NIU Journal of Management Sciences Copyright©2026
Nexus International University ISSN: *3007-1887;* 12(1): 165-176

The Role of Tax Strategy in Supporting Renewable Energy for Sustainable Development in Iraq: An Applied Study

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Abstract. Iraq continues to suffer a persistent shortfall in its generation system, while its economy relies heavily on hydrocarbons for revenues. The renewable energy regulators have set up a target for 2030, which views the development of renewable as one pillar of economic diversification, encompassing large scale solar plants with expected capacity of 12 GW or 33% of the total electricity generation. However, this target falls outside the scope of GHG reduction target set for Iraq, wherein renewables excluding hydropower are limited to less than 8.5% of total cumulative anthropogenic CO2eq and non-GHGs, per IEA standards. These figures are slightly higher at around 8%, due to disputes on conversion from unit output (e.g. TWh to kWh). In this paper, we are going to evaluate the taxation system in Iraq, with special attention paid to Articles 15 (tax holidays) and 17 (customs exemptions) of the Iraqi Law of Investment No. 13 of 2006 (amended in 2010 and 2015). These articles are considered mediators since they have an indirect impact on the investments into renewable energy sources and sustainable development. The analysis is conducted with the use of theories of public finance and investment decisions and relies upon official statistical data and such methodology instruments as the Analysis of Implementation of Announcements (AIR), Compound Annual Growth Rate (CAGR), Tax Incentive Effectiveness Index (TIEI), and NPV/IRR simulation for a 100 MW solar energy plant in Iraq compared with Jordan, Egypt, and Morocco. A tax holiday alone elevates the simulated project's IRR from 7.7% to 9.3%, barely above the 10% threshold cost of capital for viability; with CBI funding, it jumps to a viable 13.0%. Iraq has a very poor AIR, which stands at 2.2% (operational) and 8.9% (under construction), indicating that the deployment rate should increase by 41-55 times over past levels. The TIEI score of 6.05/10 shows sound fiscal policy, but weaknesses in both systemic and administrative dimensions compared to regional competitors, which combine relatively minor tax incentives with supportive legislations and auctions.

Keywords: Tax strategy; tax incentives; renewable energy investment; sustainable development; Investment Law No. 13 of 2006, Index of the Effectiveness of Tax Incentives (IET); NPV/IRR simulation; Iraq

1. Introduction

Iraq has one of the highest solar irradiance rates in the world (> 3000 sunshine hours/year) yet remains with negligible solar PV contribution (600 MW, or sic! 1.5% of generation), against national demand over >60,000MW whilst generation is just about 22,000MW (International Renewable Energy Agency & Government of Iraq; 2025;964 Media2026). So as to fill this gap and diversify from hydrocarbon-lived power era, the Ministry of Electricity has a goal of 12 GW renewables capability via means of capacity mix with electricity-capacity9) in 2030 segue/20% 2021 (Enerdata, 2026) This ambition, however, sits alongside two hugely divergent published figures over the same time-horizon: Iraq's own updated Nationally Determined Contribution (NDC) reflects targets only of 8.5% renewable-energy share by 2025(UNDP Climate Promise, 2021); whilst a conservative independent lower-bound assessment from the International Energy Agency sees renewable capacity at just 5% of system capacity for electricity generation in Iraq by 2030 according to their 'Sustainable Development Scenario'(International Energy Agency, 2018). This divergence capacity mix vs. energy share vs. independent projection is not treated in this paper as an

inconsistency to reconcile away, but rather as a substantive empirical finding.

The main fiscal vehicle supporting this ambition is the Investment Law No.13 (now amended in recent years through Law No. 2 of 2010 and Law No.50 of 2015) (National Investment Commission of Iraq, 2016). National Investment Commission (NIC)-licensed projects are granted a 10-year tax and fee holiday from commercial start-up, extending to up to 15 years where Iraqi ownership exceeds 50% (Article 15); such exemption explicitly excludes customs duties which instead arise under Article 17 that grants duty-free import of project assets for the entire construction period. Several secondary sources conflate the two articles into a non-distinct 'deferrment of taxes and customs'; this analysis treats their separation in law as material (Section 3). These fixes have been added to by concessional Lending for Solar Energy from the Central Bank of Iraq (CBI) since 2021 and a Sustainable Finance Roadmap covering 2023–2029 has latest been developed with the International Finance Corporation This includes all currently planned investment generation targets (Central Bank of Iraq, 2023; International Finance Corporation, 2024).

Although this is what the policy makers had promised, the actual development of solar power plants has been modest compared to their claims. Almost more than a year after the Ministry of Electricity said that it was planning to construct seven solar parks with capacity of 7.5 GW, only one project had reached the operational stage: TotalEnergies Basra project (Zawya / Reuters, 2025). This contrast forms the core of the research question:

- What is the role of Iraq's fiscal policy Investment Law No. 13 of 2006 (as amended) and supplementary CBI financing in terms of the mediating framework as well as controlling variables in leveraging renewable energy investment for sustainable development?

This study contributes to the existing literature in four ways: (i) it corrects a misstated legal attribution of Articles 15 and 17; (ii) it depicts the tax–investment–development relationship as mediated/controlled and not direct, per investment-decision theory; (iii) it presents two new composite indicators an Tax Incentive Effectiveness Index (TIEI) and an Announcement-to-Implementation Conversion Rate (AIR), plus a project-level NPV/IRR simulation quantifying the financial effect of well-designed incentive systems; and (iv) it benchmarks Iraq against five regional peers along six policy-instrument dimensions. The following hypotheses are subsequently tested in Section 5.9 on the used evidence:

H1: The Article 15 tax holiday materially enhances project-level NPV/IRR while coinciding with an increase in new contracted renewable investment since 2021.

H2: The tax benefit on concessional financing from CBI enhances the incentive, improving project returns even further than taxes do.

H3: The difference between announced and realised capacity (AIR) reflects administrative/institutional bottlenecks, not the design of tax incentives.

H4: Iraq's composite TIEI score is benefiting from fiscal components but weak on regulatory and administrative fronts.

Section 2 is about theory and the empirical literature; Section 3 explains the new legal and institutional structure; Section 4 describes the data and methodology used; Section 5 discusses the results; Section 6 is an analysis of the results; and Section 7 presents the conclusion and policy recommendations.

2. Literature Review and Theoretical Framework

2.1 Tax Strategy and the Market-Failure Rationale

The issue involves the interpretation of tax policy under the positive design perspective and the order of tax exemptions, tariff rebates, depreciation rates, and hybrid use of tax and finance instruments. The debate relates to market failure using the theory of Pigouvian economics: the substitute renewable electricity eliminates the externalities of fossil fuel production, which include pollution, health issues, and energy security that are not accounted for by the investors. Incentives through taxation serve as the second-best policies in cases when a direct price on carbon cannot be obtained, such as in the Iraqi context where no carbon tax or trading scheme exists. The theory of public finance implies that the cost associated with the use of policy should be lower than the social gain associated with the increased investment. The measurement of cost of tax expenditure can be seen in Section 5.6. There is ample evidence on this issue, however, there are certain conditions which have been observed. A meta-analysis of 29 empirical studies conducted between 2005-2023 produces robust results – fiscal incentives and emission trading programs are definitely effective in promoting renewable energy innovations (Rastegar et al., 2024). On the other hand, an international panel suggests that general taxes have a negative impact on renewables investment and only certain types of policies have some minor influence (ScienceDirect, 2024).

Two established qualifying criteria keep recurring: administrative cost significantly reduces the intended effect in environments characterized by limited capacity (Advances in Taxation Research, 2024); and financial illiteracy prevents the adoption by small investors (ResearchGate, 2025). The latest key papers are outlined in Table 1 below.

Table 1: Selected Recent Studies on Tax Incentives and Renewable Energy Investment (2024–2026)

Study	Method / Scope	Key Finding
Rastegar et al. (2024)	Systematic review, 29 studies, 2005–2023	Fiscal incentives and emissions trading consistently promote renewable innovation; feed-in tariffs are more variable.
ScienceDirect (2024)	Cross-country panel, top renewable producers	General taxation reduces renewable investment; technology and trade openness raise it supports targeted, not blanket, relief.
Advances in Taxation Research (2024)	Developing-economy tax-incentive review	Administrative delay and coordination cost, more than incentive design, erode effectiveness.
Bakirtas et al. (2024)	Dynamic panel, EU + Turkey	Tax incentives, R&D support and certification significantly raise renewable capacity; direct subsidies/net-metering alone do not.
International Journal of Society Reviews (2026)	Review of green tax incentives and ESG	Tax holidays/allowances raise green-technology adoption and ESG performance internationally.

2.2 Investment-Decision Theory: How Tax Strategy Alters Project Economics

At project level, tax strategy operates through the discounted cash-flow criteria determining investment decisions. For after-tax cash flow CF_t, tax rate T, incentive-specific tax benefits $TaxBenefits_t$, initial outlay I_0, and discount rate r:
$NPV = \Sigma_{t=1}^{n} [CF_t(1 - T) + TaxBenefits_t] \div (1 + r)^t - I_0$

If one has a tax holiday, they set T = 0 in exempted years and also lower I_0 (through a combination of customs relief) thereby increasing NPV/IRR and shortening payback for the same pre-tax project. This path is quantified directly in section 5.7. Here comes a methodological caveat: note that investment is also a function of the discount rate, revenue assumption and capital cost; this means that simply observing an increase in investment after a tax incentive would not be enough to make the case for a causal effect of the incentive on the increase again, other project- and country-specific variables need to be controlled for.

2.3 Conceptual Model: A Mediated, Controlled Pathway

Accordingly, this study models the relationship as partial (Figure 1) instead of direct. The TIS(X) tax holiday, customs exemption, import relief, and licensing incentives as well as the local-ownership incentive leads to REIA (M) denoted by announced/contracted MW, financial-close status and conversion rate developed in Section 5.4 which drives SED(Y): renewable capacity/share, the supply-demand gap and the (qualitative) emissions and energy security We model grid readiness, investment/political risk, financing cost, policy stability, demand growth and project size as controls that act on both M and Y (controls invoked explicitly in Section 6 to avoid over-attributing Iraq's one major project (TotalEnergies, financed via a crude-for-infrastructure barter structure) solely to the tax holiday).

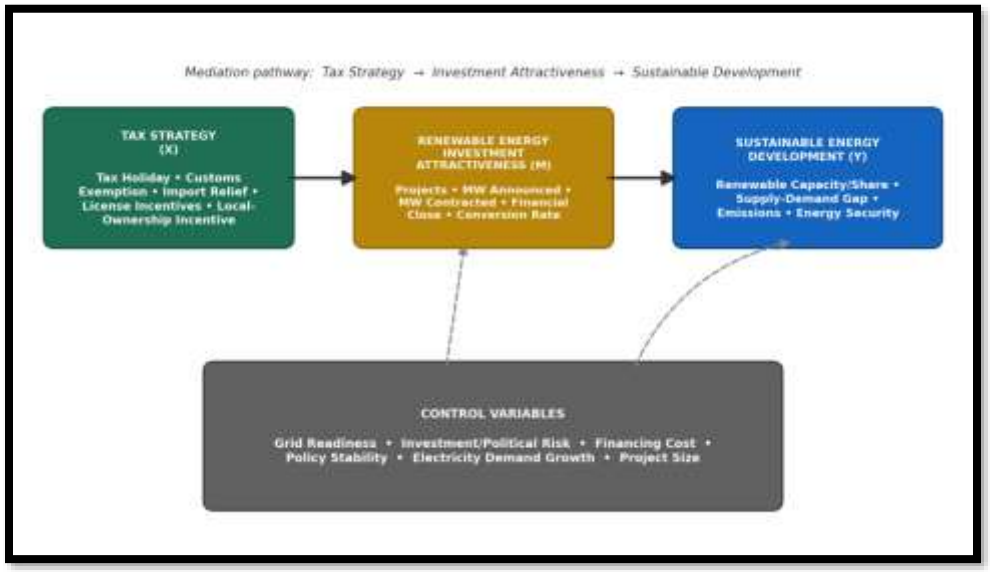


Figure 1: *Conceptual Framework: Tax Strategy → Investment Attractiveness → Sustainable Development*

3. Legal and Institutional Framework

3.1 Article 15 vs. Article 17: A Necessary Legal Correction

The correct reference for Iraq's main investment law is the so-called Investment Law No. 13 of 2006, as amended by the subsequent: Law No. 2 of 2010 and Law No. 50 of 2015 (National Investment Commission of Iraq, 2016) not 'the 2006 law', as commonly abbreviated to (Holland & Knight LLP, Oct. The consolidates official version indicates that the tax holiday and the customs exemption rest on two separate articles which are logically linked but should not be seen as a single, not differentiated advantage. 15 (1) The first licensed project shall be exempted from taxes and fees for a period of 10 years from the date of its commercial start up, not including customs duties; 15 (3) If Iraqi ownership exceeds %50 that timeframe may be extended to 15 years by the NIC. This revised structure is delineated in Table 2, which forms the basis for the NPV/IRR simulation presented in Section 5.7. On the other hand, Article 17 relates to customs duty exemption. Under Article 17(1), exemptions from duties are granted to items purchased by the projects for imports during the construction period (three-year period has been abolished as at 2010). Article 17(2) and 17(3) refer to spares while a new provision has been created under Article 17(5) in 2015.

Table 2: Tax and Customs Incentives under the Investment Law No. 13 of 2006, as Amended

Article	Provision	Standard	Enhanced
Art. 15(1)(A)	Tax and fee exemption from commercial start-up (excludes customs duties)	10 years	
Art. 15(3)	NIC discretion to extend Art. 15 exemption with Iraqi ownership share		Up to 15 yrs if Iraqi share > 50%
Art. 17(1)	Customs exemption on imported project assets for the construction period (no fixed limit; pre-2010 limit was 3 yrs)	Full exemption	Same
Art. 17(2/3)	Exemption for imported spare parts (≤20% of exempted-asset value)	Full exemption	Same
Art. 17(5), 2015	Tax/customs exemption for imported primary materials, scaled to local content; environmentally-friendly-materials provision added	Scaled	Same

Neither do you lack for something like a dedicated renewable-energy law: the 2025 IRENA–Government of Iraq Energy Transition Assessment reports that a draft law was moving through the Ministry of Electricity with final review by the Ministerial Council for Energy (International Renewable Energy Agency & Government of Iraq, 2025); until passed, instead, under general Investment Law and not sector-specific legislation as used in Jordan, Egypt and Morocco (Section 5.8).

3.2 Financing by the Central Bank of Iraq Complementary

CBI concessional-finance instruments (Table 3), which reduce the capital cost without changing the tax base a hybrid fiscal-financial design analyzed with quantitative detail in Section 5.7 complementing tax relief.

Table 3: Instruments of Renewable-Energy Financing from the Central Bank of Iraq

Programme	Launch	Terms
Renewable Energy Transformation Initiative	2021	CBI base rate 0.5%, banks add up to 2% (SolarQuarter, 2023).
Residential/commercial solar loans	2023–2025	7–30 million IQD (≈US$4,800–20,700), 7-yr term, 6-month grace, via the 'Ur' platform (Iraq Business News, 2025).
CBI–Government Green Lending Programme	2025	US$763 million for renewable energy and emissions reduction (Green Central Banking, 2025).
Sustainable Finance Roadmap (with IFC)	2024–2029	ESG code and sustainable-banking roadmap with the International Finance Corporation (2024).

These instruments co-exist with persistent institutional gaps: multi-agency licensing being required across the NIC, Ministry of Electricity, switched to a unit in inclusive credit and also provincial commissions; low project-to-financial-close conversion (section 5.4); fragmentation of CBI programmes across several distinct initiatives rather than one monitored facility.

4. Data and Methods

The data analysed in this study is based only on officially published or officially announced statistics sourced from Iraq; the primary data sources are Iraq's Ministry of Electricity, National Investment Commission and Central Bank of Iraq though secondary cross-checks were performed against the 2025 IRENA–Government of Iraq Energy Transition Assessment, IEA Iraq data and more niche legal/energy-sector reporting. The short official series mean that no inferential time-series estimation is attempted (targets formalised only since 2021), but instead four explicit descriptive-analytical

instruments are constructed, accompanied by openly-stated assumptions labelled as illustrative where the authoritative dominant data source does not publish project-level data.

4.1 Announcement-to-Implementation Conversion Rate (AIR)

AIR (kW/100) = (MW under construction or operating ÷ total MW announced or contracted in Iraq's solar pipeline, 5.4).

4.2 Compound Annual Growth Rate (CAGR)

Assumes CAGR = (Target Capacity ÷ Base Capacity)^(1/n) − 1 with n = 4 (2026–2030) for contracted-base and pipeline-inclusive scenarios (Section 5.5).

4.3 Index for Effectiveness of Tax Incentives (TIEI)

TIEI = (w_1 × Tax Relief) + (w_2 × Customs Relief) + (w_3 × Financing) + (w_4 × Regulatory Support) + w_5(Administrative Efficiency), where components are scored 0–10 via desk-based evidence review and weights are applied according to the relative emphasis of this study's title on fiscal components; as such, weights serve primarily a methodological function since they only reflect stated methodology and have not been estimated in conventional statistical fashion.

4.4 NPV/IRR Financial Simulation

For the simulation of a hypothetical 100 MW solar PV project, we use IRENA's global capex benchmark of US$691,000/MW (International Renewable Energy Agency, 2024), a capacity factor of 20% and tariffs (net-of-O&M) set at US$0.05/kWh over an assumed 25 year straight-line depreciation schedule and IRENA O&M benchmarks (US$13,000/MW/yr.), Iraq's statutory CIT rate which is equal to 15%, a discount rate of 10%, along with which we also test National Development Fund customers for exclusive Article 15/17 holiday; and holiday plus CBI concessional debt leveraged conditions All calculations are done in accordance with standard discounted cash-flow methodologies (Section 5.7).

Section 5.8 rounds out the analysis with a qualitative six-country (Iraq, Jordan, Egypt, Morocco, UAE, Saudi Arabia) comparison across six policy-instrument dimensions: None/Limited–Partial–Strong scores from literature reviewed in Sections 2–3.

5. Results

5.1 Renewable energy targets while definitional variation reported shares

Iran spiked its renewable target from 10 GW/20% in 2021 to a stable 12 GW/33% in both 2023 (Enerdata, 2026) and today (International Renewable Energy Agency & Government of Iraq, 2025). This 33% capacity-mix figure, however, is a more significant number than one third of Iraq's own 8.5% NDC renewable-energy-share target and the IEA independent 5% system-capacity projection for 2030 (UNDP Climate Promise, 2025; International Energy Agency, 2026) (Table3 along with Figure2). These targets of capacity-mix are always signified greater than the energy-share targets because renewable capacity runs at a lower utilisation factor than thermal capacity and within this context noting that the gap between government target and IEA own more cautious external projection is evidence in itself on the implementation question discussed in section 5.4.

Table 4: Three Distinct Published Figures for Iraq's 2030 Renewable/Clean-Energy Trajectory

Source	Metric	2030 Figure
Ministry of Electricity (Enerdata, 2026)	Clean-energy share of power CAPACITY mix	33%
Iraq's updated NDC (UNDP Climate Promise, 2025)	Renewable-ENERGY share (climate policy target)	8.5%
IEA independent assessment (2026)	Renewable share of system capacity (external projection)	≈5%

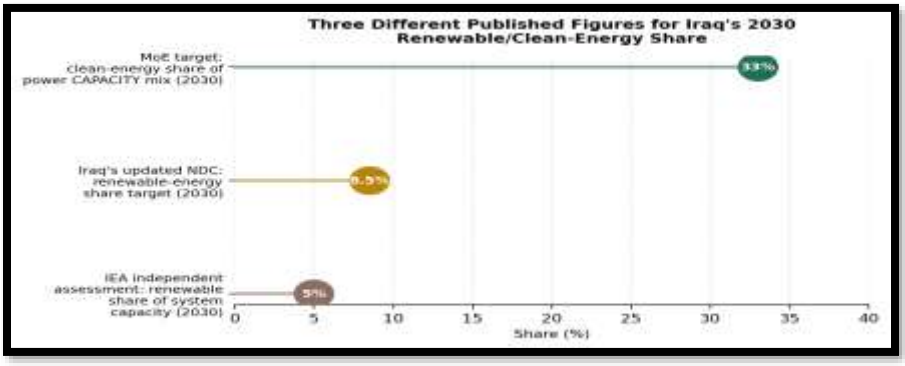


Figure 2: *Three Different Published Figures for Iraq's 2030 Renewable/Clean-Energy Share*

Iraq's portfolio of renewable energy has an entrenched hydropower base (≈97% of 2022 installed renewable capacity), and solar-based generation contributes only about 2–3% (International Renewable Energy Agency & Government of Iraq, 2025) – meaning the solar targets in 2030 correspond to a near-zero share new-generation sub-sector.

5.2 The Electricity Supply-Demand Gap

With national production of ≈22,000 MW in 2026 falling far short of demand stretching well over 60,000 MW, and the Ministry's own plan for 2030 to target only up to 35,000 MW (964 Media, 2026) a gap which provides the principle domestic driver of the tax-incentive strategy explored here outside climate policy.

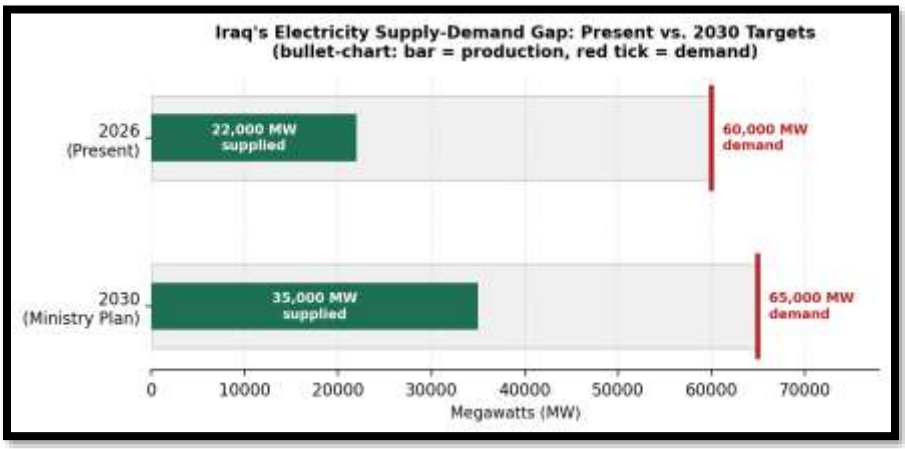


Figure 3: *Iraq's Electricity Supply-Demand Gap: Present vs. 2030 Targets*

5.3 Investment Pipeline and Central Bank Financing

Article 15/17 Tax Treatment of Principal Solar Projects In Table 5 Realized investment is dominated almost entirely by the Total Energies Basra project with the balance 10,250 MW of announced/discussed capacity largely unrealized during the review period despite equal statutory eligibility (Zawya/Reuters, 2025).

Table 5: Utility-Scale Solar Investment Pipeline and Applicable Tax Treatment

Project	Capacity	Status	Tax Treatment
TotalEnergies Basra (1st phase)	250 MW	Operational	Art. 15 (10–15 yr) + Art. 17
TotalEnergies Basra (remainder)	750 MW	Under construction; crude-for-infrastructure barter	Same regime
ACWA/PowerChina/Masdar	≈2,750 MW	Under negotiation, unconfirmed	Eligible once finalised
MoE seven solar parks	7,500 MW	Announced, not individually contracted	Eligible, standard package

This tax-holiday incentive is reinforced by CBI concessional financing (Section 3.2): rates of 0.5–2.5% and a 7-year term compare favourably with conventional commercial credit (illustrative 8% rate, 3-year term, no grace period), as shown in Figure 4.

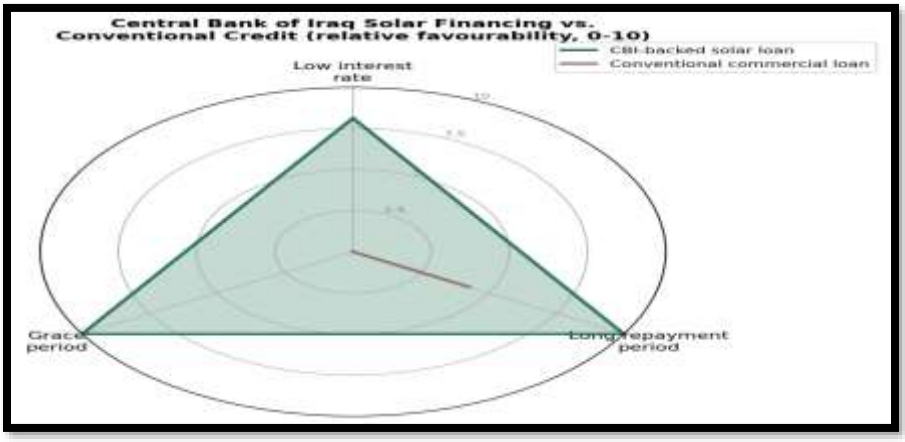


Figure 4: *Central Bank of Iraq Solar Financing Terms vs. Conventional Credit*

5.4 Announcement-to-Implementation Conversion Rate (AIR)

Applying the AIR formula (Section 4.1) to the pipeline in Table 5 yields Table 6 and Figure 5.

Table 6. Announcement-to-Implementation Conversion Rate Pipeline Funnel

Stage	MW	% of Total (11,250 MW)
Announced/discussed (parks + negotiated)	10,250	91.1%
Contracted (TotalEnergies)	1,000	8.9%
Under construction or operational	1,000	8.9%
Operational only	250	2.2%

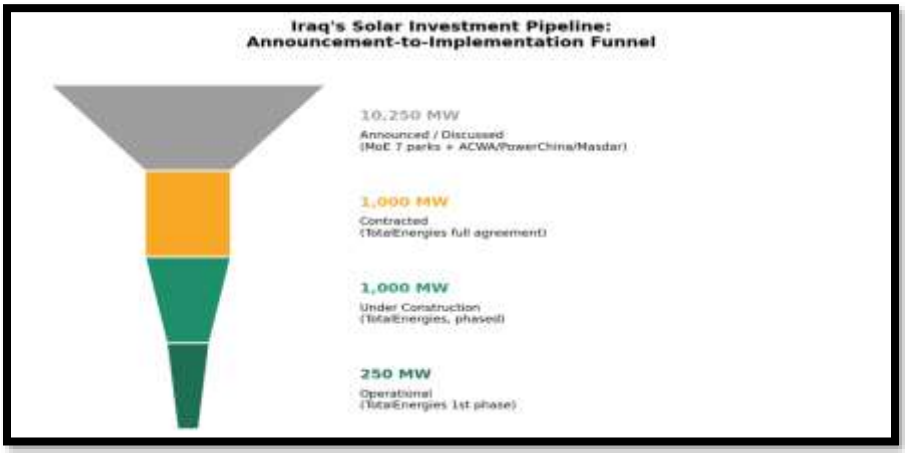


Figure 5: *Iraq's Solar Investment Pipeline: Announcement-to-Implementation Funnel*

For Iraq, the wide AIR (in construction or operational on October 2023) is 8.9%; while the narrow operational-only AIR stands at 2.2%. A single-digit AIR against an Article 15 holiday of up to fifteen years reshapes the research question; its not about whether tax incentives exist in Iraq, but whether these will translate into realised capacity proportionate to their legal generosity.

5.5 Required Growth Trajectory (CAGR)

Based on two base-capacity scenarios (Table 7, Figure 6), the compound annual growth rate it takes to reach 12,000 MW by 2030 (n = 4 years).

Table 7: Required Growth Trajectory to the 2030 Target

Metric	Contracted-Base	Pipeline-Inclusive
2026 base (MW)	1,000	3,750
2030 target (MW)	12,000	12,000
Required CAGR	≈86%/yr	≈34%/yr
Required annual addition	≈2,750 MW/yr	≈2,063 MW/yr
Historical annual addition (2021–2026)	≈50 MW/yr	≈50 MW/yr

Acceleration factor required	≈55×	≈41×

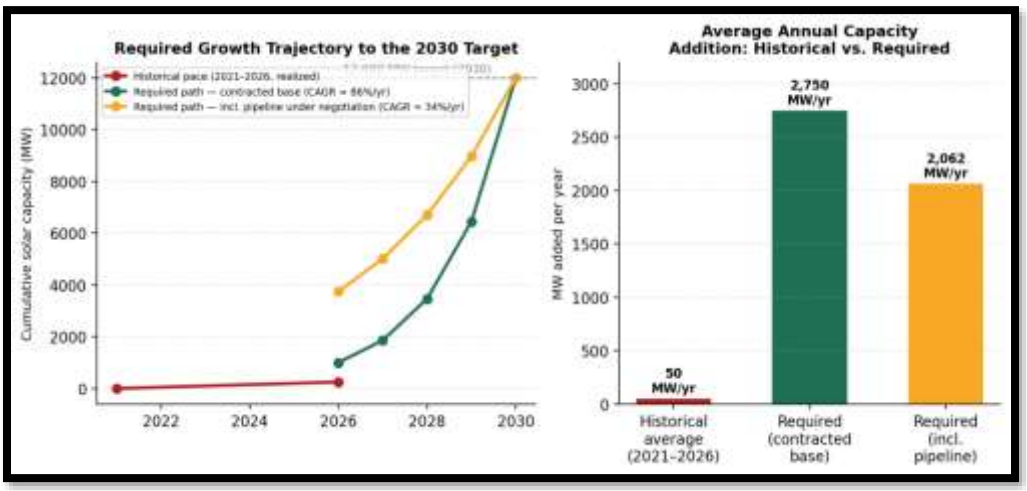


Figure 6. Required Growth Trajectory Historical Pace vs. Required Path

In both cases, the necessary pace would be 41-55 times the achieved historic pace (about 50 MW/yr from 2021 to 2026), a scale disparity that would be impossible to bridge by fiscal design alone, thus buttressing the AIR finding of Section 5.4.

5.6 Tax-Expenditure Estimate and the Tax Incentive Effectiveness Index (TIEI)

Since the Iraqi taxation authority does not offer information about the tax expenditure associated with each project, Table 8 and Figure 7 present the estimated amount of CIT that the TotalEnergies project can save based on IRENA's capital investment benchmark and Iraq's 15% CIT rate: Forgone CIT = Capex x Assumed Return x CIT Rate x Holiday Years.

Table 8: Illustrative Tax-Expenditure Estimate TotalEnergies 1,000 MW Project

Parameter / Result	Value
Illustrative capex (1,000 MW × US$691,000/MW, IRENA 2024)	≈US$691 million
Assumed pre-tax return (sensitivity range)	8% / 10% / 12% of capex/yr
Statutory CIT rate exempted (Chambers and Partners, 2025)	15%
Estimated forgone CIT, 10-yr holiday (range across return assumptions)	≈US$83–124 million
Estimated forgone CIT, 15-yr enhanced holiday	≈US$124–187 million
Estimated tax expenditure as share of capex	≈12–27%

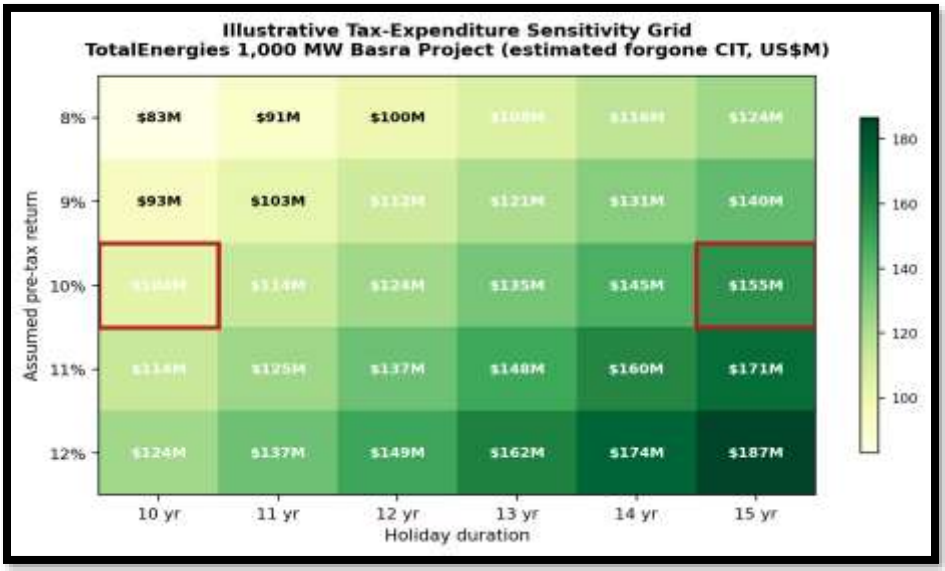


Figure 7: *Illustrative Tax-Expenditure Sensitivity Total Energies 1,000 MW Project*

Table 9 and Figure 8 report the composite Tax Incentive Effectiveness Index (Section 4.3): Iraq scores 7–8/10 on the three fiscal components but only 3/10 on regulatory clarity and administrative efficiency, yielding a composite TIEI of 6.05/10.

Table 9: Tax Incentive Effectiveness Index (TIEI) Components, Weights, and Scores

Component	Weight	Score	Weighted	Basis
Tax Relief (Art. 15)	0.25	8	2.00	10–15-yr holiday, among the longest regionally
Customs Relief (Art. 17)	0.20	8	1.60	Unlimited-duration exemption, broadened in 2015
Concessional Financing	0.20	7	1.40	CBI rates 0.5–2.5% vs. conventional credit
Regulatory Clarity	0.20	3	0.60	Renewable law still pending final review
Administrative Efficiency	0.15	3	0.45	Single-digit AIR against seven announced parks

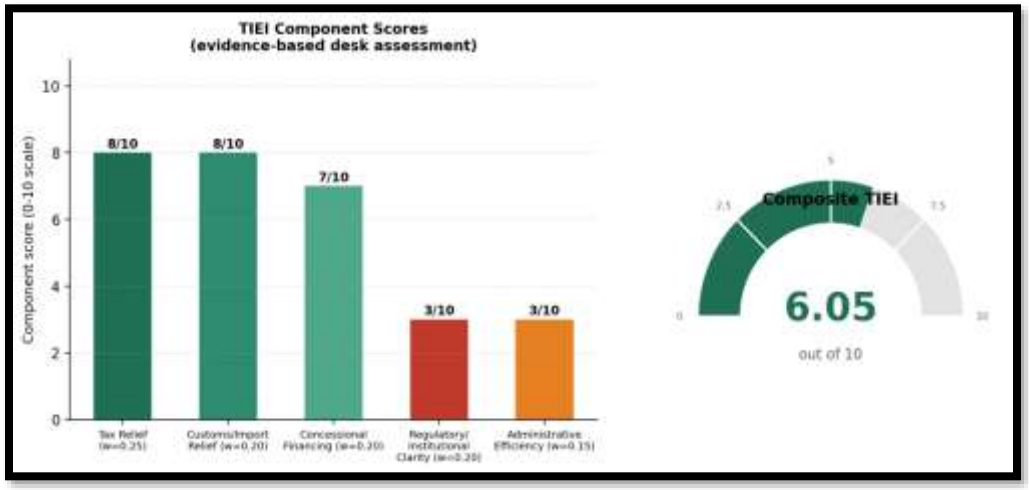


Figure 8. TIEI Component Scores and Composite Index for Iraq (6.05/10)

5.7 NPV/IRR Financial Simulation

Table 10 and Figure 9 report the three-scenario simulation described in Section 4.4.

Table 10: Illustrative 100 MW Solar PV Project Financial Simulation Results

Metric	A: No Incentive	B: Tax + Customs Holiday	C: Holiday + CBI Debt
Capex (US$M)	74.6	69.1	69.1 (20.7 equity)
NPV (US$M)	-13.0 @10%	-3.5 @10%	+2.6 (equity @12%)
IRR	7.7%	9.3%	13.0% (equity)
Payback	11 yrs	10 yrs	10 yrs
LCOE	5.4¢/kWh	5.1¢/kWh	5.1¢/kWh

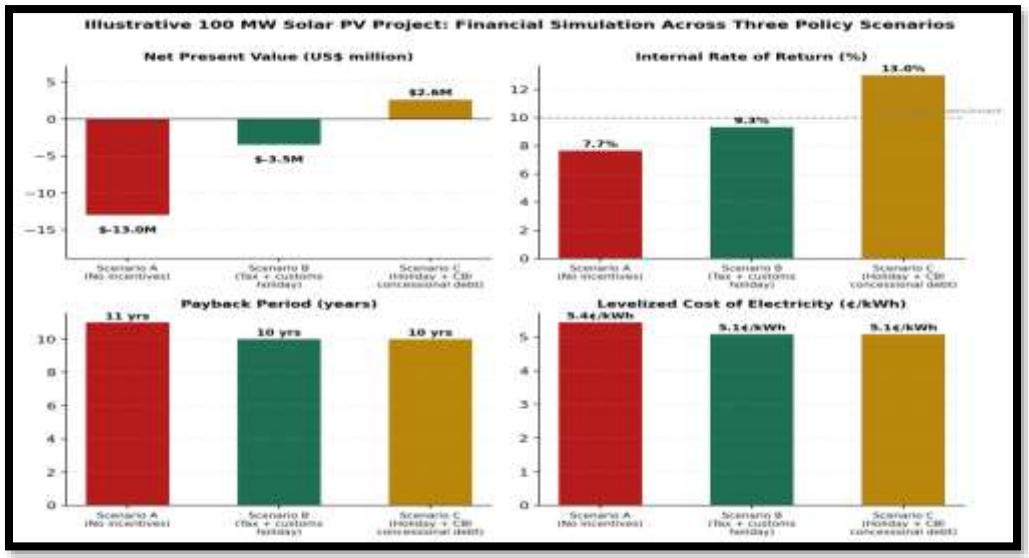


Figure 9: *100 MW Solar PV Project: Financial Simulation Across Three Policy Scenarios*

Tax holiday alone (B) lifts IRR to 9.3% but a long way from 10% WACC hurdle rate, NPV negative now.] All that produces a positive above-hurdle equity NPV and 13.0% IRR is the combo of layering CBI concessional debt (C). This project-level finding accounts for why realised investment (Section 5.3), was focused in the single project combining tax relief with blended (barter/concessional) financing, rather than being spread across the many projects that would be formally eligible solely on ground of the tax holiday.

5.8 Six-Country Comparative Analysis

In order to identify the distance of Iraq from five regional peers on six instrument dimensions (each one has been scored qualitatively from the literature) we have analysed data up to October 2023 and these can be seen in Table 11 & Figure 10. (Sustainability (MDPI), 2025; ScienceDirect, 2025).

Table 11: Comparative Positioning of Renewable-Energy Policy Instruments

Country	Tax Holiday	Customs	Renewable Law	Auctions	PPA/FiT	Green Finance
Iraq	Strong	Strong	Limited*	Limited	Partial	Strong
Jordan	Partial	Partial	Strong	Strong	Strong	Partial
Egypt	Partial	Partial	Strong	Strong	Strong	Partial
Morocco	Partial	Partial	Strong	Strong	Strong	Partial
UAE	Limited	Partial	Partial	Strong	Strong	Strong
Saudi Arabia	Limited	Partial	Partial	Strong	Strong	Partial

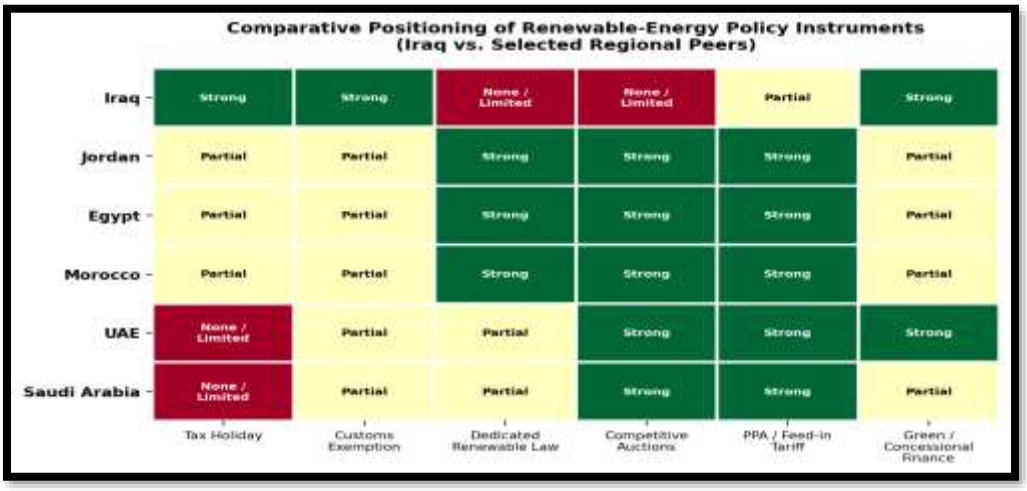


Figure 10: *Comparative Positioning of Renewable-Energy Policy Instruments (Iraq vs. Regional Peers)*

*Represents pending not permanent characteristics of Iraq's draft renewable law (Section 3.1) Of the countries listed Iraq is a leader on tax holiday and customs exemption, but uniquely among those with developed renewables capacity no dedicated renewable law or competitive auctions; Jordan/Egypt/Morocco pair into more modest tax relief with auctions and dedicated legislation; UAE/Saudi Arabia rely on auctions with relative to limited tax holidays.

5.9 Hypothesis Testing

H1 (tax holiday improves returns & is in line with investment): supported As can be seen from (5.7), since 2021 the holiday alone has raised IRR from 7.7% to 9.3%; this period coincided with Iraq's first major commitment to solar and could be revealed as costing the state approximately US$83–187 million in tax expenditure accordingly. The pipeline is highly concentrated in one project (AIR ≈8.9%), which further means that evidence remains partial.

H2 (CBI financing also magnifies the incentive): Supported. Compare the two instruments, concessional debt, is what flips the simulated project from above-hurdle to below-hurdle NPV.

H3 (the realization gap is not fiscal-design driven, but is an attribute of administration): supported. The AITs (2.2–8.9%) and CAGR gaps (41–55×) are of a magnitude that can neither be mitigated nor closed by fiscal design alone, corroborating the institutional evidence in Section 3.

H4 (TIEI is strong fiscally, but weak institutionally): not supported. The lowest-scoring factor behind Iraq's 6.05/10 composite is the hardly-passing scores for regulatory clarity, administrative efficiency at just 3/10 each (versus moderately higher fiscal scores of 7-8/10).

6. Discussion

Evidence shows that tax strategy and concessional finance should be considered complimentary tools rather than alternatives. The Article 15/17 holiday is a relatively generous (by regional standards) (see Section 5.8), and indeed improves project returns in the simulation model discrete effects consistent with Hypothesis H1, but this alone leaves an illustrative project exactly at its cost-of-capital threshold, only blended tax-and-finance structures can produce bankable project models as outlined in the hybrid-instrument literature robust to approximately one time prices should not make inefficient projects viable (Section 2.1) consistent and Hypothesis H2 hypothesis.

The AIR and CAGR results (Sections 5.4–5.6) all converge at the same institutional diagnosis: Iraq's constraint is not fiscal design, but administrative and regulatory delivery in the spirit of the developing-economy pattern emerging from Advances in Taxation Research (2024). Of the six-country comparison (Section 5.8), Iraq's simplicity sharpens this further: while not trailing other peers in incentive generosity it outpaces them on tax holiday and customs exemption it's the only country surveyed without dedicated renewable legislation or competitive auctions. The policy question becomes less about whether Iraq's tax relief is generous enough, and more about whether a strategy centred around tax holidays can replace the price discovery and legal certainty driven by auctions that characterise faster moving regional markets.

Two causal-inference cautions apply. The Total Energies project is a control variable (Section 2.3: size/control on financing cost), so the barter-financing structure does not prove that just the tax holiday explains its success; however, the NPV/IRR simulation avoids this confusion by focusing specifically on the tax effect in isolation. Second, the TIEI and AIR are composite indices an internally-consistent evidence synthesis of a single country spanning a defined period, not a statistically-estimated causal effect (Section 7 outlines what data needs to be collected for future inferential analysis). Limitations: the short national time series (targets only formally agreed post-2021) prohibits econometric estimation; NPV/IRR simulation depends on transparently stated but representative parameters (tariff, capacity factor, customs rate not project accounts from non-published NIC or tax authority project-level data); TIEI weights and six-country instrument scores reflect a desk-based evaluation rather than validated multi-rater instrument. Time series extension is recommended in future research as more projects reach financial close, alongside eliciting TIEI scoring through expert-panel validation.

7. Conclusion and Recommendations

Iraq's Article 15/17 tax system is directly more generous than the structure in five of Iraq's regional peers on the tax-holiday and customs fronts but also necessary rather than sufficient, as it raises simulated project IRR from 7.7% to only 9.3%, with concessional CBI financing required to push returns above a bankable threshold (13.0%). Iraq's 2.2–8.9% announcement-to-implementation conversion rate is weak against a build-out required 41–55 times the historical pace, and its composite Tax Incentive Effectiveness Index (6.05/10) sum score topples over strong fiscal but weak institutional performance an atypical configuration among peers that couple more moderate tax relief with legally dedicated revenues and competitive auctions. Empirical findings validate all fiscal-financial complementarity (H1, H2) and two of the four hypotheses relating to institutional constraints (H3, H4). The following six recommendations are addressed to the General Authority for Taxes, the National Investment Commission, and, through the Ministry of Electricity, as well as the Central Bank of Iraq:

1. Speed up the passage of the upcoming renewable energy legislation (now under ministerial review) found to be the major missing factor in the Iraqi eTransformation Index (TIEI) and international comparisons, compared with six other countries.
2. Following the Jordan-Egypt-Morocco scheme, adopt competitive bidding or a feed-in tariff determined in an organized administrative process, including up to 75% of different shares of the solar park initiative that can be imagined, as complement, but not substitute, to the free tax break for three more years in state-owned power plants.
3. Set up a uniform licensing process between the National Investment Commission, the Ministry of Electricity, and provincial investment committees, including approved approval time frames in order to mitigate administrative inefficiencies that affect the TIEI score of Iraq.
4. Merge decentralized CBIs green finance schemes into a single monitored green financing facility, yet keep concessionary terms proven to be indispensable to project bankability.
5. Issue an annual renewable energy tax expenditure report using the procedure outlined in Section 5.6 to allow validation of incentive rebalancing if necessary.
6. Make the TIEI and AIR standing indicators part of the annual report card issued by the NIC.

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