Ministry of Electricity, reinforcing the dominant role of the central government, with the exception of areas administered by the Kurdish Regional Government (KRG).¹⁴

Funding of the electricity sector after 2003 lacked any coherent policy strategy. Billions of dollars were pumped into the sector to

augment grid capacity without serious study of how best to improve sector efficiency and poor performance. There was and still remains a general fear among the Iraqi officials that any radical economic reforms, such as the elimination of subsidies for basic necessities like kerosene, cooking gas, electricity, and food rations would be faced with strong opposition by the public and might cause widespread rioting, destabilizing an already fragile political process.¹⁵

The government has also cautiously approached any attempt to privatize the state-owned enterprises, believing that such moves might put hundreds of thousands of public service employees out on the street without work in a country that already has an unemployment rate of greater than 15 percent.¹⁶ The government of Prime Minister Nuri al-Maliki was reluctant to take any serious measures to privatize the electricity sector, arguing that the country was not stable enough and the end users among Iraq’s population were not sufficiently prepared for such an arrangement. It was not until 2010 that the former government finally conceded that the private sector should have a role in

Figure 4: Iraq’s GDP Growth (2003–2013)



Source: World Bank

¹³ Bathsheba Crocker, “Reconstructing Iraq’s Economy,” *The Washington Quarterly* 27, no. 4 (2004), 73-93.
¹⁴ The electricity sector was overseen by an independent commission until 2003.
¹⁵ Former members of Iraqi Parliament, various interviews with the authors, Baghdad and London, 2008-2012.
¹⁶ Istepanian, “Iraq’s Electricity Crisis.”

developing the sector, placing a draft electricity reform bill on the parliamentary agenda.¹⁷

Still, the bill has yet to be adopted, partly due to disagreements between various parliamentary blocs on privatization and the role of the central government in protecting national assets, and partly due to fears that reform of the electricity sector might become another divisive political issue.¹⁸ Parliamentary factionalism, aggravated by sectarian blocs and regional geopolitics, has continued to stymie attempts at reform. In 2013, for example, a controversial deal between Iraq and Iran to import natural gas and electricity triggered intense local media criticism of the officials responsible for Iraq's energy portfolio, with accusations that Tehran sought to intervene in Iraq's internal economic and political affairs through the Shi'ite-led government.¹⁹ As a result, the electricity sector has continued to place a serious burden on the country's increasingly stretched budgetary resources, with the government forced to import fuel to generate electricity; the subsidization of this fuel only drives the country's deficit up even further.²⁰

AN EXPANDED ROLE FOR THE PRIVATE SECTOR

Government disagreements aside, there is a key role for private sector investments in meeting the challenges of the electricity sector, both

from domestic companies and foreign investors. Iraq's long-standing electricity shortage will require a sustained, multi-year effort across a wide front of the country's energy, institutional, legal, and regulatory institutions, with an eye towards enhancing the investment atmosphere for the private sector and improving oversight of the network.

The capital requirements of upgrading the grid have long seemed an insurmountable problem, preventing the Maliki and then Abadi governments from phasing out the heavy hand of the Ministry and re-orienting its responsibilities toward market regulation and consumer protection. The government is currently revisiting its independent power producer (IPP) program, al-Samawa, which aims to jump-start the market. More projects are to follow if it is successful. Such public-private partnerships would allow the Abadi government to compensate for the scarce financial resources allocated in the federal budget for 2015 to the ministry, providing critical capital investments.²¹

In many developing countries, especially those emerging from war and conflict, socioeconomic context has been highlighted as an important factor in the effective restructuring of incumbent and highly structured government

¹⁷ The draft bill would mandate the government to slowly proceed with the liberalization of the sector, largely restricting the ministry's role to regulatory and licensing policies. Among other issues, it aims to promote a greater role for the private sector; define consumer rights and obligations; decentralize the generation, distribution, and retailing of energy; encourage investment; and improve oversight. See World Bank, *Doing Business 2009: Country Profile for Iraq—Comparing Regulation in 181 Economies* (Washington, DC: World Bank, 2008); John Sachs, Shamshek Asad, and Hussain Qaragholi, "Iraq's Power Crisis and the Need to Re-Engage the Private Sector—Smartly," Middle East Economic Survey, 6 February 2011, <<http://www.taylor-dejongh.com/wp-content/uploads/2012/02/Iraqs-Power-Crisis.pdf>>; Bertelsmann Stiftung, BTI 2012—*Iraq Country Report* (Gütersloh: Bertelsmann Stiftung, 2012).

¹⁸ Luay Al-Khatteeb and Harry Istepanian, "Iraq Draft Electricity Law: What's Right, What's Wrong," *Petroleum Economist*, 14 April 2014, <<http://www.brookings.edu/research/papers/2014/04/15-iraq-electricity-law-alkhatteeb-istepanian>>.

¹⁹ Hassan Hafidh, "Iraq Signs Deal to Import Iranian Gas," *The Wall Street Journal*, 22 July 2014, <<http://online.wsj.com/news/articles/SB10001424127887324783204578621353730256208>>.

²⁰ According to federal budget for 2015, Iraq is expecting to spend \$430 million on importing electricity and \$454 million on importing fuel for the power stations during 2015. IMF estimates the size of the energy subsidy at over 11 percent of Iraq's GDP in 2011. IMF, "Energy Subsidies in the Middle East and North Africa: Lessons for Reform," March 2014, <<https://www.imf.org/external/np/fad/subsidies/pdf/menanote.pdf>>.

²¹ The government has allocated \$4.35 billion for the Ministry of Electricity during 2015. The authors predict that Iraq will need about \$10 billion for the short-term for adding additional generation and repair costs for the damaged infrastructure due to the war against IS. The World Bank predicted that in total, the electricity expansion program will require \$83 billion of capital expenditures over the period 2011–30. See Sibel Kulaksiz, Ibrahim Al-Ghelaiqah, Simon Stolp, Ferhat Esen, Bjorn Ekman, and Andrew Laing, *Republic of Iraq Public Expenditure Review: Toward More Efficient Spending for Better Service Delivery* (Washington, DC: World Bank, 2014).

organizational monopolies.²² A lack of adequate security makes it difficult for private investors to justify the allocation of major financial resources to the electricity sector, with recent events only worsening this problem. Iraq has repeatedly delayed reform of the electricity sector over the past 10 years, seemingly awaiting better circumstances. Patricia Haslach, former assistant chief of mission for assistance transition at the U.S. Embassy in Baghdad, repeatedly emphasized the need for the Iraqi government to get serious about improving the investment climate during her tenure. Even in 2009, she noted that “the ball is in [the Iraqis’] court now. They can’t just say ‘we want you to invest here.’”²³

The Abadi government has the opportunity and capacity to enforce difficult policy decisions, as evidenced by Abadi’s crackdown on corruption in the army. These steps are a necessary precondition to muster the massive capital investment needed for the sector, given the extensive and ongoing damage to electrical infrastructure. Otherwise, the government risks following the course of Pakistan, where a chronic gap between supply and demand eventually began to erode the legitimacy of the government as well as the social fabric of the country.²⁴

Gradual implementation in liberalization of the sector must be seen to bring improved service in the immediate term and economic dividends for Iraq and its people in the long term. Initial efforts toward the decentralization of power away from Baghdad—thus far a theme of Abadi’s government—can play a key role.²⁵ An expanded role for provincial and local governments in owning and operating

distribution companies within their provinces encourages the involvement of the private sector in the long run. This should begin with the corporatization of the seven regional distribution monopolies, addressing revenue shortfalls by negotiating a more appropriate retail price, albeit with government oversight.

During the transition phase, the government should gradually relieve the ministry of direct responsibility for power provision. It should make incremental use of subcontracted operation and maintenance management, independent service providers, and independent power producers, subcontracting operating and maintenance management to shift this responsibility from the ministry to the private sector. The ministry should increasingly restrict its activities to administration and oversight of these contracts, even as it manages remaining government facilities for transmission and production. Successful implementation of such measures could provide an example for other conflict-ridden states in the region, such as Syria, Libya, and Yemen.

TARIFF POLICY

The most basic consideration for any potential investor will be the price of electricity, and whether that price can generate sufficient profits. Electricity tariffs have been kept below cost-recovery level since the 1990s, after the invasion of Kuwait, despite the steep rise in international oil prices driving up generation costs. Tariffs have been frozen at less than \$0.01 per kilowatt-hour (kWh) since 2003, but providing that same kilowatt-hour costs the Ministry of Electricity more than \$0.10/kWh. Meanwhile, the price of electricity from

²² Kiren Aziz Chaudhry, “The Myths of the Market and the Common History of Late Developers,” *Politics and Society* 21, no. 3 (1993), 245-274.

²³ “U.S. Official Says Iraq’s Politics, Bureaucracy Slow Investment,” Reuters, 7 October 2009, <http://www.rferl.org/content/Iraq_Investment_Still_Hindered_By_Politics_Bureaucracy/1845976.html>.

²⁴ Ioannis N. Kessides, “Chaos in Power: Pakistan’s Electricity Crisis,” *Energy Policy* 55 (2013), 271-283.

²⁵ Sameer Yacoub and Vivian Salama, “To Stem Extremists, Iraq to Reduce Baghdad’s Power,” Associated Press, 10 October 2014, <<http://bigstory.ap.org/article/f0a2fc26d4ca4c52a565fcf4aebfcbfb/stem-extremists-iraq-reduce-baghdads-power>>.

private generators has been estimated to be as high as \$0.13/kWh.²⁶

There have been no specific analyses as to how much the tariff increase might reduce electricity demand—the price elasticity. Experience from other countries with similar economic and political backgrounds indicates that the price elasticity is relatively low, ranging from -0.1 to -0.3.²⁷ Along with most post-conflict states, electricity demand is supply constrained rather than demand driven, as was the case in Lebanon.²⁸ As a result, while raising the tariff will do little to ease the burden on the grid in the near term, it stands to generate significant profits for the operating authorities.

TECHNICAL FIXES

At the most basic level, the ministry should seek to address the high losses associated with the country's dilapidated distribution network, due to unreliable and old distribution lines, inaccurate metering and billing, unmetered supplies, and theft via illegal connections. According to a 2012 International Energy Agency (IEA) study, the estimated losses were around 34 percent in some provinces—extremely high in comparison to other Middle Eastern countries.²⁹ These inefficiencies not only affect the financial bottom line of distribution companies, but also impose costs on consumers through unmerited service cuts.

Beyond this, it will be exceedingly difficult to resolve the electricity crisis in Iraq without utilizing the country's natural resources more efficiently. The huge deficit in the supply of fuel feedstock has hampered the ability of power stations to generate electricity, a situation exacerbated by underinvestment in oil and gas infrastructure.³⁰ This has become a major issue of contention between the Ministries of Oil and Electricity, with officials from each side blaming the other for the electricity shortage. Oil officials have claimed for some time that they lack the electricity to extract fuel, while electricity officials claim they lack the fuel to generate power.³¹

The current generation mix (Fig. 5) is heavily slanted in favor of gas-turbine generation (around 48% of MW generated), along with thermal plants relying on fuel oil, crude oil, refined gasoline (30%), and some limited hydroelectric capacity from the country's eight dams (14%), with remaining generation handled by diesel generators.³² The country's natural gas reserves could provide an answer to the lack of generating fuel given that the country has the world's thirteenth largest proven gas reserves—around 3.4 trillion cubic meters.³³ Yet Iraq flares off more than 1600 million standard cubic feet per day (MMSCFD) as the unusable byproduct of oil extraction, wasting billions of dollars of natural gas.³⁴ Major gas fields such as Akkaz (500 MMSCFD) and Mansuriya (500

²⁶ "Latest Electricity Price Schemes in RCREEE Member States," Regional Center for Renewable Energy and Energy Efficiency, April 2013, <http://www.rcreee.org/sites/default/files/rs_latest_electricity_prices_schemes_in_rcreee_ms_6-2013_en.pdf>; IEA, *Iraq Energy Outlook*, 31.

²⁷ George Nasr, Elie Badr, and Ghassan Dibeh, "Econometric Modelling of Electricity Consumption in Post-war Lebanon," *Energy Economics* vol. 22 (2000), 627-640.

²⁸ Carlo Henry Sfeir, "Toward Optimal Electric Tariff Structure in Lebanon" (MBA project, American University of Beirut, 1999) <<https://scholarworks.aub.edu.lb/handle/10938/5671>>.

²⁹ IEA, *Iraq Energy Outlook*, 32-33.

³⁰ Iraqi fuel demand is approximately 2800 million standard cubic feet per day (about 500,000 barrels of oil equivalent per day) for generating 12,000 MW.

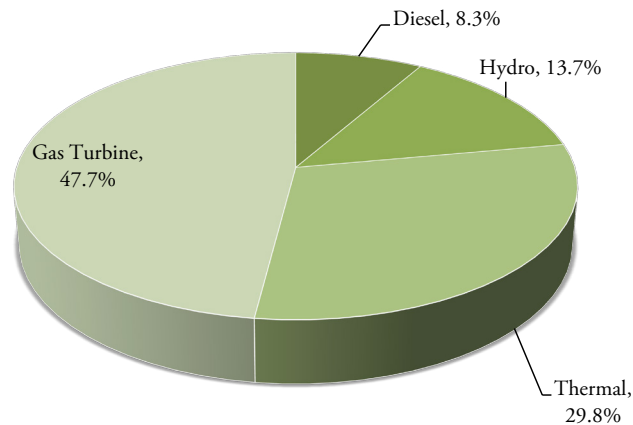
³¹ Anthony Cordesman, Adam Mausner, and Elena Derby, "Economic Challenges in Post-Conflict Iraq," Center for Strategic & International Studies, March 2010, <http://csis.org/files/publication/100317_IraqEconomicFactors.pdf>.

³² Ministry of Electricity's Planning and Studies Office, communication with the authors, February 2014; Istepanian, "Iraq's Electricity Crisis."

³³ IEA, *Iraq Energy Outlook*, 69.

³⁴ Iraqi Ministry of Oil, "Monthly Reports," accessed 22 February 2015, <<http://www.oil.gov.iq/index.php?name=sthlak>>; IEA, *Iraq Energy Outlook*, 72.

Figure 5—Iraq Electricity Generation Profile



Source: Iraqi Ministry of Electricity

MMSCFD) in the northern region have seen development interrupted by military operations against IS.

According to the Integrated National Energy Strategy (INES) Report, issued in 2013, Iraq's government and Ministry of Oil planned to capture and process virtually all associated gas production by 2015.³⁵ While Iraq will almost certainly fail to meet this goal, as the security threat posed by IS has frightened off key foreign investors, it will be exceedingly difficult if not outright impossible to resolve the electricity shortage without more aggressive exploitation of Iraq's immense natural gas resources. Failure to do so will force Iraq to continue its heavy reliance on gas imported from Iran, compromising the country's energy and economic security.

Beyond this, more attention should be given to renewable energy resources within Iraq. Solar and wind power, as well as expanded hydroelectric power, can help meet the country's energy needs, especially in rural communities which are out of the reach of

costly grid expansions. Investment in this area might also create local jobs and income opportunities. There have been few serious studies of Iraq's renewable energy potential, with little substantive action taken in this area.³⁶

EPILOGUE: THE WAY TO MOVE ON

Certainly, the full-blown crisis in Iraq has driven more mundane issues such as public utility reform even further down the list of government priorities. Yet the provision of basic services like electricity would play a key role in shoring up the legitimacy of the central government as it seeks to reestablish its authority over much of the country. As the Iraqi army aims to recapture IS-controlled territory, it is essential that any military advances are followed by effective development planning for areas that have seen themselves as marginalized from power in Baghdad for years.³⁷ A recent study analyzing data from 2006-2009 found preliminary but strong evidence that increased electricity supplies worked to reduce insurgent

³⁵ Government of Iraq, "The Integrated National Energy Strategy for Iraq, 2010-2030," June 2013.

³⁶ Salwan Dihrab and Kamaruzzam Sopian, "Electricity Generation of Hybrid PV/Wind Systems in Iraq," *Renewable Energy* 35 (2010), 1303-1307.

³⁷ Eli Berman, Jacob N. Shapiro, and Joseph H. Felter, "Can Hearts and Minds Be Bought? The Economics of Counterinsurgency in Iraq," *Journal of Political Economy* 119, no. 4 (2011), 766-819.

violence in areas of political grievances during the Iraqi insurgency.³⁸

It is not inconceivable that the present crisis could drive greater consensus on the need for utilities reform, if such reform is presented as a key step to meeting the needs of discontented populations across Iraq. The draft law would have provided a clear step forward for the country, expanding the Ministry's capacity for regulatory oversight and consumer protection while encouraging the private sector to expand electrical networks where the government had failed to do so. Additionally, the costs of ongoing military operations against IS and the resulting drain on the country's resources suggests a need for public sector reform, including the electricity portfolio, in order to rein in future government expenditures.³⁹ Any significant reduction in spending in this sector would allow the government to invest in other development priorities, such as the effective provision of security, health care, education, housing, and social security.

In the short term, as the threat from IS is contained and ultimately pushed back, the government should focus on identifying potential financing options for building up the country's electricity generation capacity. These investments should bolster the natural gas supplies through investment in the oil and gas industry, while increasing the efficiency of the existing generation units. Renewable energy holds some promise as well, especially in rural areas. In parallel, a consultative forum should be created to guarantee adequate space for broader parliamentary decisions on a future energy strategy for the country.

At a minimum, rationalizing the pricing of electricity can generate at least some funds for

investment in the system, though this must be accompanied by appreciable improvements in service for end users to head off popular backlash. The gradual restructuring of existing tariff—reducing subsidies broadly and targeting them at the most vulnerable—will work to eliminate the sector's financial deficit while reducing citizens' reliance on costly private generators. Bringing tariffs closer in line with cost-recovery levels will also spur investment. Hence, government policy for the next period should center on:

- A gradual increase of the electricity tariff, despite the political sensitivity of the issue, by between 5 and 15 percent per year. This will allow electricity rates to slowly approach cost-recovery level.
- Measurable improvements in the electric service provision, aiming at the government's long-promised 24/7 service, either in tandem with or even preceding the increase of tariffs. This will reduce citizens' reliance on expensive private generators.
- Adopting targeting mechanisms, such as special rates and graduated fee structures, for low-income consumers and manufacturing sectors.
- Introducing time-of-use rates (such as off-peak periods) in conjunction with the implementation of smart metering schemes to smooth consumption patterns over the course of the day.

In the long term, this strategy should be built around diversifying the energy mix while applying tax incentives to further attract foreign direct investment and IPPs necessary to build and rebuild generation facilities. Development plans can marry development of natural gas

³⁸ Andrew Shaver and Gabriel Tenorio, "Want to Defeat ISIS in Iraq? More Electricity Would Help," *The Washington Post*, 19 June 2014, <<http://www.washingtonpost.com/blogs/monkey-cage/wp/2014/06/19/want-to-defeat-isis-in-iraq-more-electricity-would-help/>>.

³⁹ The Ministry of Electricity currently draws on more than four percent of the annual state budget, with its annual expenditure of over 5.6 trillion dinars (\$4.3 billion) largely financed by the public purse. Government of Iraq, "2015 Federal Budget."

assets with power sector consortiums, linking new power plants with new gas production. This will lend further support to oil and gas companies as well as guarantee fuel supplies to new power plants, benefitting investors in turn.

Additionally, by restructuring the sector and the role of the Ministry of Electricity, this strategy would also address the need for greater energy reserve capacity and more efficient energy management. It should lead to a comprehensive legislative and regulatory framework, implemented through a process of

parliamentary consultations with the advice and assistance of international organizations. For the post-war era, solid energy statistics and rigorous assessments of the country's energy landscape are clearly needed to guide future decision-making.

While the government of the Prime Minister Abadi is applauded for its policies taken so far, there is a long road ahead for Iraq to enjoy a liberal, efficient energy regime. The hard part is yet to come.

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