



Ministry of Energy and Water Electricité du Liban

Setting Lebanon's Electricity Sector on a Financially Sustainable Growth Path

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The current situation of the electricity sector is dire, with EDL supplying 3 hours of electricity per day, with significant impact on costs

Current Situation Overview

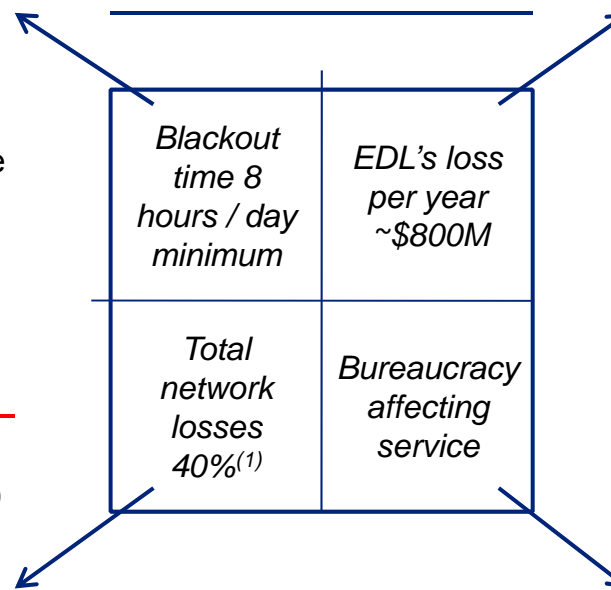
A Very limited energy supply

- Severe mismatch between supply and demand (current supply through swapped Iraqi fuel - ~60kT/month, generating ~500MW from Deir Amar, Zahrani, New Zouk, New Jieh and Hydro plants)
- Consumers are obliged to resort to private generators that cost around 31¢/KWH

B Abnormal network losses

- 2021 estimates (based on EDF report for 2019 & 2020): 18% Technical Losses (TL) and 27% Non-technical Losses (NTL)
- Collection losses around 12% (Public Administrations & Refugees not paying their bills)
- National Control Center is destroyed

Challenges



C Poor financial management

- EDL's deficit is primarily due to heavily subsidized tariff that does not reflect the real cost of electricity (average tariff revenue <1 ¢/KWH vs. a breakeven cost of ~30 ¢/KWH)
- No EDL audit since 2010 (for reasons beyond the control of EDL)
- No access to USDs at official rate

D Governance

- EDL's administrative challenges (internal management, board of directors, MoEW, MoF) negatively impact its decision-making process
- ERA has not been established yet
- Gap in current legislative framework

(1) $Network\ Losses\ [\%] = [1 - (1-TL) \times (1-NTL)] \times 100$

Restoring the sector's viability rests on 4 critical pillars that need to be addressed immediately and simultaneously

A Supply and Generation

- Ensure reliable, affordable (24/7) electricity services across Lebanon in an efficient, fiscally balanced, and environmentally friendly manner
 - **Short-term (<1 year):** Supply 8 to 10 hours of electricity through regional electricity and gas trade with Jordan, Egypt and Iraq, with the support of loan(s) from World Bank / other International Financing Institutions (IFIs), that provide clean and low-cost supply to ramp up the generation to 1,100 MW utilizing existing infrastructures
 - **Medium-term (1-2 years):** Supply 16-18 hours of electricity through existing and temporary infrastructures (FSRU/gas access at Zahrani, gas-fired generation units at Deir Amar, solar and wind farms)
 - **Long term: (>3 years):** Supply 24 hours of electricity through sustainable and newly constructed gas-fired combined cycle power plants and renewable scale-up to meet 30% energy share target by 2030

B Transmission and Distribution

- Restore efficient and transparent functioning of the sector's transmission and distribution operations
 - **Short term (<1 year):** Reduce network losses through ambitious and consistent campaigns to remove illegal connections, investments in the distribution networks, enhance billing and collection cycles, enhance existing DSPs contracts until 2023
 - **Medium-term (1-2 years):** Re-establish EDL's National Control Center and EDL main building, initiate investments in the transmission infrastructures as per approved EDF transmission master plan, award of distribution contracts based on advanced PPP model (concessions or others) and install advanced metering infrastructure "AMI" center or head-end system "HES" in conjunction with the rollout of 10% of the smart meters
 - **Long term: (>3 years):** Complete rollout of smart meters

Restoring the sector's viability rests on 4 critical pillars that need to be addressed immediately and simultaneously (Continued)

C Financial

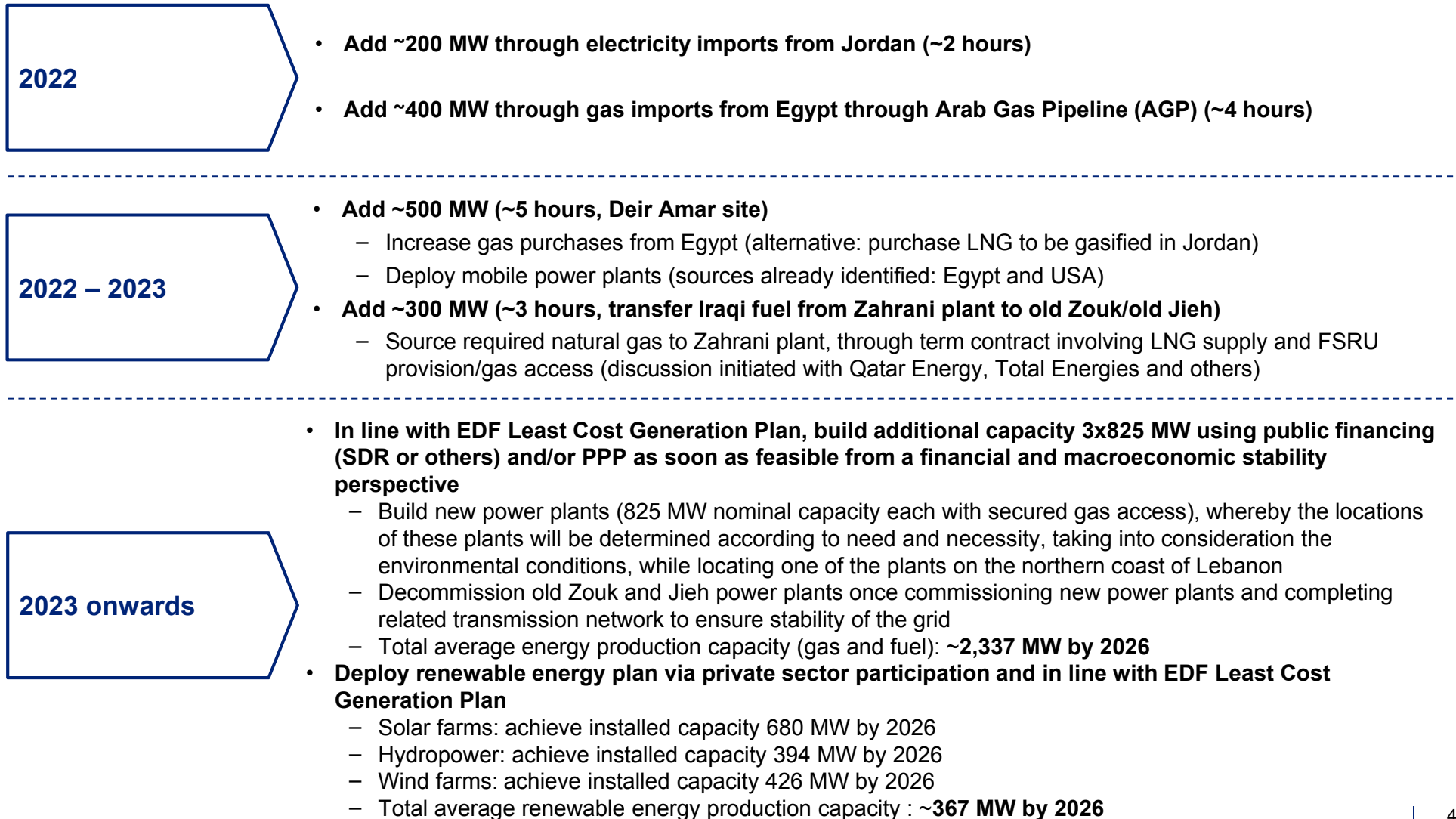
- Improve the sector's financial performance
 - **Short-term (<1 year):** Address EDL's deficit by adjusting the tariff to ensure the lowest cost for vulnerable households and index tariff to USD exchange rate and to international fuel oil price, establish a cash waterfall mechanism to sanitize EDL's accountabilities and bridge the cash transfer by MoF to ensure sector's continuity
 - **Medium-term (1-2 years):** Restore EDL's financial situation by ensuring a transparent and reasonable tariff methodology definition, enhancing financial guarantee to foster private sector participation and ensuring public administrations pay their electricity bills to decrease collection losses from 12% to 4%
 - **Long term: (>3 years):** Implement tariff methodology as per business plan laid out by/for ERA

D Institutional, Legislative and Regulatory

- Reform the sector governance and operation framework to achieve a more liberalized sector through a series of structural reforms
 - **Short term (<1 year):** Ratify Distributed Renewable Energy Law and Energy Conservation Law, launch process and recruit ERA commissioners in application of Law 462 and in accordance with best practices, undertake comprehensive review of Law 462, in consultation with sector's stakeholders as per international best practices
 - **Medium-term (1-2 years):** Fully operationalize ERA, operationalize legislative updates / amendments to Law 462
 - **Long term: (>3 years):** Complete legal unbundling of generation, transmission and distribution to corporatize EDL and establish a Transmission System Operator (TSO)

The overall objective is to increase supply to meet national demand in a cost-effective, fiscally balanced, and sustainable manner

A Generation Capacity



The short term plan provides for a very rapid deployment of around 1,150 MW (8-10 hours/day), at an average generation cost of 10 ¢/KWH

A Envisaged Energy Mix – Short Term

Source	Average power generated		Generation cost		Comments
	Total [MW]	%	Total [\$M]	[¢/KWH]	
Fuel	438	38	542	14.1	<ul style="list-style-type: none"> Zahrani (Gas oil) New Zouk & New Jieh (HFO grade B) Old Zouk & Old Jieh STANDBY (HFO grade A)
Gas	400	35	258	7.4	<ul style="list-style-type: none"> Deir Amar Power Plant 1 operating on NG through Arab Gas Pipeline
Jordan	200	17	213	12.2	<ul style="list-style-type: none"> 250 MW Jordan electricity yields 200 MW on the average
Hydro / Renewables	113	10	35	3.6	<ul style="list-style-type: none"> Hydro power plants (Litani, Nahr Ibrahim, Bared, Qadisha, Safa). Power supply highly sensitive to seasonal water flow variations
TOTAL	1,151	100%	1,048	10.4	<ul style="list-style-type: none"> Average Supply hours 8 – 10

Moving forward, EDL should supply 16-18 hours of electricity within 24 months and 20-24 hours through permanent generation capacity starting 2025

A Envisaged Energy Mix – 2026

Source	Average power generated		Generation cost		Planting Schedule					
	Total [MW]	%	Total [\$M]	[¢/KWH]						
Fuel	232	9	276	13.6	2022	2023	2024	2025	2026	
					Egypt Gas	[Green bar spanning 2022-2026]				
Gas	1,905	70	1,591	9.5	Jordan Electricity	[Green bar spanning 2022-2026]				
					Zahrani FSRU ⁽¹⁾	[Green bar spanning 2023-2026]				
					TMGT ⁽²⁾	[Green bar spanning 2023-2024]				
Jordan	200	7	213	12.2	Wind/Solar	[Green bar spanning 2023-2026]				
					New CCGT1 OC ⁽³⁾	[Green bar spanning 2024-2025]				
Hydro / Renewables	367	14	209	6.5	New CCGT1 CC ⁽³⁾	[Green bar spanning 2025-2026]				
					New CCGT2 OC ⁽³⁾	[Green bar spanning 2025-2026]				
					New CCGT2 CC ⁽³⁾	[Green bar spanning 2026-2026]				
TOTAL	2,704	100%	2,289	9.7	Average Supply hours 22 – 24					

(1) Generation cost of existing Zahrani power plant goes down to ~ 10 ¢/KWH when running on re-gasified LNG

(2) Trailer mounted gas turbine (TMGT) rented from the government of Egypt or others, cost ~ 12¢/KWH (higher O&M costs and lower efficiency due to open cycle operation)

(3) New CCGTs are considered as Tri-Fuel, on a PPA basis with average cost of ~ 8.7 ¢/KWH (NG via AGP) and ~ 11.5 ¢/KWH (NG via FSRU)

Reduction of network losses will focus on restoring efficient and transparent functioning of the sector's transmission and distribution services

B Future Plan Highlights – Network

2022 – 2023

- **Transmission: stabilize network**
 - Rehabilitate network to maintain a stable grid
 - Re-establish National Control Center and EDL main building
- **Distribution: push loss reduction**
 - Improve operating frameworks to facilitate reduction of losses
 - Engage and responsabilize DSPs and mobilize active participation of all relevant stakeholders

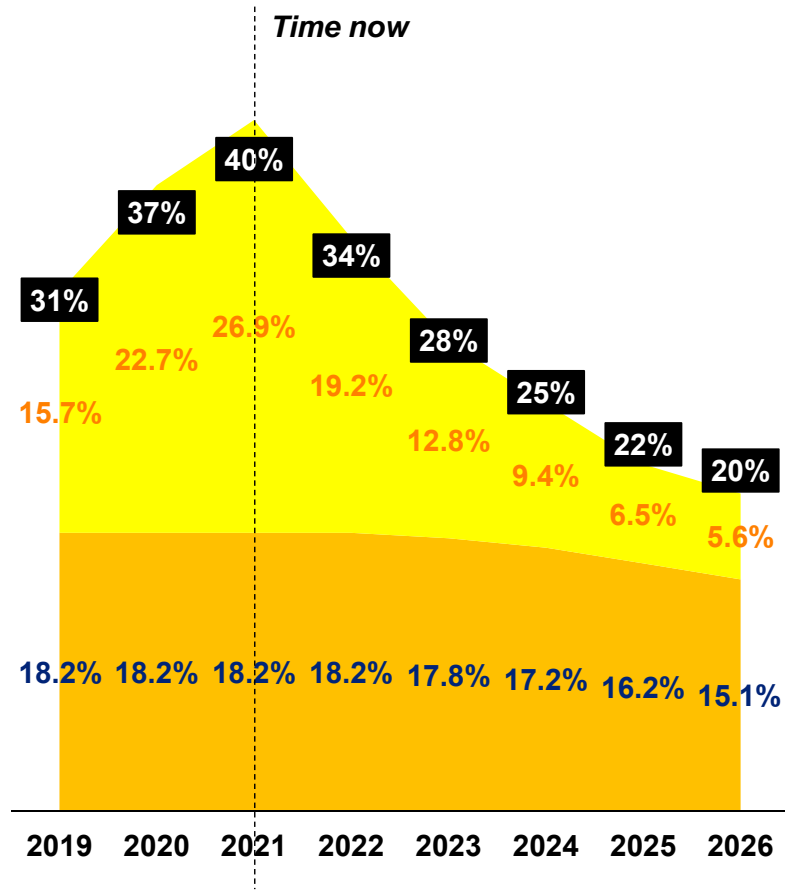
2023 onwards

- **Transmission: ensure reliable supply to demand centers by reinforcing the transmission grid in parallel with planned additional generation capacity**
 - Complete the rehabilitation of the north and south loops
 - Adapt network to increase of generation capacity
- **Distribution: Establish a new reformed distribution model with Advanced PPP Agreements**
 - Sustain campaigns targeting removal of illegal connections
 - Complete rollout of the Advanced Metering Infrastructure (AMI) system
 - Adopt an advanced PPP model in distribution

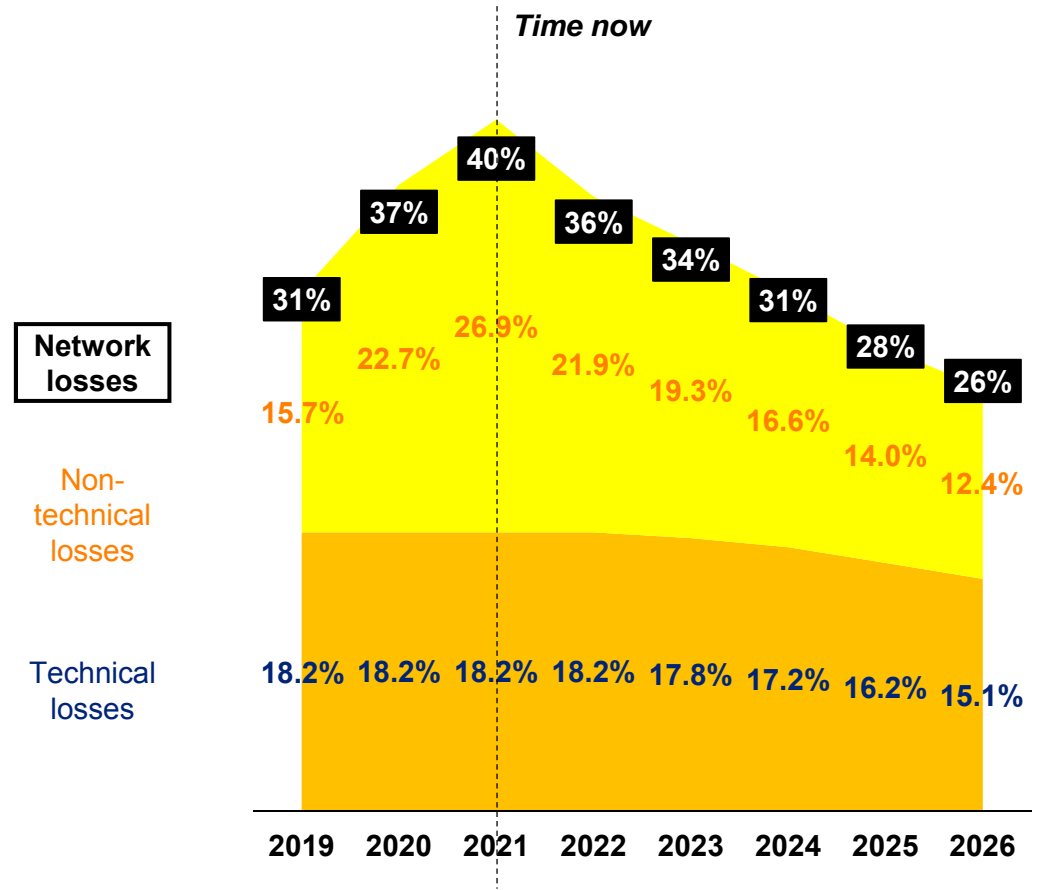
By adopting an ambitious loss reduction plan, losses could be dropped from 40% in 2021 to 20% by 2026

B Ambitious loss reduction (base case) VS conservative loss reduction plan

Ambitious Loss Reduction Plan



Conservative Loss Reduction Plan Approved by EDL



MoEW is investigating enabling the ambitious loss reduction plan activities through a simplified process

B Loss reduction plan comments

The ambitious loss reduction plan requires more conditions...

- The ambitious loss reduction plan entails enhancing:
 - Autonomy in NTL: DSP sworn officers, issuance of fines, ...
 - Autonomy in bill collection: cancelation of the monetary value of bills, issuance of bills on behalf of EDL, issuance of bills at DSPs premises, ...
 - Cashier services: transfer cashiers' duties to DSPs
 - EDL customer services work processes: DSP's to set and execute independently all customer services processes, ...
 - Replacement of customers electromagnetic meters by smart meters (M5) without pre-approvals from EDL sworn officers
- In response to EDL request, the court of audit opinion ref. 65/21 dated December 14, 2021, concluded that modification of the allocation of roles and responsibilities among EDL and DSPs in order to perform additional activities and provide them more autonomy, shall require ratification of new laws and/or modification of EDL's regulations, EDL decree 13537 and others
- Further investigations by MoEW and EDL are underway to ascertain whether above activities may be enabled more readily and quickly through a simple change in EDL bylaws, without any legislative change

....than general requirements needed in both scenarios

- In all cases the following is essential towards technical loss reduction
 - Investments in transmission grid (North loop, South Loop, National Control Center, others as per transmission master plan)
 - Investments in distribution network (AMI center & smart meters, MV & LV networks)
 - Additional improvements will be obtained if further investments are done
- Conditions to reduce non-technical losses
 - Intensify illegal connections removal campaigns with the prompt support of MoIM, MoD, and MoJ
 - DSPs contract scope improvement at no additional cost until end 2023 following laws 160 & 185 regarding extension of contracts
 - Adoption of reformed distribution model post 2023 (advanced PPP distribution model like concessions or others)

Enhance distribution system performance by improving allocation of roles and tasks to the DSPs

B Needed mechanisms with EDL to be set by the DSPs

• NTL Activities

- Reduction of the distribution system losses
- NTL campaigns, and violation removals
- Install meters for Syrian/remaining Palestinian refugee camps
- Install around 100,000 circuit breakers as per EDL BoD decision N 322-22/2021 for pending customers' applications
- Network reconfiguration and update
- Distribution losses target: up to 5% reduction in 2022

• Customer Services

- Normalize EDL customer database and unify subscriber's identification
- Streamline the business processes
- Update and clean public sector customers' database
- Reduce customer service application backlog

• Collection Activities

- Bill collection and meter reading processes and workflows
- Issuance of bills through other means
- Normalize meters' reading of the public sector customer accounts
- Reach "Up to date" in billing and collection during 2022
- Disconnection/reconnection processes and workflows (arrears and PVs)
- Distribution of notices

• AMI

- Smart meters deployment (10% phase and part of the rollout phase)
- Smart meters installation outside rollout where applicable
- Streamline the AMI rollout and pave the way for smart grid, AMI Center

On the financial front, major financial initiatives will be undertaken in the next 12 to 24 months and continue forward

C Financial Sustainability Highlights

2022 – 2023

- **Address EDL's financial deficit**
 - Implement tariff adjustments⁽¹⁾ once supply hours are increased to an average of around 8-10 hours, while improving collections and reducing network losses
 - Introduce tangible macro-economic measures aimed at reviving economic activity: incentivizing the industrial sector (e.g. tax rebate for industrials associated with efficient use of electricity), protecting vulnerable households (e.g. targeted cash transfer through social safety system)
 - Establish cash waterfall mechanism to prioritize and manage EDL payments to suppliers
 - Enhance bill collection process (shorter billing cycle, domiciliation of bills and others)
 - Manage cash flows including arrears and overdue payments
 - Improve EDL financial reporting as per industry standards
 - Enforce financial discipline by EDL and institutional stakeholders

2023 onwards

- **Maintain the sector's financial viability to ease Lebanon's macro-fiscal situation from the burden of the deficit and attract private investment**
 - Pilot the sustainability of the sector through continuous management of tariffs
 - Implement tariff methodology as per business plan laid out by/for ERA
 - Maintain EDL's financial transparency including periodical disclosure of audited and non-audited financial statements
 - Ensure a safe and attractive environment for private capital investment

(1) Tariffs will be reviewed monthly (in principle) based on an indexation mechanism (Brent price for fuel and SAYRAFA for USD exchange rate) that will be elaborated further by EDL according to applicable rules and regulations

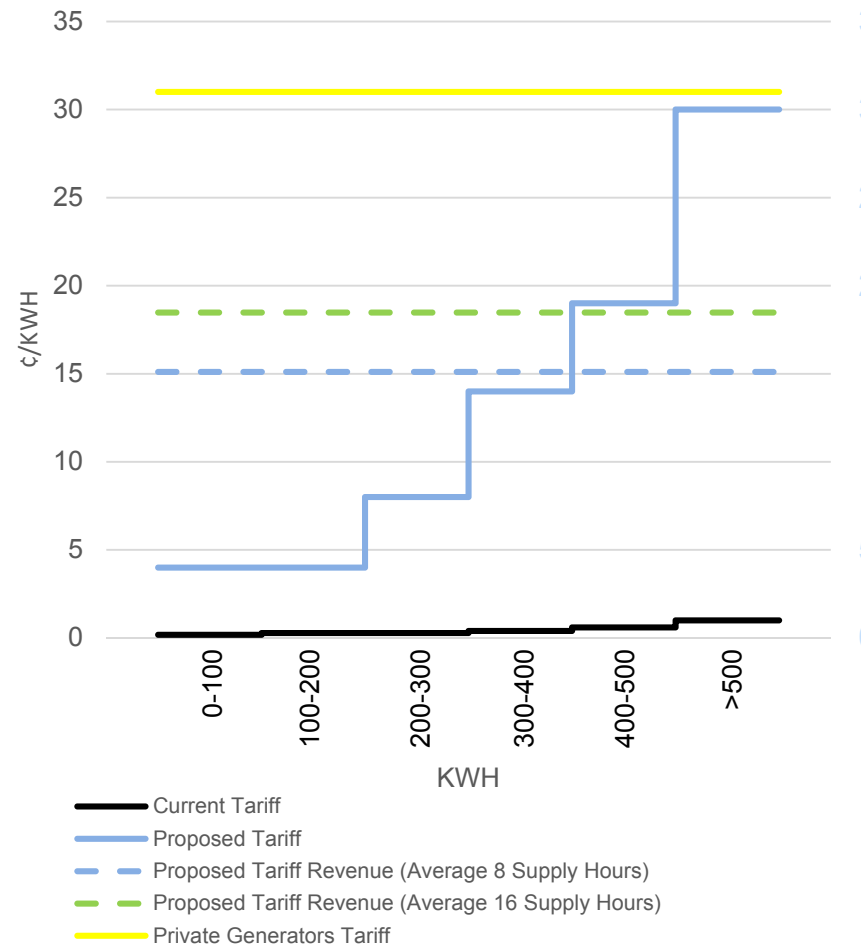
The plan entails a revision of tariffs focusing on residential customers with the imperative of reducing the impact on vulnerable households

c Proposed Tariff Structure – Residential

Residential customers

Bracket [KWH]	Current tariff			Proposed tariff	
	LL	USC ¹	USC ²	LL	USC ¹
0-100	35	0.2	2.3	800	4
100-200	55	0.3	3.7	800	4
200-300	55	0.3	3.7	1,600	8
300-400	80	0.4	5.3	2,800	14
400-500	120	0.6	8.0	3,800	19
> 500	200	1	13.3	6,000	30
Fixed Charges ³	9,800	49	653	169,867	849

Tariff comparison



(1) At the rate of 20,000 LL per USD

(2) At the rate of 1,500 LL per USD

(3) 20[A] meter subscription

As such, EDL will be able to provide 75% of residential customers with electricity at 10¢/KWH, 3.2 times cheaper than private generators

C Specific Impact on Low-Consumption Households (~75% of Residential/Commercial Customers)

Current spend of low-consumption households (~16h¹)

	Consumption [KWH]	Bill [LL] (incl. fixed charges, VAT, stamp)	Resulting Tariff	
			[LL/KWH]	[¢/KWH] ²
EDL	57	14,092	247	1.2
Generator	215	1,331,307	6,192	31
Aggregate	272	1,345,400	4,946	25

Projected spend of low-consumption households (~16h¹)

EDL	158	329,856	2,088	10
Generator	114	719,996	6,316	32
Aggregate	272	1,049,852	3,860	19

-22%

(1) Assuming 8 hours blackout
(2) At the rate of 20,000 LL per USD

Households consuming 600 KWH/month will save 20% on their total electricity bill

C Specific Impact on Households Consuming 600 KWH/Month

Current spend (~16h¹)

	Consumption [KWH]	Bill [LL] (incl. fixed charges, VAT, stamp)	Resulting Tariff	
			[LL/KWH]	[¢/KWH] ²
EDL	126	22,678	180	0.9
Generator	474	2,948,929	6,221	31
Aggregate	600	2,971,607	4,953	25

Projected spend (~16h¹)

EDL	348	786,288	2,259	11
Generator	252	1,605,253	6,370	32
Aggregate	600	2,391,541	3,986	20

-20%

(1) Assuming 8 hours blackout
 (2) At the rate of 20,000 LL per USD

Households consuming 900 KWH/month will save 12% on their total electricity bill

C Specific Impact on Households Consuming 900 KWH/Month

Current spend (~16h¹)

	Consumption [KWH]	Bill [LL] (incl. fixed charges, VAT, stamp)	Resulting Tariff	
			[LL/KWH]	[¢/KWH] ²
EDL	189	26,524	140	0.7
Generator	711	4,383,393	6,165	31
Aggregate	900	4,409,918	4,900	24

Projected spend (~16h¹)

EDL	523	1,522,884	2,912	15
Generator	377	2,361,827	6,265	31
Aggregate	900	3,884,711	4,316	22

-12%

(1) Assuming 8 hours blackout
 (2) At the rate of 20,000 LL per USD

Concomitantly, tariffs adopted for non-residential customers are designed to achieve cost recovery in 2023

C Proposed Tariff Structure – Others

Low voltage customers

Category	Current tariff			Proposed tariff	
	LL	USC ¹	USC ²	LL	USC ¹
Commercial	140	0.7	9.3	4,000	20
Agriculture-Industrial	115	0.6	7.7	3,700	18.5
Public Lighting	140	0.7	9.3	4,000	20
Municipality	140	0.7	9.3	4,000	20
Municipality (Water Pump)	115	0.6	7.7	3,700	18.5
Administrations	140	0.7	9.3	4,000	20
Water Establishments	115	0.6	7.7	3,700	18.5

(1) At the rate of 20,000 LL per USD

(2) At the rate of 1,500 LL per USD

(3) Proposed tariffs to be confirmed based on further O&M costs review, consumption analysis and corresponding number of supply hours

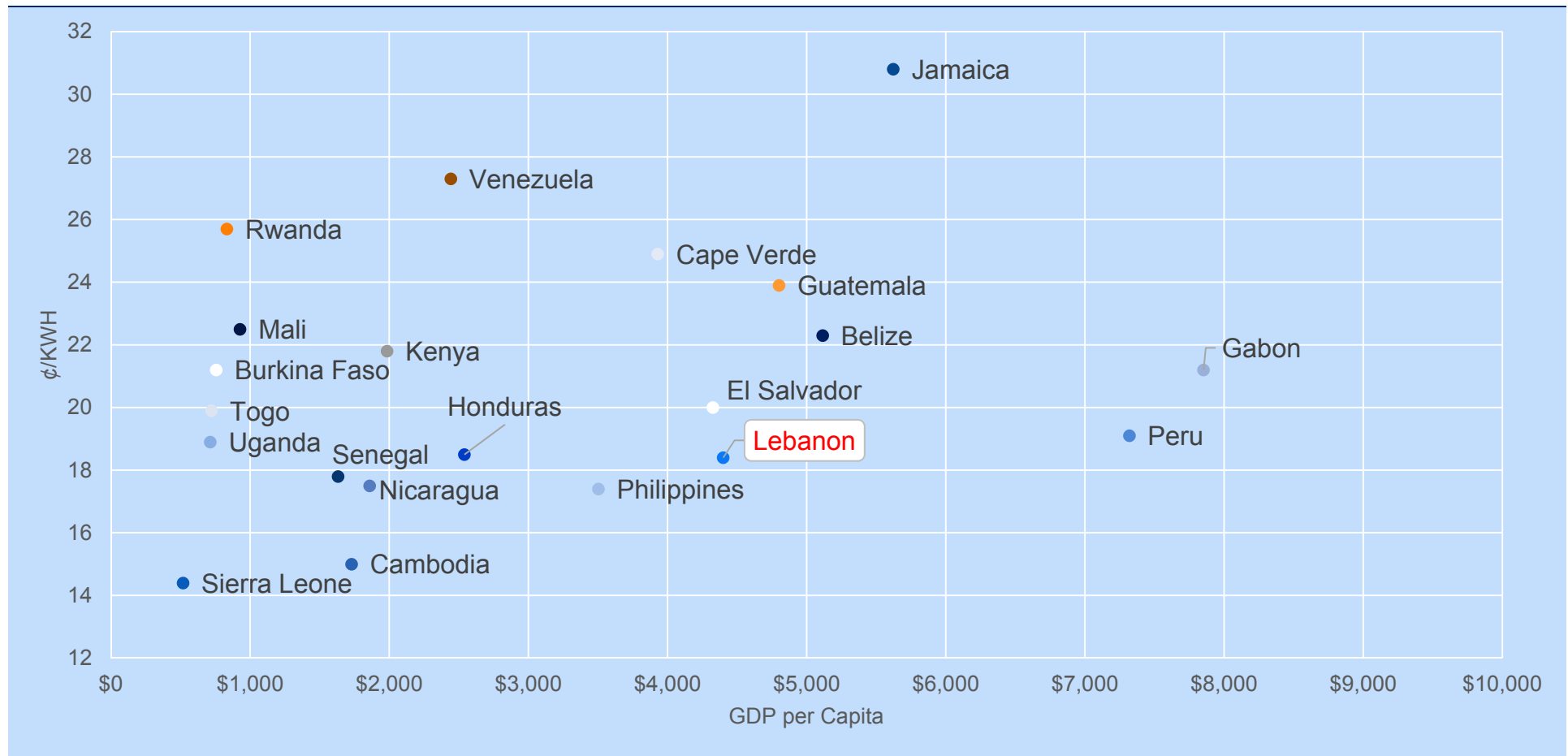
Medium/High voltage customers

Category	Current tariff			Proposed tariff		
	LL	USC ¹	USC ²	LL	USC ¹	
Medium Voltage Customers	Triple Tariff	80	0.4	5.3	2,500	12.5
		112	0.6	7.5	3,700	18.5
		320	1.6	21.3	10,000	50
	Agr. - Indust. - Water Est.	130	0.65	8.7	3,700	18.5
Lighting	140	0.7	9.3	4,000	20	
Concessions ⁽³⁾	75	0.38	5	3,100	15.5	
Zahle ⁽³⁾	88.1	0.44	5.9	3,100	15.5	
Qadisha ⁽³⁾	60	0.3	4	3,100	15.5	
Palestinian Camps	140	0.7	9.3	4,000	20	
High Voltage customers	115	0.6	7.7	3,700	18.5	

Such a tariff structure is in line with benchmarks assuming a real GDP per Capita of ~ \$4,400

c Proposed Average Tariff Revenue

GDP per Capita benchmark



Source: <https://worldpopulationreview.com/countries/countries-by-gdp> ; https://www.globalpetrolprices.com/Ivory-Coast/electricity_prices/

The ambitious loss reduction plan would translate to improved financials, with breakeven tariff of 18.3 ¢/KWH in 2023, but is yet to be approved by EDL

C Financial plan reflecting a more ambitious loss reduction plan

Profit & Cashflow [\$M]

	2022		2023		2024		2025		2026	
	P&L	Cashflow	P&L	Cashflow	P&L	Cashflow	P&L	Cashflow	P&L	Cashflow
Cost [\$M]	(1,301)	(934)	(2,106)	(2,044)	(2,440)	(2,383)	(2,756)	(2,895)	(2,698)	(3,040)
Iraqi Fuel ⁽¹⁾	(426)	(153)	(359)	(426)	(347)	(359)	(321)	(347)	(223)	(321)
Natural Gas ⁽¹⁾	(155)	(138)	(825)	(774)	(1,072)	(1,031)	(1,300)	(1,305)	(1,213)	(1,217)
Jordan Electricity ⁽¹⁾	(160)	(142)	(213)	(213)	(213)	(213)	(213)	(213)	(213)	(213)
Generation O&M ⁽²⁾	(193)	(130)	(339)	(259)	(430)	(353)	(523)	(479)	(638)	(576)
Transmission & Distribution & Others ⁽²⁾⁽³⁾	(366)	(370)	(369)	(372)	(378)	(427)	(398)	(550)	(409)	(713)
Revenue [\$M]⁽⁴⁾	829	380	2,109	1,683	2,556	2,244	3,147	2,997	3,547	3,393
WB Loan Disbursement [\$M]	N/A	304	N/A	211	N/A	(7)	N/A	(7)	N/A	(7)
Profit/Loss [\$M]	(472)	(250)	4	(150)	117	(145)	391	96	849	347
Breakeven Tariff [¢/KWH]	23.3		18.3		17.9		16.8		14.8	
Supply Hours [Hr]	8 - 10		16 - 18		16 - 20		20 - 24		22 - 24	
Approximate Average Power [MW]	1,000		1,900		2,150		2,500		2,700	
Network Losses (TL + NTL)	33.9%		28.4%		25.0%		21.6%		19.9%	

(1) Assumes Brent price = 80 \$/barrel

(2) EDL salaries are calculated at an assumed rate of 8,000 LL/USD i.e. 5 times increase of LL based salaries

(3) Includes transmission network investments as per EDF master plan starting 2024

(4) Assumes 5 months period from bills issuance to bills collection

By adopting EDL approved loss reduction plan, financial sustainability cannot be achieved before 2025

C Impact of adopting EDL approved loss reduction plan on EDL financials

Profit & Cashflow [\$M]

	2022		2023		2024		2025		2026	
	P&L	Cashflow	P&L	Cashflow	P&L	Cashflow	P&L	Cashflow	P&L	Cashflow
Cost [\$M]	(1,301)	(934)	(2,106)	(2,044)	(2,440)	(2,383)	(2,756)	(2,895)	(2,698)	(3,040)
Iraqi Fuel ⁽¹⁾	(426)	(153)	(359)	(426)	(347)	(359)	(321)	(347)	(223)	(321)
Natural Gas ⁽¹⁾	(155)	(138)	(825)	(774)	(1,072)	(1,031)	(1,300)	(1,305)	(1,213)	(1,217)
Jordan Electricity ⁽¹⁾	(160)	(142)	(213)	(213)	(213)	(213)	(213)	(213)	(213)	(213)
Generation O&M ⁽²⁾	(193)	(130)	(339)	(259)	(430)	(353)	(523)	(479)	(638)	(576)
Transmission & Distribution & Others ⁽²⁾⁽³⁾	(366)	(370)	(369)	(372)	(378)	(427)	(398)	(550)	(409)	(713)
Revenue [\$M]⁽⁴⁾	801	368	1,955	1,579	2,353	2,071	2,893	2,756	3,290	3,136
WB Loan Disbursement [\$M]	N/A	304	N/A	211	N/A	(7)	N/A	(7)	N/A	(7)
Profit/Loss [\$M]	(499)	(262)	(151)	(255)	(87)	(318)	136	(145)	592	89
Breakeven Tariff [¢/KWH]	24.1		19.8		19.5		18.3		16.0	
Supply Hours [Hr]	8 - 10		16 - 18		16 - 20		20 - 24		22 - 24	
Approximate Average Power [MW]	1,000		1,900		2,150		2,500		2,700	
Network Losses (TL + NTL)	36.1%		33.6%		31.0%		27.9%		25.7%	

(1) Assumes Brent price = 80 \$/barrel

(2) EDL salaries are calculated at an assumed rate of 8,000 LL/USD i.e. 5 times increase of LL based salaries

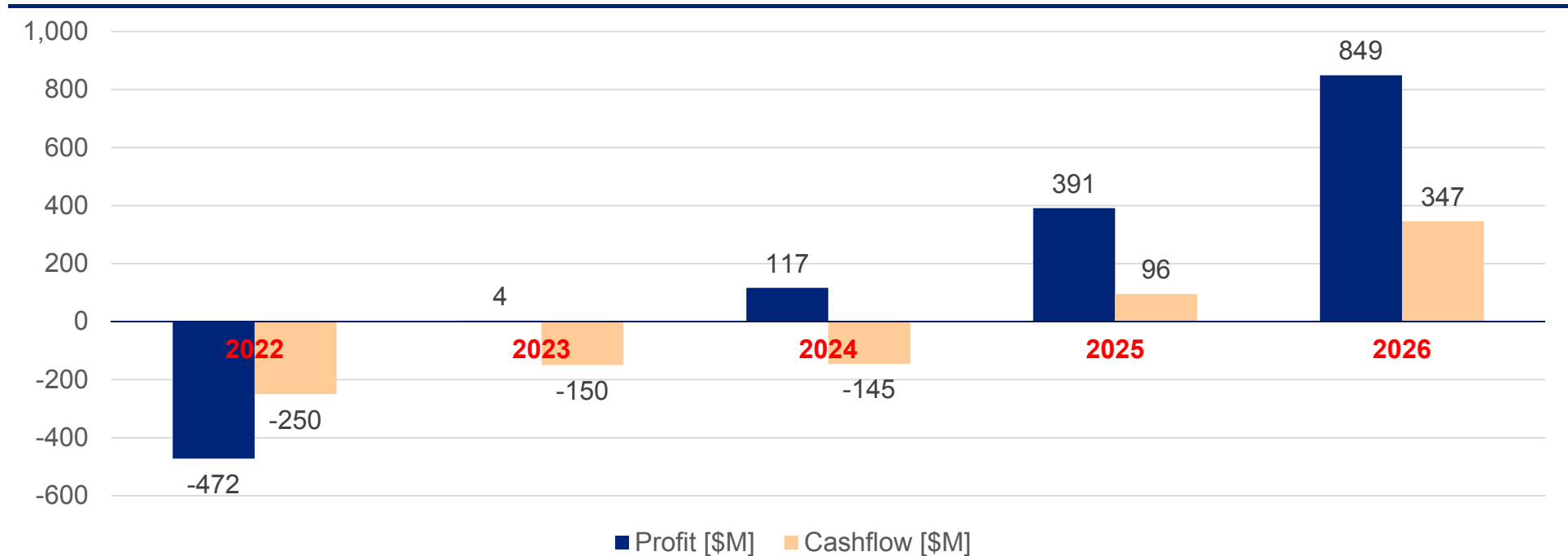
(3) Includes transmission network investments as per EDF master plan starting 2024

(4) Assumes 5 months period from bills issuance to bills collection

All in all, EDL will be on a sustainable path to profitability once financing gaps are bridged until 2024

C Impact on EDL Financials

P&L VS Cashflow



Tariffs could likely be decreased in 2025-2026 based on performance improvement and economies of scale allowing lower cost recovery thresholds

(1) Assumes the ambitious scenario for losses reduction

As can be expected, EDL financial sustainability is highly sensitive to the average tariff level

C EDL Financials at Various Tariff Levels

Profit & Loss [\$M]

		2022		2023		2024		2025		2026		Aggregate	
Tariff [¢/KWH] (Average 2023)		P&L	Cash	P&L	Cash	P&L	Cash	P&L	Cash	P&L	Cash	P&L	Cash
Current tariff	0.66	(1,261)	(601)	(2,030)	(1,771)	(2,349)	(2,309)	(2,646)	(2,796)	(2,574)	(2,928)	(10,861)	(10,405)
Base case -30%	12.8	(718)	(359)	(629)	(655)	(650)	(818)	(553)	(804)	(215)	(671)	(2,766)	(3,308)
Base case -20%	14.7	(636)	(323)	(418)	(487)	(395)	(594)	(238)	(504)	140	(332)	(1,548)	(2,239)
Base case -10%	16.5	(554)	(286)	(207)	(318)	(139)	(370)	76	(204)	494	7	(330)	(1,171)
Base case ⁽¹⁾	18.4	(472)	(250)	4	(150)	117	(145)	391	96	849	347	888	(103)
Base case +10%	20.2	(390)	(213)	214	19	372	79	706	395	1,204	686	2,107	966
Base case +20%	22.0	(307)	(177)	425	187	628	304	1,021	695	1,558	1,025	3,325	2,034

(1) Assumes the ambitious scenario for losses reduction

Managing arrears and overdue payments raises the cash gap in 2022 from 250 \$M to 277 \$M

c EDL Financials Including Overdue Payments and Arrears

Consolidated Cash Requirements [\$M]

	2022	2023	2024	2025	2026	Aggregate
Profit/Loss EDL operations [\$M] ⁽¹⁾	(250)	(150)	(145)	96	347	(103)
Overdue payments [\$M] ⁽²⁾	(50)	(50)	(70)	0	0	(170)
Arrears collection [\$M] ⁽³⁾	23	23	23	23	23	113
Total cash requirements [\$M]⁽⁴⁾	(277)	(177)	(192)	118	369	(159)

The cash gap can be partially financed through immediate settlement of the public administrations arrears due to EDL

(1) Assumes the ambitious scenario for losses reduction

(2) Does not include 247 \$M payments to Karpowership due to ongoing litigation

(3) Arrears are in Lebanese Liras converted at the rate of 20,000 LL/USD for consistency

(4) EDL has more than 300 LL Billions in its accounts at BDL that can be utilized to secure some of the required funds in USD

Proposed schedule to collect arrears from public administrations, refugees and ministry of finance over a period of 5 years

C Breakdown of Arrears

Arrears Collection Tentative Schedule

	Total	2022	2023	2024	2025	2026
Municipalities [LL Billions]⁽¹⁾	607	121	121	121	121	121
Public administrations [LL Billions]⁽¹⁾	783	157	157	157	157	157
Public administrations	134	27	27	27	27	27
Public establishments	85	17	17	17	17	17
Water establishments	564	113	113	113	113	113
Palestinian refugees camps [LL Billions]⁽¹⁾	470	94	94	94	94	94
Exemptions issued by CoM [LL Billions]⁽¹⁾ (Boundary regions in southern Lebanon between 1995-2001)	128	26	26	26	26	26
TAX refund till 31/12/2012 [LL Billions]⁽¹⁾	157	31	31	31	31	31
General arrear bills collection	125	25	25	25	25	25
Total arrears [LL Billions]	2,269	454	454	454	454	454
Total arrears [\$M]⁽²⁾	113	23	23	23	23	23

(1) CoM & MoF support is required to collect outstanding bills from municipalities, public administrations and Palestinian refugees camps

(2) Converted to USD at the rate of 20,000 LL/USD

Expected bills of public administrations & water establishments & Palestinian camps for 2022 sum up to ~ 117 \$M⁽¹⁾ that need to be compensated to EDL if not paid by the concerned parties

C Breakdown of Consumption and Tariff Revenue

Low voltage customers

Category	Expected GWH Consumption	Expected Revenue MUSD ⁽²⁾
Residential	3,197	424
Commercial	30	6
Agriculture-Industrial	43	8
Public Lighting	142	27
Municipality	6	1
Municipality (Water Pump)	2	0.4
Administrations	17	4
Water Establishments	2	0.4

Medium voltage customers

Category	Expected GWH Consumption	Expected Revenue MUSD ⁽²⁾	
Public Sector	Triple Tariff	0.8	0.2
	Water Est.	222	40
	Lighting	173	33
Private Sector	Triple Tariff	729	142
	Agr. - Indust.	4	1
	Lighting	5	1

Medium/High voltage customers

Category	Expected GWH Consumption	Expected Revenue MUSD ⁽²⁾
Concessions ⁽³⁾	174	24
Zahle ⁽³⁾	140	19
Qadisha ⁽³⁾	555	75
Palestinian Camps	55	11
High Voltage customers	77	14

(1) 8 -10 supply hours and tariff increase are assumed starting April 2022

(2) At the rate of 20,000 LL per USD

(3) Proposed tariffs to be confirmed based on further O&M costs review, consumption analysis and corresponding number of supply hours

On the institutional, legislative and regulatory fronts, major initiatives will be undertaken to enhance the sector's governance

D Governance initiatives

2022 – 2023

- **Establish a clean slate**

- Institutional: Develop EDL financial reporting practices and procedures in line with good practices and international financial reporting standards
- Regulatory: Define and launch recruitment for Electricity Regulatory Authority commissioners (ERA), establish ERA and approve and secure corresponding budget
- Legislative:
 - Undertake a comprehensive review of Law 462, in consultation with sector's stakeholders and as per international best practices to fully operationalize the sector legislative framework
 - Ratify Energy Conservation law and Distributed Renewable Energy law

2023 onwards

- **Enforce transparency in the electricity sector**

- Institutional: complete legal unbundling of generation, transmission and distribution to corporatize EDL and establish a Transmission System Operator (TSO)
- Regulatory: Operationalize ERA
- Legislative: Operationalize updated legal framework / amendments to Law 462 and new Energy Efficiency and Distributed Renewable Energy laws

In all cases, success of the envisaged plan is contingent on fulfilment of certain critical tasks

Key Success Factors

- A Supply and Generation**
 - Finalization of 300 \$M initial loan from the WB to support Egypt gas, solar systems for water pumping stations for water establishments and technical assistance for MoEW and EDL
 - Final agreement from Egypt to supply the required quantities of natural gas for Deir Amar (650 million m³/year)
 - Provision of additional contemplated 300 \$M loan from WB and/or other IFIs to support electricity imports from Jordan
 - Provision of additional quantities of natural gas at Deir Amar and FSRU at Zahrani to support additional electricity supply starting 2023
 - Availability of public/private financing along with associated expedited legislations as required to support addition of permanent generation capacity
- B Transmission and Distribution**
 - DSP performance improvement at no additional cost through contract extension as per laws 160 and 185 regarding suspension of delays
 - Success in realizing the conditions that enable achievement of the ambitious loss reduction plan
 - Adoption of a reformed PPP based distribution model post 2023
- D Financial**
 - Adoption of tariff adjustment as proposed
 - Development of EDL financial reporting practices and procedures in line with good practices and international financial reporting standards
- C Institutional, Legislative and Regulatory**
 - Ratification of Energy Conservation Law and Distributed Renewable Energy Law
 - Issuance of relevant decrees to appoint ERA's commissioners and their corresponding budget
 - Undertaking a review of Law 462 to bridge legislative gaps

Importantly some key stakeholders need to be actively involved to achieve the plan objectives

Engagement of Key Stakeholders

- **Support from institutional stakeholders**
 - **Council of Ministers** to approve:
 - Improvement of the DSPs contract through the transfer of some additional activities to the DSPs, without any additional cost, during the contract extension period, based on the applicability of laws 160 and 185
 - Formal allocation of the proposed land at Zahrani to MoEW for the purpose of developing Zahrani II power plant
 - Termination of J&P Avax contract assuming outcome of arbitration underway not adversely impacted
 - Cancellation of old CoM decisions related to Deir Amar II (Decision #17 dated 12/03/2013 - approval to contract J&P Avax as per Central Tender Board bidding result, and decision #84 dated 21/05/2018 - approval to transform J&P Avax contract from EPC contract form to PPA agreement form) assuming outcome of arbitration underway not adversely impacted
 - **Ministry of Finance** to bridge the financial gap for the coming 3 years until full cost recovery from tariff revenues is achieved
 - **Ministry of Interior & Municipalities** to provide security escort during campaigns to disconnect infringements on the electrical network on all Lebanese territories and protect EDL facilities and personnel as well as the Lebanese portion of the AGP
 - **Ministry of Defense** to provide security escort by the army on an ongoing basis during campaigns to disconnect infringements on the electrical network in specific areas on all Lebanese territories
 - **Ministry of Justice** to expedite the law cases related to the fine records resulting from the infringement disconnection campaigns, and support EDL in amending certain regulations and bylaws to enhance the role of the DSPs in accordance with the relevant Cabinet decision and the recommendations of the World Bank
 - **Central Bank** to secure sustainable access to USD from EDL collections
 - **Public administrations, refugees, water establishments** and other entities to pay their overdue and future electricity bills
- **Support from the public**
 - Achieve broad based stakeholders buy-in to adjusted tariffs by conducting proactive awareness campaigns, getting support from parliamentary groups, civil society, public and local authorities to promote proposed tariff increase, loss reduction and timely bill collection in close coordination with the media
- **Support from the international community**
 - Financing support via loans, credit enhancement & others for sector's investments needs & associated technical assistance to implement the envisaged plans in generation, transmission & distribution & achieve 30% share in the energy mix from renewable resources by 2030, as detailed in the national renewable energy action plan developed by the International Renewable Energy Agency (IRENA)