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ENERGY

SUMMIT

NATIONAL ENERGY COMPACT FOR ZAMBIA

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Foreword

Zambia's National Compact is aligned with the United Nations Sustainable Development Goal (UN SDG 7) and the National Vision 2030 that focuses on delivering universal access to reliable, affordable, inclusive, sustainable, and clean energy to all Zambians by the year 2030.

Despite abundant renewable energy resources in Zambia, about half of the population remains without electricity and more than 80 percent without access to clean cooking solutions. With an average of 24 inhabitants per square kilometer, Zambia is amongst the least densely populated countries in the world making distributed renewable energy (DRE) the least cost option for majority of the population living in the rural areas. More than 80 percent of the total power generation is based on hydro and as part of building resilience against climate change induced hydrological variations, Zambia aims to diversifying its renewable energy sources, particularly to solar.

The Government of the Republic of Zambia (GRZ) aspires to be a prosperous middle-income nation by 2030. To support this ambition, GRZ has set out an aggressive economic diversification and industrialisation agenda driven by the agriculture, mining, manufacturing and tourism sectors. GRZ recognises that energy is a key enabler for the planned economic and industrial transformation and that it should be led by the private sector with the Government ensuring an enabling and supportive environment through the delivery of appropriate policy and regulatory frameworks.

Government aims to achieve universal access to electricity and reach at least 40 percent of the population with clean cooking solutions by 2030 by significantly accelerating the pace of grid and off-grid access as well as deployment of clean cooking technologies. It also aims to increase the share of non-hydro renewable energy in its generation mix to 33 percent from the current 3 percent. Significant mobilization of public and private sector financing is targeted by creating a favourable investment climate, strengthening local capacities through training, and establishing robust data collection systems for informed energy planning and decision-making.

This National Energy Compact was developed through extensive engagement and consultations with various stakeholders, including the development partners, the private sector, and the civil society, to foster partnerships crucial for achieving the ambitious goals of the Compact.

Recognizing that success requires capacity building and collective efforts, the Government of Zambia calls upon development partners, philanthropies, the private sector, and civil society to join in this transformative journey to accelerate energy access and help mobilize the required **$11.9 billion in total investments**, with **$9.5 billion** expected from the private sector. The Government is committed to implementing the comprehensive action plan outlined in this Compact to address key bottlenecks across the energy value chain, while fostering resilience and equity across Zambia.

Executive Summary

This document outlines Zambia's National Energy Compact aligned with Vision 2030, the National Development Plan (2022–2026) and U.N. Sustainable Development Goal 7. The Compact demonstrates Zambia's commitment to achieving affordable, reliable, and sustainable energy access through renewable energy expansion, infrastructure enhancements, and private-sector engagement. It aims to diversify energy sources, strengthen energy security, and foster socioeconomic growth and climate resilience by 2030.

The Zambia National Energy Compact is underpinned by key assumptions, and it sets ambitious targets.

KEY ASSUMPTIONS

- **Economic Diversification and Industrialization:** The Government of the Republic of Zambia (GRZ) aims to achieve robust economic diversification and industrialization by boosting productivity across mining, agriculture, and manufacturing sectors. In mining, the focus is on expanding copper production from 800,000 metric tonnes to 3 million tonnes annually by 2032 while diversifying into other minerals. In agriculture, significant growth is projected, with wheat production increasing from 175,000 tonnes to 15 million tonnes, maize from 3 million tonnes to 10 million tonnes, and soya beans from 329,000 tonnes to 3 million tonnes by 2050, driven by enhanced irrigation and crop processing. Industrialization efforts include establishing new manufacturing facilities and economic zones, such as an electric vehicle battery manufacturing plant in Ndola and a steel plant in the Lusaka Multi-Facility Economic Zone (MFEZ).

- **Universal Access to Electricity:** Achieving universal electricity access for all Zambians by 2030 remains a priority; this requires substantial resources and concerted effort, as current access rates stand at 53.6 percent[1].

- **Population Growth:** Zambia's population is projected to reach 26 million by 2030, further increasing energy demand.

KEY TARGETS

- **Universal Electricity Access:** To achieve 100 percent national electricity access by 2030, the GRZ will emphasize electrification of rural and underserved areas through on-grid and off-grid solutions. Furthermore, the target is to double annual electricity on-grid connections from 60,000 in 2022 to 120,000 by 2030

- **Clean Cooking:** To increase access to clean cooking solutions from 8.9 percent to 40 percent by 2030, the GRZ will promote alternative fuels and clean cooking technologies.

- **Renewable Energy:** To enhance the share of non-hydro renewable energy in the energy-generation mix from 3 percent to 33 percent by 2030, the GRZ will focus on solar and wind energy.

KEY POLICY FRAMEWORKS

Zambia's energy sector is guided by transformative policies, including:

- **The Multi-Year Tariff Framework (MYTF)** creates a smooth glide path towards cost reflective tariffs, as well as assures a predictable policy and regulatory environment. Further, the MYTF guarantees certainty to investors as well as balances viability for utilities and affordability for consumers

- **The Electricity Open Access Framework** provides for non-discriminatory access to transmission and distribution networks by third parties as well as enable independent power producers (IPPS) and qualifying end-users to engage in power trading without ZESCO serving as the sole off-taker.

[1] 2023 National Energy Access Survey

- **Net Metering Policy Framework** allows consumers who also produce electricity to generate their own power from renewable energy sources such as solar and any excess electricity generated can be fed back into the ZESCO grid.

- **Energy Single Licensing System (One Stop Shop):** Facilitate coordination between authorizing and statutory bodies involved in IPP licensing and permitting processes, streamline the licensing process, and reduce regulatory uncertainties and risks for potential IPPs.

- **The Integrated Resource Plan (IRP) for 2023-2050** lays a roadmap for meeting future demand growth by optimizing Zambia's energy mix, scaling up renewables, and achieving a green transition aligned with climate goals.

ENERGY DEMANDS

The demand for energy is projected to grow significantly, driven by:

- **Agriculture:** rising demand for irrigation and crop-processing.

- **Mining:** expanding copper production and diversification.

- **Industrialization:** new manufacturing facilities and economic zones.

- **Residential Growth:** urbanization and electrification efforts.

IMPLEMENTATION APPROACHES

The Compact focuses on five thematic pillars to deliver these outcomes:

1. **Generation and Infrastructure Expansion:** Increase Zambia's installed generation capacity to 10,000 MW by 2030, primarily through renewable energy sources, while upgrading transmission and distribution infrastructure to support growing demand.

2. **Regional Integration:** Strengthen Zambia's position as a regional power trading hub by enhancing cross-border interconnections and participating actively in regional power pools.

3. **Distributed Renewable Energy and Clean Cooking Solutions:** Expand access to off-grid and mini-grid renewable energy solutions and promote clean cooking technologies to underserved areas.

4. **Private-Sector Engagement:** Mobilize US$11.9 billion in investments, with US$9.5 billion from the private sector, by creating and enabling an environment with incentives and policy reforms.

5. **Utility Viability:** Strengthen the financial and operational performance of utilities—particularly ZESCO, Zambia's largest power company—through operational reforms, tariff adjustments, and strategic debt restructuring.

ENERGY COMPACT OBJECTIVES

The Compact will meet Zambia's energy needs through targeted investments, policy reforms, and stakeholder engagement. This includes modernizing energy infrastructure, diversifying energy sources, and addressing barriers such as financing gaps, regulatory inefficiencies, and utility performance issues. Monitoring and evaluation mechanisms will be deployed to ensure effective implementation, with regular updates to policies based on data-driven insights.

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- Generation and Infrastructure Expansion: Increase Zambia's installed generation capacity to 10,000 MW by 2030, primarily through renewable energy sources, while upgrading transmission and distribution infrastructure to support growing demand.
- Regional Integration: Strengthen Zambia's position as a regional power trading hub by enhancing cross-border interconnections and participating actively in regional power pools.
- Distributed Renewable Energy and Clean Cooking Solutions: Expand access to off-grid and mini-grid renewable energy solutions and promote clean cooking technologies to underserved areas.
- Private Sector Engagement: Mobilize USD$11.9 billion in investments, with USD$9.5 billion from the private sector, by creating an enabling environment with incentives and policy reforms.
- Utility Viability: Strengthen the financial and operational performance of utilities, particularly ZESCO, through operational reforms, tariff adjustments, and strategic debt restructuring.

POST-COMPACT ACTIVITIES FOR EFFECTIVE ENERGY COMPACT IMPLEMENTATION

Effective communication and stakeholder engagement are critical for the successful implementation of the Energy Compact, and as such the Government of the Republic of Zambia (GRZ) will undertake the following;

- Establish clear communication channels to ensure alignment and collaboration with stakeholders, including government agencies, development partners, the private sector, and civil society organizations.
- Provide oversight and strengthen the existing monitoring and evaluation mechanisms, enabling it to generate comprehensive project progress reports and identify potential bottlenecks.
- Maintain the Energy Compact Task Team (ECTT) to uphold high governance standards.
- Develop a post-Compact monitoring plan, specifying timelines and reviewing progress annually or biannually.
- Ensure implementation of activities align with the Compact's goals, reinforcing accountability and credibility to stakeholders**.**

CONCLUSION

The Zambia Energy Compact serves as a comprehensive roadmap to attract investments for achieving universal energy access, with a strong emphasis on renewable energy and resilient infrastructure. Through collaboration with Cooperating Partners, policy reforms, and the private sector, Zambia is well-positioned to meet its 2030 energy goals, fostering inclusive and sustainable growth in the energy sector.

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Declaration of Commitment

As Head of State, I reaffirm my unwavering commitment to ensuring that all Zambians have access to reliable, affordable, and sustainable energy. This goal aligns with our Vision 2030, which envisions Zambia as a prosperous middle-income nation, and the 8th National Development Plan (2022–2026), which underscores the critical role of energy in driving economic growth, industrialization, and improved livelihoods for all our citizens.

I recognize that energy is not merely a utility but a cornerstone of our nation's development. It is essential for achieving universal electricity access, clean cooking solutions, and an energy mix that is sustainable, resilient, and secure. To guide our efforts, we will use geospatial mapping to identify the least-cost technology options for achieving universal access, ensuring that every investment we make is targeted and efficient.

By 2030, we aim to:

- Increase electricity access for an additional 26 million people, raising the national electricity access rate to 100 percent from the current 47.8 percent, with a focus on electrification of rural and underserved areas through on-grid and off-grid solutions.

- Accelerate access to clean cooking solutions to reach 40 percent of the population, up from the current level of 8.9 percent, significantly improving the lives of women and marginalized communities by promoting alternative fuels and clean cooking technologies.

- Expand the share of non-hydro renewable energy in our generation mix from 3 percent to 33 percent through investments in solar and wind energy.

- Create an enabling environment to mobilize US$9.5 billion in private-sector investments, representing 82 percent of the total US$11.9 billion required to support Zambia's energy transition and development goals.

To achieve these targets, I commit to addressing critical bottlenecks across the energy value chain as outlined in the Compact's Action Plan:

- **Expand and Modernize Energy Infrastructure at Competitive Costs**
  - Develop the power system by building on the existing Integrated Resource Plan (IRP).
  - Implement a transparent and competitive procurement framework to attract private-sector participation, aiming to develop 3,000 MW of solar capacity by 2030.

- **Strengthen Regional Energy Integration**
  - Harmonize transmission tariffs with neighboring countries and the Southern African Power Pool by 2026 to enhance a cost-effective regional electricity trade.
  - Prioritize interconnections and renewable energy projects to position Zambia as a regional power and trading hub.

- **Scale Up Distributed Renewable Energy and Clean Cooking Solutions**
  - By 2025, finalize and implement the National Electrification Strategy, supported by the updated Rural Electrification Master Plan.
  - By 2026, establish mechanisms for duty exemptions and tax relief on renewable energy technologies and clean cooking solutions, with a clear policy on zero import duties and simplified tax-exemption procedures.
  - By 2025, adopt a comprehensive clean cooking strategy, focusing on alternative fuels and technologies for women and marginalized groups.

- **Facilitate Private Sector Participation**
  - Mobilize an estimated US$9.5 billion in private investments through innovative financing mechanisms, including risk-mitigation tools and bankable power purchase agreements.
  - Streamline the review and approval processes for developer-led mini-grids to ensure regulatory clarity and efficiency.

- **Strengthen Utility Viability and Governance**
  - Enhance ZESCO's financial and operational performance through tariff adjustments, debt restructuring, and operational reforms, targeting full cost recovery by 2027.

- Build institutional capacity within ZESCO, the Rural Electrification Authority, and the Energy Regulation Board to support effective implementation of energy policies and projects.

- **Commit to Rigorous Monitoring and Evaluation (M&E)**
  - I pledge to ensure rigorous monitoring of the Compact's implementation through a structured M&E framework supported by the Ministry of Energy and other stakeholders. This framework will include data collection and feedback mechanisms to guide policy adjustments and track progress in achieving our energy goals.

CALL FOR PARTNERSHIPS

I invite development partners, philanthropies, and private-sector stakeholders to join us in this transformative journey. Together, we can achieve universal access to affordable, reliable, and sustainable energy, fostering economic growth, creating income opportunities, and uplifting the lives of all Zambians.

FUNDING COMMITMENTS

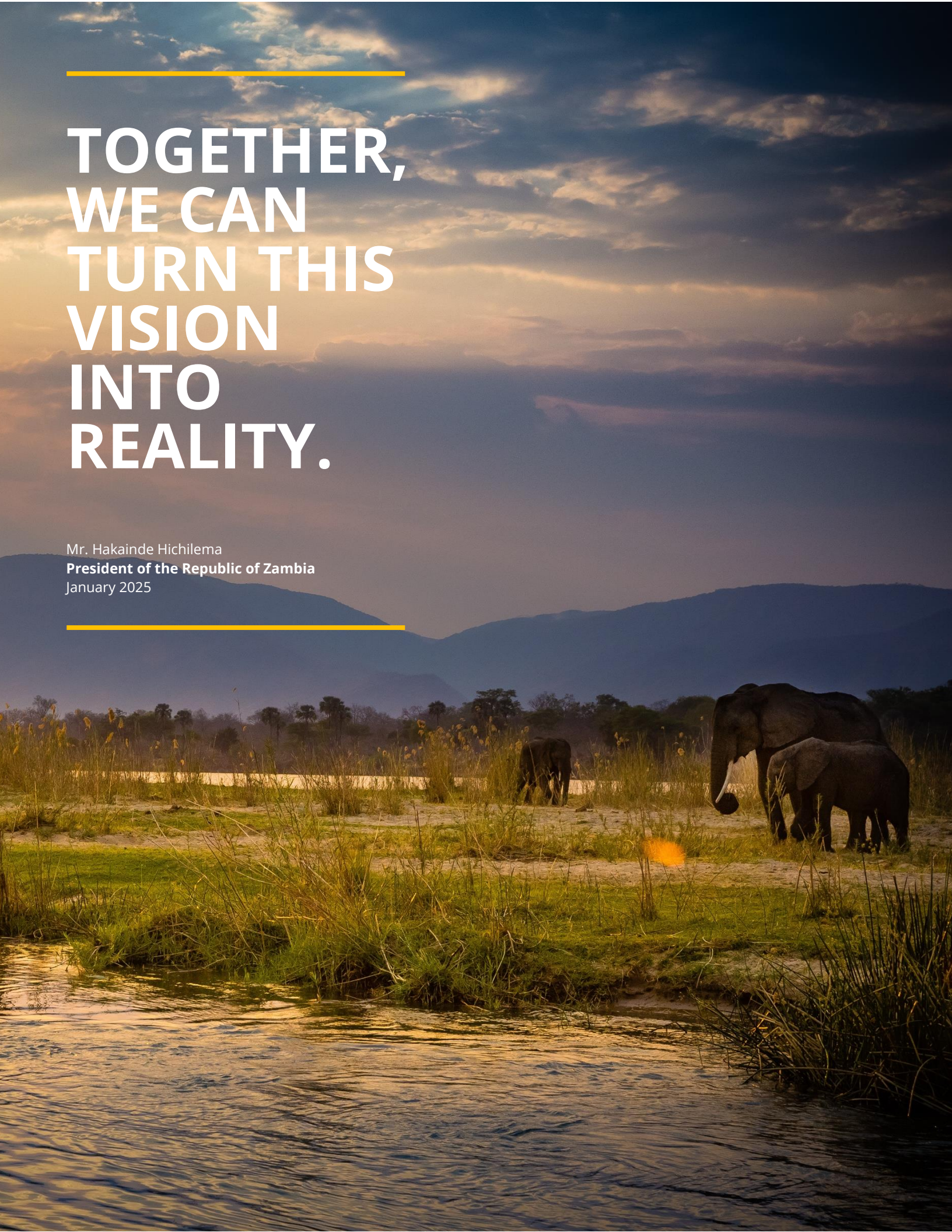
To meet our targets, we will mobilize resources from bilateral and multilateral partners, including the International Development Association and the Resiliency and Sustainability Trust of the International Monetary Fund. We will also leverage private-sector investments to fulfill the objectives of the Compact. The funding requirements to achieve Zambia's energy-sector targets are as follows

Summary Investment Needs

	Total Investment (US$ million) 2030	Privately Sourced (%)	Publicly Sourced (%)
Generation (US$ M)	7,224 (60.8)	90	10
Transmission (US$ M) including 66kV	1,410 (11.9)	70	30
Investment in 33kV Distribution Network (US$ M)	506 (4.3)	1	99
Investment in On-Grid access (US$ M)	308 (2.6)	1	99
Last mile connection (densification)[2] (grid access)	206 (1.7)	0	100
Investment in Off-Grid Access (US$ M)	2,185 (18.4)	70	30
Cleaning Cooking [3]	40.93 (0.3)	0	100
Total Investment requirement (US$ M)	**11,880**		

[2] The IRP assumes that localized plans for grid densification or last-mile connections around the 33kV distribution network will be developed separately. Therefore, it can be assumed that 120,000 connections per year will be made over the next six years, based on ZESCO's standard connection cost of K8,000 per connection (US$286). The total last-mile cost is estimated to be US$206 million.

[3] The European Union is injecting 12.5 million euros (US$15.93 million) into the Modern Cooking Facility for Africa. This funding will help accelerate access to clean cooking in Zambia, where only 16 percent of the population uses improved cookstoves. Additionally, the US$25 million US Agency for International Development (USAID) Zambia Alternatives to Charcoal (A2C) project aims to reduce dependence on charcoal as an energy source in Zambia. A2C catalyzes the adoption of low-emission alternative technologies and fuels through innovation and increased private-sector engagement, ultimately reducing charcoal-production-driven deforestation and greenhouse gas emissions. The projections from these two projects have been used as a basis for interventions aimed at promoting clean cooking.



TOGETHER, WE CAN TURN THIS VISION INTO REALITY.

Mr. Hakainde Hichilema
President of the Republic of Zambia
January 2025

1.1
Compact Targets and Action Plan

Key Assumptions

- **Economic Diversification and Industrialization:** This GRZ agenda will be driven by increased production in mining, agriculture, and manufacturing. Notably, GRZ intends to increase copper production from 800,000 MT per annum to 3 million MT and maize production from 3 million MT to 10 million MT by 2030, which will exponentially drive energy demand.
- **Universal Access to Electricity:** GRZ is determined to reach universal access to electricity for all Zambians by 2030. With the current national access rate at 53.6 percent, a huge effort and many resources will be required.
- **Population Growth:** Zambia's population is expected to reach 26 million in 2030 creating additional energy demand.

It is critical to note that, as part of its strategy to achieve these targets, the government will endeavor to create an enabling environment to mobilize resources from cooperating partners and attract private-sector participation.

Trajectory Target	**Current Annual Pace Between 2017 and 2021**		**Targeted Pace Between 2023 and 2030**
Increase Access to On-Grid and Off-Grid Electricity	On Grid	60,000 connections per year (6%)	Above 120,000 connections (>12%) per year i.e. i.e. an additional 1,459,560 connections by 2030
	Off Grid	Connection rate was at 19.0 %4 translating to 733,696 households	At least 294,719 connections (Minigrid and SHS) per year i.e. an additional 1,768,311 households mini-grid and SHS connections by 20305
Increase Access to Clean Cooking	9[6]% of population with access to clean cooking		Attain 40% of population with access to clean, with an expected annual increase of 7%.

	Current Share (MW) of Renewable Energy in Generation Mix		**Target by 2030**
Increase share of Renewable Energy	3,336 MW		Increase renewable energy capacity to 9,000 MW
	Current share of Non-Hydro Renewable Energy in Generation Mix		
Increase share of Non-Hydro Renewable Energy	182 MW (3%)		Increase the share of non-hydropower renewable energy from 3% to 33% by 2030[7]
	Baseline		**Target by 2030**
Amount of Private Capital Mobilized	Generation	US$1.1 billion	US$6.5 billion
	Transmission	US$515 million	US$987 million
	Distribution	US$14 million	On-Grid Access: US$300 million Off-Grid Access: US$1.5 billion (Total: US$1.8 billion)

4 Based on 2022 Living Condition Monitoring Survey (LCMS)
5 Based on the Updated REMP (2024 -2030)
6Based on the 2022 Living Condition and Monitoring Survey, the % of distribution of households by main type of energy used for cooking include Firewood (51.4%), Charcoal (39.2%), Clean Cooking covering Solar, Electricity, Wood Pellets &LPG (8.9%)
[7] The current contribution of variable renewable energy sources to overall generation capacity is 3 percent, while the anticipated contribution in 2030 is 33 percent, increasing to 56 percent by 2050, and thus demonstrating a clean energy growth trajectory for Zambia. The increase of non-hydropower renewable energy from 3 percent to 33 percent by 2030 is based on IRP. The share of non-hydropower renewable energy will include increasing geothermal from 0 to 30 MW, renewable biomass from 0 to 321 MW, renewable photovoltaic solar from 123 MW to 2,083 MW, and renewable wind from 0 to 1,192 MW.

* Note: Private-sector investment across the energy-sector value chain (generation, transmission, and distribution, and off-grid access, as appropriate) should be targeted.

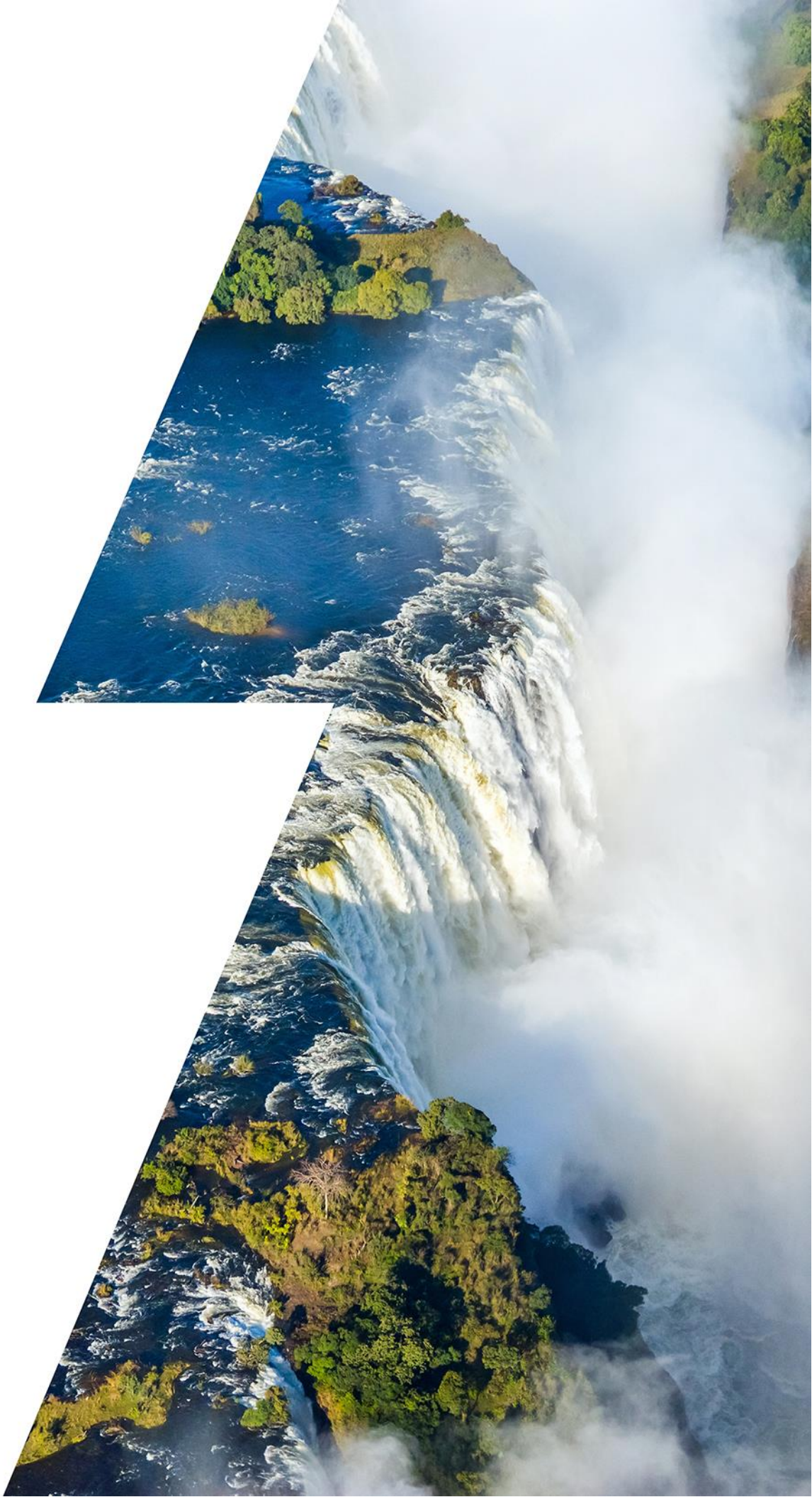
Pillar	Indicator	Baseline Data (2024)	Target Year and Detailed Actions to Achieve/Maintain Goal (including timeline)
I POWER SYSTEM EXPANSION & COST REDUCTION	Integrated least-cost power system planning was adopted incorporating regional resources	Yes	IRP developed and adopted (already achieved, 2023) **Actions needed to maintain the goal:** • Ministry of Energy (MOE) to periodically update the IRP with the first update due in 2026 factoring in life cycle costs and ensuring regional resources are adequately incorporated in the plan. • MOE to establish Energy Planning Unit and build capacity for Energy planning and analysis by December 2025 • MOE to review and update the Rural Electrification Master Plan (REMP) by June -2025 • MOE to develop M&E framework to monitor the implementation of Energy Sector Programs/Projects by June 2025.
	Competitive procurement policy and framework in place for private-sector investment in renewable energy	No	Target year: December 2025 **Actions needed to achieve the goal:** • Support implementation of priority power generation and projects defined under the Presidential Delivery Unit (PDU). • Prepare and publish the Energy Sector Procurement Framework by December 2025. • Establish and operationalize a dedicated Procurement Unit supported with legal framework within MOE by December 2025. • Develop and adopt standardized commercial transaction documents (Implementation Agreements, Power Purchase Agreements, Connection Agreements etc.) by December 2025.
	Improvement in the operational performance and efficiency of existing electricity-generation assets	No	Target year: December 2030 **Actions needed to achieve the goal:** • Reduce transmission and distribution losses by upgrading infrastructure, implementing smart grid technologies, and improving metering and billing systems. • Enhance the efficiency of existing generation assets by conducting audits and modernizing equipment to increase generation capacity.
II REGIONAL INTEGRATION	Transmission and distribution infrastructure developed	Yes	**Actions needed to maintain the goal:** • Support and accelerate implementation of Power Interconnectors such as the Zambia-Tanzania Interconnector Project. • Facilitate resource mobilization to finance transmission infrastructure upgrades and expansion to support increased power flows and enhance system reliability by December 2026. • Support the existing procurement framework (recently launched by MOE) for transmission projects by 2025
	Adopt and enforce harmonized transmission pricing to facilitate regional power trade across borders	No	Target year: December 2026 **Actions needed to achieve the goal:** • MOE to facilitate implementation of a transparent and standardized transmission pricing methodology aligned with regional standards by December 2025. • MOE to oversee the adoption and enforcement of harmonized pricing by December 2025.

III LAST MILE ACCESS	Uptake of distributed renewable energy (DRE) and enhanced clean cooking	No	Target year: June 2030 **Actions needed to achieve the goal:** • To scale-up Results Based Financing (RBF) facility for DRE i.e. Solar Home Systems (SHS), Mini-Grids, Biogas and clean cooking by 2025 • Support public awareness and consumer education initiatives for DRE (refer to the above) and clean cooking solutions. • MOE to facilitate the establishment of targeted low-interest credit schemes using Result Based Financing (RBF) for low-income households to enhance the affordability of DREs and clean cooking technologies by 2026
	Monitoring & evaluation program adopted to track the multi-tier framework (MTF) for access to electricity and clean cooking	Yes	The MTF was completed in 2019 (already achieved, 2019). The Energy Sector Monitoring and Evaluation Plan (ESM&EP) was developed and launched in 2020. **Actions needed to maintain the goal:** • Support the periodic undertaking of MOE's National Energy Access Survey by December 2025. • Update ESM&EP to be able to track the MTF for access to electricity and clean cooking. • MOE to establish M&E frameworks to track the impact of DRE and clean cooking initiatives by December 2026.
	National Electrification Strategy adopted	No	Target year: June 2025 **Actions needed to achieve the goal:** • MOE to review Least-Cost Geospatial Plan and finalize the National Electrification Strategy by December 2025 • MOE to facilitate the operationalization of the Rural Electrification Fund by 2025.
	National clean cooking strategy in place	No	Target year: December 2025 **Actions needed to achieve the goal:** • MOE to develop a clean cooking strategy by June 2025 to provide a pathway to universal access to sustainable cooking solutions. • MOE to roll out at least one clean cooking program/project as part of the strategy to have at least 40 percent of households utilizing clean cooking solutions by 2030. • MOE to facilitate the creation and strengthening of local supply chains for clean cookstoves and fuels to reduce costs and improve accessibility, particularly in rural areas, by 2030.
	Policy and regulatory framework in place, including adopting minimum quality standards for off-grid and clean cooking solutions	Yes	Already achieved, 2019 **Actions needed to maintain the goal:** • Development and enforcement of minimum performance standards for DRE focusing on Solar Home Systems (SHS), wind, Mini-Grids and Biogas and clean cooking solutions, including testing standards and lab certifications by 2026. • Implement financial incentives using Result Based Financing model, including subsidies to lower the cost of DRE (refer to the above for details) and clean cooking technologies and fuels for low-income households. • Establish mechanisms for duty exemptions and tax relief on renewable energy technologies such as solar, wind, geothermal, mini-hydro, biogas and clean cooking solutions by 2026 to improve affordability • Adopt a policy for zero import duties on distributed renewable energy and clean cooking components, and publish the list of duty-free components online by 2026 • Strengthen regulatory frameworks to support microfinance institutions (MFIs) in offering credit lines to rural households for purchasing clean cooking solutions by 2026.

IV PRIVATE SECTOR PARTICIPATION	Process outlined for regulatory approval of private-sector-led investments, including tariff regulations	Yes	Already achieved, 2023 **Actions needed to maintain the goal:** • Review and facilitate the amendment of the Electricity Act No. 11 of 2019 to align with new developments by December 2025. • Revise, test, and enact mini-grid regulations by December 2026. • Support the activities of the Energy Single Licensing System (One Stop Shop) to improve efficiency by 2025. • Spearhead the establishment of an Independent System and Market Operator to enhance the implementation of the open access regime by December 2025
	Facilitate pilot investment for medium-scale distribution PPPs and/or concession in underserved provinces	No	**Actions needed to achieve the goal** • Engage private sector and work with development partners to establish a framework or template for PPP or concessions that enable blended capital investments that will result in new power distribution assets and new last-mile connections in underserved areas, while retaining affordability to end-users. • Identify and encourage private sector development (or co-development with GRZ partner entities) of opportunities at medium-scale / provincial level for eventual PPPs and/or concessions in distribution.
	Financial support to private-sector DRE and clean cooking operators to ensure affordability and viability	Yes	Already achieved, 2021 **Actions needed to maintain the goal:** • Facilitate Results-Based Financing for Distributed Renewable Energy (DRE) and clean cooking programs, including the provision of viability gap funding for DRE developers. • Implement measures to lower capital costs by offering guarantees, establishing energy investment funds or Special Purpose Vehicles (SPVs) to attract domestic, expatriate, and small investors, and encouraging pension fund participation to boost private capital mobilization. • Establish simplified procedures for tax exemptions on rural electrification equipment by 2026.
V FINANCIALLY VIABLE UTILITIES	Published the audited annual financial statements and annual reports for utilities	Yes	Already achieved, 2022 **Actions needed to maintain the goal:** • Publication of annual reports 4 months post financial year end. • Publication of all outstanding audited financial statements
	Utilities achieving at least 100 percent operational cost recovery	No	Target year: 2027 **Actions needed to achieve the goal:** • Achieve the pass-through of Independent Power Producer (IPP) tariffs to all customer categories by 2027. • Implement a multi-tariff framework to ensure full cost recovery by 2027. • Undertake reforms within ZESCO Limited to enhance financial viability and operational efficiency. • Explore and implement alternative opportunities for improving revenue collection beyond tariff adjustments.

2

Energy-Sector Overview and Challenges



2.1
Country and Sector Overview

Zambia, with a population of approximately 20.6 million as of 2023,[8] has experienced notable economic fluctuations over the past five years. The country's Gross Domestic Product (GDP) has shown modest growth, though it has been impacted by global commodity price volatility and the COVID pandemic. Significant macroeconomic developments include efforts to stabilize inflation, which peaked at around 24.6 percent in 2021 but has since reduced to 15.5 percent[9] as of August 2024. The Government of the Republic of Zambia (GRZ) has also taken steps to manage public debt, securing International Monetary Fund (IMF) support in 2022 to enhance fiscal stability. The energy sector has had a substantial macro-fiscal impact, particularly in driving economic activities within the mining, agriculture, and manufacturing industries.

The country's macroeconomic stability and sustainable economic growth depends on successfully catalyzing growth in key sectors, including mining, agriculture, manufacturing, and tourism for which energy is a key enabler.
The GRZ's energy-sector vision as enshrined in the Vision 2030 is to attain "universal access to clean, reliable and affordable energy at the lowest total economic, financial, social and environmental cost consistent with national development goals by 2030." To realize the energy-sector targets of the Vision 2030, the GRZ is implementing a long-term, congruent energy-sector program through a combination of planning and actions. The National Energy Policy (2019) is the overarching guide to energy development, while the Rural Electrification Master Plan (2008–2030) is a blueprint for the implementation of the Rural Electrification Program with a target of 51 percent rural access by 2030. Additionally, the GRZ has developed the National Electrification Strategy and the Least-Cost Geospatial Electrification Plan to expand electricity access. Recently, the GRZ adopted the Integrated Resource Plan (IRP, 2023–2050), which outlines a forward-looking, least-cost plan for the development of the country's power sector, including both on-grid and off-grid solutions. The IRP recognizes government priorities, such as increased mining production, industrial development, agricultural transformation, modern transport system, and universal electricity access by 2030, all of which will position Zambia as a regional electricity trading hub.

Access to electricity in Zambia remains low covering only 53.6% of the population with access in rural areas at only 34.9% and in urban areas at 80.3%[10]. According to the Multi-Tier Framework (MTF) data for Zambia, a large portion of the population remains at Tier 1 or 2, indicating limited access to reliable and sufficient electricity. On-grid connections have seen steady growth in recent years, supported by infrastructure upgrades and rural electrification projects, but the pace of grid access will have to be doubled from the current average of 60,000 to at least 120,000 new connections per year to achieve universal access by 2030.

There are huge opportunities to invest in Distributed Renewable Energies (DREs), both mini grid and off-grid renewable energy alternatives as the cost of extending the national grid is expected to be higher, owing to a very low population density, especially in rural areas of Zambia. With an average 24 inhabitants per square kilometer, Zambia is amongst the least densely populated countries in the world. However, in urban areas where the grid has a wide coverage, on-grid connections would be a least cost option. The Least-Cost Geospatial Electrification Plan for Grid and Off-Grid Rollout in Zambia estimates that up to 72% of the population could be connected to off-grid electricity as the least cost option to achieve universal access to electricity by 2030. As DREs are mostly going to be private sector led, Government needs to create an enabling environment by ensuring the right regulatory framework and incentives are in place.
Access to clean cooking solutions remains a significant challenge in Zambia, with only about 16.2% of households using clean energy sources for cooking and heating i.e., LPG (0.3%), Ethanol (0.1%), and Electricity (15.8%) as of 2023 [11] while the majority of households rely on firewood (56.8%) and charcoal (26.9%). Furthermore, based on the NAES, households use various types of equipment for cooking and heating i.e., Open fire, e.g. three stones (48.0%), Traditional stove (fixed mud stove, no chimney) (1.7%), Traditional stove with chimney (0.2%), Brazier (Mbaula) (38.2%), Improved Brazier (2.9%), LPG stove (0.3%), Biogas stove (0.05%), Pellet stove (0.04%),

[8] World Bank Group, "Access to Electricity (% of Population) – Zambia," https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=ZM.
[9] Zambia Statistics Agency, "Zamstats 2024," https://www.zamstats.gov.zm/.
[10] 2023 National Energy Access Survey.
[11] 2023 National Energy Access Survey (NEAS)

Briquette stove (0.03%), Ethanol stove (0.01%), and Electric stove (8.6%).

Zambia's total installed capacity is 3,811.3 MW, and its energy mix is predominantly hydro-based, with renewable energy contributing more than 83 percent of total electricity generation. In recent years, significant strides have been made in diversifying renewable energy sources, particularly solar energy. Notable projects include the commissioning of the 54 MW Bangweulu Solar Park and the 47.5 MW Ngonye Solar Park under the Scaling Solar program as well as the recently commissioned 60 MW of photovoltaic (PV) solar by independent power producer Copperbelt Energy, who already operate a 34 MW solar PV plant. These developments have increased the share of non-hydro renewables in the energy mix, contributing to energy security and reducing reliance on hydroelectric power, which is vulnerable to climate variability. The current power deficit in Zambia—estimated at 1,500 MW—is due to drought that has caused low reservoir levels in critical hydropower reservoirs.

Zambia plays a crucial role in the Southern African Power Pool (SAPP), with interconnections to several neighboring countries, including Zimbabwe, Namibia, and the Democratic Republic of Congo (DRC). Enhancement of this existing infrastructure and development of new interconnections will enable power trading and enhance regional energy security as well as position Zambia as an energy trading hub in the region in line with the GRZ vision.

The private sector's role in Zambia's energy sector has grown significantly, particularly in power generation and the provision of off-grid solutions, as well as a few notable examples in transmission and distribution. Independent power producers have become key contributors to the diversification of Zambia's energy mix. Despite this progress, challenges such as regulatory barriers, financing constraints, poor credit-worthiness of the utility, and lengthy approval processes hinder greater private-sector participation. Therefore, strengthening project bankability, enhancing regulatory frameworks, and providing incentives for private investment are crucial to further unlock the potential of private-sector involvement in all aspects of the energy value chain

2.2
Key Policy Frameworks

Zambia's energy sector is undergoing a transformative shift guided by key policy frameworks and strategies designed to attract private investment and to promote efficiency, inclusivity, and sustainability. These initiatives address critical GRZ objectives, such as ensuring energy access, enhancing security, and meeting environmental sustainability goals. The key policy frameworks recently adopted by GRZ include:

- **The Multi-Year Tariff Framework (MYTF)** creates a smooth glide path toward cost-reflective tariffs and assures a predictable policy and regulatory environment. Further, the MYTF guarantees certainty to investors while balancing viability for utilities and affordability for consumers.
- **The Electricity Open Access Framework** provides nondiscriminatory access to transmission and distribution networks by third parties; it also enables independent power producers and qualifying end-users to engage in power trading without ZESCO serving as the sole off-taker.
- **The Net-Metering Framework** allows consumers who also produce electricity to generate their own power from renewable energy sources such as solar, and any excess electricity generated can be fed back into the ZESCO grid.
- **Energy Single Licensing System (One Stop Shop):** Facilitate coordination between authorizing and statutory bodies involved in IPP licensing and permitting processes, streamline the licensing process, and reduce regulatory uncertainties and risks for potential IPPs.
- **The Integrated Resource Plan** for 2023–2050 outlines a roadmap to meet future demand growth by optimizing Zambia's energy mix, scaling up renewables, and achieving a green transition aligned with climate goals.

These policies collectively promote a resilient, sustainable, and competitive energy sector that meets Zambia's economic and environmental goals.

2.3
Energy Demand Drivers

Zambia's energy landscape is undergoing a transformative shift, driven by the expanding needs of its growing economy and population. As agriculture, mining, industry, and residential electrification grow in scale and complexity, understanding the specific drivers of energy demand becomes critical to shaping a resilient and diversified energy sector.

- Agriculture plays a pivotal role in driving energy demand. Energy is critical for irrigation, crop processing, and storage, as well as for supporting livestock and fisheries. The IRP projects an increase in agricultural energy demand, from 48 MW in 2020 to 1,200 MW by 2030 and 3,625 MW by 2050. This is fuelled by substantial growth in crop production, including wheat production is expected to rise from 175,000 tonnes to 15 million tonnes, maize production from 3 million tonnes to 10 million tonnes, and soya bean production from 329,000 tonnes to 3 million tonnes by 2050

- Mining, Zambia's largest energy consumer, is expected to experience substantial energy demand growth due to expanded copper production at key mines such as Kansanshi and Sentinel, as well as new projects like Kasenseli and Kalengwa. Diversification into non-copper minerals further increases demand. The IRP estimates mining energy demand will grow from 886 MW in 2020 to 1,552 MW by 2030 and 2,052 MW by 2050, reflecting a 75 percent increase by 2030 and 132 percent by 2050. This growth aligns with Zambia's ambition to triple copper production from 800,000 tonnes to 3 million tonnes annually by 2043.

- Industrial and commercial sectors are also poised for significant energy demand increases. The IRP projects energy requirements to rise from 257 MW in 2020 to 337 MW by 2030 and 984 MW by 2050—a 31 percent rise by 2030 and a remarkable 283 percent by 2050. This is driven by Zambia's industrialization efforts, including establishing an electric vehicle battery-manufacturing facility in Ndola and a new steel plant in the Lusaka Multi-Facility Economic Zone.

- Residential energy demand is set to grow significantly due to urbanization and enhanced electrification efforts. The IRP forecasts residential demand will increase from 769 MW in 2020 to 1,079 MW by 2030 and 1,923 MW by 2050, marking a 40 percent growth by 2030 and 150 percent by 2050. This expansion is driven by plans to double annual electricity connections from 60,000 in 2022 to 120,000 by 2030.

These sectoral demands underscore the importance of scaling up energy generation, modernizing infrastructure, and diversifying Zambia's energy mix to meet future energy needs effectively.

2.4
Current Status and Challenges

PILLAR I
EXPAND GENERATION AND INVEST IN INFRASTRUCTURE AT COMPETITIVE COSTS

Status of Generation Capacity Transmission and Distribution (T&D) Infrastructure

The national installed electricity generation capacity for on-grid and off-grid is 3,811.3 MW,[12] with hydro contributing 3,164 MW (83 percent), coal 300 MW (9 percent), diesel 85 MW (2 percent), solar 122 MW (3 percent), and heavy fuel oil 110 MW (3 percent). Despite the installed capacity exceeding the peak demand of approximately 2,500 MW, actual power generation has declined to 1,019 MW as of August 2024, exacerbated by the current drought. Nevertheless, the GRZ is targeting an additional 6,200 MW of installed capacity by 2030 (at a cost of US$7.2 billion) with 90 percent coming from renewable energy sources.

Financial and operational challenges facing ZESCO, along with limited government fiscal space, have hindered the materialization of several signed solar project power purchase agreements that aim to add to the much-needed generation capacity. However, an independent power producer has recently reached financial close for a US$400 million, 300 MW coal power project, expected to be completed by 2026.

With regard to Transmission infrastructure, Zambia's Integrated Resource Plan (IRP) transmission plan aims to increase the length of transmission lines by 82%, from 12,705 km in 2023 to 17,913 km by 2030 and 23,072 km by 2050, at a cost of US$2.4 billion. The distribution network is also limited, especially in rural areas where only 5.6% of households are connected to the national grid. The government plans to invest US$976 million in distribution assets and enhancements to the existing grid by 2050.

Least-Cost Power System Planning

In 2023, the GRZ adopted the IRP for 2023–2050. The IRP aims to ensure energy sufficiency and surplus to support economic growth, achieve universal access to electricity by 2030, and position Zambia as a regional electricity trading hub.
A geospatial map identifying the least-cost technology options for achieving universal access in Zambia will guide this effort, enabling targeted and efficient investments.

Further, the Rural Electrification Master Plan (REMP), developed in 2008, has been the blueprint for planning and implementing rural electrification programs. The GRZ is now updating the REMP to reflect revised electrification targets, social and demographic changes, and current technology.

Procurement Policy for Renewable Energy

Currently, there is no procurement policy for renewable energy in the country. However, the GRZ, with support from cooperating partners is in the process of developing a structured procurement framework to facilitate the development of priority renewable energy projects in line with the IRP.

Key Barriers and Obstacles

- Constrained transmission and distribution infrastructure causes system instability and inefficiencies in energy delivery
- Absence of cost reflective tariff and sector financial sustainability
- No Procurement Policy for Power Projects
- Lack of bankable projects restricting investment opportunities

PILLAR II
LEVERAGE BENEFITS OF INCREASED REGIONAL INTEGRATION

Status of Regional Integration

Currently, Zambia has three existing interconnectors with Namibia, DRC and Zimbabwe that are capable of transmitting 2,090 MW of power. The GRZ plans to increase the aggregated cross-border interconnection capacity between Zambia and its neighbors from 2,090

[12] Energy Regulation Board, "Energy Sector Report 2023," 2023, https://www.erb.org.zm/wp-content/uploads/files/esr2023.pdf.

MW in 2023 to 4,050 MW by 2030 through the implementation of seven additional interconnectors. For example, the GRZ has prioritized the Zambia-Tanzania Interconnector Project (ZTIP). The ZTIP will construct an additional 600 km of high-voltage line to connect Zambia and Tanzania (Eastern Africa Power Pool and SAPP) and increase the power transmission capacity between Zambia and Tanzania from 17,647 kVA to 588,235 kVA. The ZTIP is estimated to cost US$295 million, with the International Development Association (IDA) funding US$245 million.

Key Barriers and Obstacles

- Constrained inland and interconnection transmission infrastructure and limited capacity restrict efficient electricity exchange and hinder cross-border power trade.
- The lack of a transparent and standardized transmission pricing system aligned with regional standards hampers Zambia's competitiveness in the regional power market.
- Insufficient access to financing hinders infrastructure upgrades and expansion needed to improve transmission capacity and foster regional integration[13].
- The absence of infrastructure to interconnect power grids across the region leads to reliance on expensive and unsustainable fossil fuel solutions even where potential import sources exist.

PILLAR III
EMBRACE DRE FOR AFFORDABLE LAST-MILE ACCESS AND ADOPT CLEAN COOKING SOLUTIONS

Status of DRE and clean cooking sector

DRE

Zambia has substantial potential for DRE solutions, particularly to improve electricity access for underserved rural communities. Apart from large-scale hydropower, the modern renewables subsector in Zambia remains in its early stages. Encouragingly, both public and private sectors have made sustained efforts to promote the wide-scale deployment of DRE technologies in Zambia. Solar PV is the dominant technology, especially Solar Home Systems (SHS).

The NEAS estimates that about 16.6% of rural households i.e. 683,225 have SHS. Additionally, some decentralized Solar PV projects are emerging in the commercial sector as backup during load shedding, and recent investments have also been made in large-scale, grid-connected solar PV power generation.

A Mini-Grid Regulatory Framework has been proposed to encourage a lighter governing framework for mini-grids with a capacity up to 5 MW, and it addresses key issues around permitting and licensing processes, technical requirements, and grid encroachment, all of which are expected to drive private-sector participation and grow rural electrification rates in Zambia.[14]

There is a growing number of operational mini-grids in the country, mainly solar PV and a few hydropower-based. These mini-grids are now recognized as pillars for national electrification and would serve most of the off-grid market. The GRZ has launched the Demand Stimulation Incentive (1,000 mini-grid initiative), a new financial mechanism designed to accelerate the deployment of mini-grids by offering a grant-based subsidy to mini-grid developers in order to catalyze wider-scale electrification across Zambia. Given Zambia's dispersed population, achieving the ambitious target presents significant challenges. The International Finance Corporation (IFC) has assessed Zambia's potential for mini-grids and concluded that attracting substantial private-sector investment will be difficult. Therefore, to meet this target, the majority of the required investment will likely need to come from the public sector.

The IRP has outlined the investment requirements for off-grid access of US$2.2 billion by 2030, representing 19 percent of the total IRP investment profile, compared with US$4 billion by 2050, which represents 13 percent.

Clean Cooking

The GRZ has adopted the MTF framework and continues to conduct National Energy Surveys, the latest of which was completed in 2023 and launched in December 2024.

[13] Energy Sector Management Assistance Program, "Regional Power Sector Integration Lessons from Global Case Studies and a Literature Review," September 7, 2010, https://www.esmap.org/node/353.

[14] While the Mini-Grid Regulatory Framework (MGRF) was finalized by the regulator in April 2019, it was later discovered to be misaligned with the underlying Energy Regulation Act No. 12 and Electricity Act No. 11, which together with the Rural Electrification Act No. 5 govern the energy sector; therefore, the MGRF encounter revisions before it is approved by the GRZ. A statutory instrument was approved in September 2023 but has yet to be gazetted. The team understands the statutory instrument will facilitate lighter regulations for mini-grids on an interim basis while the GRZ finalizes the MGRF and corrects the above-mentioned misalignment.

This survey has provided statistics on households using clean cooking and heating methods, as indicated in Energy Sector Overview section.

Further, the government is preparing a strategy on clean cooking solutions to address, among other factors, environmental degradation and to encourage adoption of alternative technologies and fuels for cooking. The strategy is expected to be finalized by mid-2025.

National Electrification Strategy (NES) and Periodic Updates

The GRZ prepared the NES in 2023 based on the Least-Cost Geospatial Electrification Plan (LCGEP), which utilizes geospatial data to determine cost-effective infrastructure routes and to prioritize electrification projects. The NES and LCGEP have not been validated and need to be updated and approved. Periodic updates are crucial for monitoring progress and refining strategies as necessary.

Affordability for DRE and Clean Cooking

Based on the MTF report, about 16.3 percent of Zambian households cannot afford to pay for basic electricity services, corresponding to 365 kWh per year.

Key Barriers and Obstacles: DRE and Clean Cooking

- Limited access to financing (both enterprise and consumer financing) hinders the growth and adoption of DRE and clean cooking technologies.
- Inadequate or unclear regulatory frameworks create barriers for effective deployment of DRE and clean cooking technologies.
- The inadequacy of established quality standards affects the reliability and performance of DRE and clean cooking technologies.
- Weak public awareness, market intelligence, and consumer education have led to a lack of awareness and understanding of the benefits of DRE and clean cooking solutions.
- Inadequacy of robust business development models makes it challenging to scale and sustain DRE and clean cooking initiatives.
- Limited availability of credit for rural households hampers investment in and adoption of DRE and clean cooking solutions.
- Modern cookstoves and clean fuel options, such as liquefied petroleum gas or electric stoves, are often too expensive for low-income households.

[15] Ministry of Energy Zambia, 2024, https://www.moe.gov.zm/.

PILLAR IV
INCENTIVIZE PRIVATE-SECTOR PARTICIPATION TO UNLOCK ADDITIONAL RESOURCES

Status of Private-Sector Participation in On-Grid and Off-Grid Access

Private-sector interest in investing in the energy sector remains high with participation in both on-grid and off-grid initiatives and projects. On-grid access services are dominated by the national utility, ZESCO, although some private companies have also ventured into this business, notably the North Western Power Company, which operates and manages a distribution network providing electricity to non-mine areas of the North-Western Province, and the Copperbelt Energy Corporation, which also buys bulk power from ZESCO and other sources to supply the mines. However, weak macroeconomic conditions and the poor creditworthiness of the off-taker (ZESCO) act as the biggest challenge to reaching financial closure despite overwhelming interest from private-sector players. To incentivize private-sector investments in on grid distributions, in June 2024 the GRZ approved critical legislation, the Open-Access, Independent System Market Operator, and Net-Metering policy, to set a clear direction to unlock private-sector investment. The government has also approved a single licensing system to streamline the licensing and permitting process for power project investments. By seeking partnerships with private sector actors and multilateral and other development partners, Government can work on creating a Zambia-specific template for private investment in PPP or concession-style distribution opportunities that can be of a medium-scale and target underserved provinces. This can enable an underutilized toll for increasing on-grid electrification through blended public-private investments to maximize available capital and resources for grid expansion and universal access goals.

Status of Mobilizing Private Capital

For the period between 2017 and 2021, Zambia's energy sector mobilized more than the US$1.5 billion[15] in private-sector investments across the energy sector's value chain (i.e., generation, transmission, and distribution, and off-grid access). Based on the IRP, the GRZ intends to attract

and mobilize US$11 billion across the power-sector value chain, including off-grid access.

Key Barriers and Obstacles to Scaling Up Private Investment

- The high perceived risks associated with energy investments in Zambia, including recent macroeconomic challenges.
- Low affordability and purchasing power of mini-grid/off-grid customers.
- Despite significant potential for off-grid solutions in rural areas, the market remains underdeveloped due to perceived risks and insufficient financing mechanisms which hinder private sector-led rural electrification efforts.
- Lengthy licensing and permitting processes, coupled with inefficiencies in a multi-institutional system, complicate investment planning and private sector participation.
- High capital costs for project investment and the lack of guarantees

Weak stakeholder engagement mechanisms impede effective private sector involvement

PILLAR V
WORK TOWARD FINANCIALLY VIABLE UTILITIES THAT PROVIDE RELIABLE SERVICE

ZESCO's underperformance against the Energy Regulation Board's (ERB) minimum performance thresholds due to significant delays in new customer connections, frequent and prolonged outages, and weak financial performance, has limited investments, grid expansion, and overall power-sector growth. ZESCO and the ERB recently made a push to settle a new key performance framework that includes milestones and initiatives to improve the utility's efficiency, quality of service, and overall performance in accordance with ZESCO's Strategic Plan 2022–2031. However, ZESCO has been facing significant financial challenges that have been exacerbated by a combination of factors, including operational inefficiencies, high debt levels, and the need for substantial investments in infrastructure to ensure reliable electricity supply. The GRZ, along with international partners like the World Bank, has been working to address these energy-sector financial challenges. For instance, the World Bank has provided support aimed at enhancing the financial sustainability, reliability, and resiliency of Zambia's electricity sector through the US$700 million National Energy Access and Transformation Multiphase Programmatic Approach.

Key barriers to financial viability

- The financial position of the utility limits financial flexibility and investment capacity in developing new energy projects.
- Lack of transparency and publicity of ZESCO Financial and Operational performance.
- Although efforts have been made to ensure tariffs are cost-reflective, there is still a need for the tariff to be fully cost-reflective to help attract investment.
- Insufficient revenue collection mechanisms/streams.

3

Post-Compact Activities for Effective Energy Compact Implementation

Effective communication is essential for the Ministry of Energy to successfully implement the Energy Compact. Clear and consistent information sharing with stakeholders will ensure alignment, understanding of project objectives, and smooth collaboration across all levels. By establishing robust communication channels, the Ministry will foster transparency and create a framework where feedback loops are effectively utilized to refine implementation strategies.

Additionally, communication and stakeholder engagement play pivotal roles in the transitional process. Active collaboration with stakeholders, including government agencies, development partners, private sector participants, and civil society organizations, is critical to sustaining the Compact's momentum. Building trust and fostering mutual accountability among stakeholders will strengthen ownership and enhance the impact of interventions.

To facilitate oversight and streamline project tracking, the Ministry will enhance the existing monitoring and evaluation unit to generate comprehensive project progress reports, ensure accountability, and identify potential bottlenecks. Furthermore, the Ministry will maintain the Energy Compact Task Team (ECTT) to reinforce its commitment to high standards of governance throughout the Compact's implementation. In collaboration with ECTT, the monitoring and evaluation unit will develop a detailed post-Compact monitoring plan, defining clear timelines and establishing whether progress will be reviewed annually or biannually.

These periodic reviews are essential for assessing milestones, tracking performance indicators, and ensuring activities align with the Compact's goals. Transparent progress reviews will further enhance the credibility of the Ministry's efforts and demonstrate accountability to stakeholders.

A. COMMUNICATION AND STAKEHOLDER ENGAGEMENT

An effective communication and stakeholder engagement strategy is pivotal for the successful implementation of the Energy Compact. This strategy will ensure clear and consistent information sharing with stakeholders to foster alignment and transparency. Key components include:

- **Timely updates and feedback** shared through the Ministry of Energy's website to ensure accessibility and information dissemination;
- **Regular stakeholder forums** to facilitate active collaboration, build trust, and foster mutual accountability among government agencies, development partners, private sector participants, and civil society organizations;;
- **Media outreach** leveraging both traditional and digital platforms to broaden awareness and engagement across diverse audiences; and
- **Biannual progress updates and joint performance reviews**, conducted in collaboration with the Energy Compact Task Team (ECTT), to enhance transparency, track milestones, and align activities with the Compact's goals..

B. OPTIMIZING DELIVERY AND INSTITUTIONAL STRUCTURE

The effective delivery of the Energy Compact will be achieved through streamlined workflows, a dedicated Compact Implementation Unit (CIU) within the Ministry of Energy, and robust stakeholder coordination mechanisms. Key measures include training licensing personnel, leveraging advanced project management tools, and utilizing data analytics to minimize delays, enhance accountability, and ensure timely achievement of the Compact's objectives.

To maintain momentum and foster transparency, governments will report progress on the Compact's key performance indicators during the annual African Electrical High-Level Engagement Forum. Following the Compact's signing in January 2025 in Tanzania, the inaugural progress review will occur in September 2025 in Cairo, Egypt. This forum will be held in collaboration with the African Power Utilities Association and the African Development Bank (AfDB) at the annual Power Utility Governance and Leadership Development Forum, providing a platform to share achievements, address challenges, and reinforce commitments to the Compact's goals.

Annex I
Ongoing Activities and Support from Development Partners

					Contribution to Compact Targets			
Development Partner	**Project Name**	**Timeline**	**Project Description**	**Funding (including from the private sector)**	**Access to Electricity**	**Access to Clean Cooking**	**Renewable Energy Installed**	**Binary & Numerical Targets**
EU, World Bank, and ZESCO	Lusaka Transmission and Distribution Rehabilitation Project	2014–2025	Modernize and expand Lusaka's power transmission and distribution network to reduce losses and improve reliability[16]	US$246 million (World Bank, the European Investment Bank, and ZESCO)	200,000 households benefited	N/A	N/A	Pillar 1: Expand Generation and Invest in Infrastructure at Competitive Costs
IFC	Empower Zambia-DRC Transmission line	2024–2026	190 km, 330 kV, and 700 MW capacity transmission line connecting existing substation in Zambia to a new switching substation to be constructed in DRC to import electricity from Zambia and SAPP to mining companies in the Katanga region (one-third of the CapEx would be deployed in DRC)	US$167 million	TBD	N/A	N/A	Pillar II: Leverage Benefits of Increased Regional Integration
IFC	Zambia Scaling Solar	2016–2036	The first Scaling Solar deployment in Zambia, two plants started producing clean electricity at flat tariffs of US¢6.02/kWh and US¢7.84/kWh in 2019	US$100 million	TBD	N/A	Solar, with cumulative capacity of 88 MWp	Pillar I: Expand Generation and Invest into Infrastructure at Competitive Costs
IFC	Transmission for Mines	2025	Potential independent power transmission project for the construction of a 330 kV transmission line to reinforce supplies for the additional power requirements in the ongoing copper belt area and mining companies' expansions	US$260 million	TBD	N/A	N/A	Pillar II: Leverage Benefits of Increased Regional Integration
EU	Zambia energy efficiency and sustainable transformation (ZEEST)	2022–2026	Increase public- and private-sector contributions to the attainment of national energy efficiency and climate resilience goals	12.5 million euros				
EU	Modern Cooking Facility for Africa	2023–2027	Increase access to high-technology cooking solutions Contribute to SDG 7 on affordable and clean energy access Mitigate climate change (SDG 13) and prevent	12.5 million euros		550,000 Zambians targeted (to be expanded as of 2025)		550,000 Zambians targeted (to be expanded as of 2025)

[16] World Bank, "Lusaka Transmission and Distribution Rehabilitation Project," last updated November 15, 2023, https://projects.worldbank.org/en/projects-operations/project-detail/P133184.

					Contribution to Compact Targets			
Development Partner	**Project Name**	**Timeline**	**Project Description**	**Funding (including from the private sector)**	**Access to Electricity**	**Access to Clean Cooking**	**Renewable Energy Installed**	**Binary & Numerical Targets**
			biodiversity loss and deforestation (SDG 15) Promote gender equality (SDG 5) in the clean cooking sector and improve health, especially of women and girls (SDG 3) Promote decent work and economic growth (SDG 8)					
EU	Kariba Dam Rehabilitation	2014–2024	Guarantee security of a 1,080 MW supply for Zambia	113 million euros	Sustain over 1 million grid-connected customers		1,080 MW sustained and increased support to solar and wind connectivity	Pillar 1: Expand Generation and Invest into Infrastructure at Competitive Costs
EU	Increase Access to Electricity and Renewable Energy Production (IAEREP)	2018–2026	Enable a regulatory framework, improved renewable energy policies, and more effective, inclusive energy institutions Enhance government and private-sector capacities for development of gender-inclusive renewable energy and energy efficiency projects (replicability) Improve household and industrial energy efficiency by supporting energy literacy, advancing economic activity, and providing public information about benefits of renewables	32 million euros	Access in rural areas: 10% in 2022 Access in urban areas: 60% in 2022			
EU	Electrifi	2017–2032	Support investments in renewable energy and energy efficiency with a special focus on mini-grids and rural electrification that demonstrate strong features for sustainability, scalability, and replicability	31 million euros				
World Bank, EU, and Foreign, Commonwealth and Development Office (FCDO)	Zambia Tanzania Interconnector	2024–2027	Support Zambia in completing the Zambia side of the Zambia-Tanzania-Kenya interconnector Reinforce key areas of Zambia's national transmission system Improve the reliability of the transmission sector in the north-eastern part of the country	US$295 million (US$245 million from IDA and US$50 million from other sources, including the EU and FCDO)	N/A	N/A	N/A	
World Bank	National Energy Advancement and	2024–2033	Crowd in private-sector investment in the energy sector by providing the	US$700 million (World Bank committed	1 million new connections	N/A	1,400 MW	

					Contribution to Compact Targets			
Development Partner	**Project Name**	**Timeline**	**Project Description**	**Funding (including from the private sector)**	**Access to Electricity**	**Access to Clean Cooking**	**Renewable Energy Installed**	**Binary & Numerical Targets**
	Transformation Program		long-term, predictable policy support and financing needed to implement utility reforms aimed at returning ZESCO to financial viability	US$540 million, and US$160 million came from other sources, including the private sector)				
World Bank	Kariba Dam Rehabilitation	2014–2026	Guarantee security of the 1,080 MW supply for Zambia	US$75 million (public loan)	Sustain over 1 million grid-connected customers	N/A	1,080 MW sustained and increased support to solar and wind connectivity	Pillar 1: Expand Generation and Invest into Infrastructure at Competitive Costs
World Bank	Zambia-Accelerating Sustainable and Clean Energy Access Transformation (ASCENT)	2025–2030	Support large-scale grid-densification efforts in Zambia Decentralize renewable energy, targeting areas that cannot be served by the grid (rural, remote, fragile, poor regions)	TBA	TBA	TBA	TBA	
Germany (through KfW Development Bank)	Sustainable power supply in the Southern Division	2019–2026	Improve the energy supply for the population and businesses in the Southern Division (South, West, Central and Eastern Provinces) of Zambia through increased network capacity	49.5 million euros (KfW is providing 36.5 million euros, the EU Trust Fund 10 million euros, and Agence Francaise de Développement 3 million euros)	TBA	TBA	N/A	
Germany (through KfW)	Rehabilitation and expansion of the Chishimba Falls hydroelectric power station	2025–2027	Replace outdated facilities of the Chishimba hydroelectric power station and increase the capacity from 6 MW to 14.8 MW	41.5 million euros (KfW has provided a grant for 41.5 million euros to cover both consulting services and contracting of goods/services for the project)	240,000 people provided with improved access to electricity TBA	N/A	Additional 8.9 MW to existing hydro power	
Germany (though KfW)	GET FiT Zambia	2019–ongoing	Additional generation capacity of up to 220 MW through smaller renewable energy plants Avoid greenhouse gas emissions Leverage private capital for investments in renewable energies	41 million euros	N/A	N/A	120 MW solar and 100 MW small hydro with maximum capacity of 20 MW each	

					Contribution to Compact Targets			
Development Partner	**Project Name**	**Timeline**	**Project Description**	**Funding (including from the private sector)**	**Access to Electricity**	**Access to Clean Cooking**	**Renewable Energy Installed**	**Binary & Numerical Targets**
Germany (through GIZ)	Thriving through Innovative Vocational Education in the Water and Energy Sectors (THRIVE)	2022–2025 (likely extension to 2027)	Technical vocational education and training as well as upskilling in the water and solar energy sectors	5 million euros	N/A	N/A	N/A	Develop competent workforce for installation, operation, and maintenance of energy infrastructure (including solar systems, mini-grids, and net metering)
Germany (through GIZ)	Project Development Programme (solar and green hydrogen)	2023–2025	Support industrial and commercial companies with pre-feasibility studies for solar PV project and green hydrogen project development	460,000 euros	N/A	N/A	N/A	Pillar IV: Support private sector to develop bankable projects; enhance capacities of local project developers through partnership with international developers
USAID	Empower Southern Africa	2023–2028	Technical Assistance toward generation capacity, household electricity access, and infrastructure expansion	~US$6 million	Yes	N/A	~600 MW	Pillar 1: Expand Generation and Invest into Infrastructure at Competitive Costs
USAID	Alternatives to Charcoal	2021–2026	Reduce deforestation related to the production of charcoal using a market-driven approach to catalyze a shift in urban household cooking away from charcoal and toward private-sector-led, low-emissions technologies and fuels	US$24.9 million	N/A	Yes	N/A	Reduce charcoal energy consumption by 25 percent in Lusaka and by 5 percent in urban areas outside of Lusaka
Climate Investment Funds (CIF)	Scaling-Up Renewable Energy Programme (SREP)		SREP is a funding window of Strategic Climate Fund, which supports the scale up of green energy programs and increasing access to electricity, including wind and geothermal	US$40 million	TBA	TBA	100 MW	
FCDO (UK)	Cities and Infrastructure for Growth Programme (CIGZambia)	2018–2026	Flexible technical assistance for the GRZ (Originally designed to support city and regional initiatives for inclusive economic growth and job creation, in 2023 the program narrowed its focus to supporting the Integrated Resource Plan through an Energy Planning Center)	US$20 million				Establishment of the Energy Planning Center
FCDO (UK)	Cities and Infrastructure for Growth Programme	2023–2027	Flexible technical assistance to the GRZ focusing on progressing the IRP through an Energy Planning Center	US$8 million over three years				Establishment of an Energy Planning Center

					Contribution to Compact Targets			
Development Partner	**Project Name**	**Timeline**	**Project Description**	**Funding (including from the private sector)**	**Access to Electricity**	**Access to Clean Cooking**	**Renewable Energy Installed**	**Binary & Numerical Targets**
FCDO (UK)	Climate Compatible Growth Programme (CCG)	2023–2030	Aid the development of a financing plan for the IRP, establishing a data systems repository for the Energy Planning Center, and building capacity in energy-sector modeling using open-source tools	US$123 million (global budget)				Development of an IRP Financing Plan and Establishment of Energy Data Systems for Energy Planning Center
FCDO (UK)	Green Cities and Infrastructure Programme (GCIP)	2023–2025 (Possibility of extension to 2030)	Offer flexible technical assistance focused on improving the procurement framework for the IRP	US$3 million over two years				Improved Power-Sector Procurement Framework
AfDB	GETFIT Solar	2028	Development of 40 MW solar PV (only one developer signed with AfDB)	US$50 million (private-sector debt)	Over 1 million grid-connected customers for total phase I of GETFit		40 MW	Contribute 2% of the renewable energy planned by 2030
AfDB (Sustainable Energy Fund for Africa)	Ilute 32 MW Solar PV	2025	Development of 32 MW of solar PV	US$32 million (grant)	TBA	N/A	32 MW	Pillar 1: Expand Generation and Invest into Infrastructure at Competitive Costs
AfDB	Itezhi-Tezhi Power Transmission Project	2025	Access to electricity in Mumbwa District	US$2.5 million (loan savings)	TBA	N/A		Increased access
AfDB	SREP Zambia PPG	2025	Wind feasibility study 40 MW	US$1.15 million (grant)	TBA	N/A	40 MW	Pillar 1: Expand Generation and Invest into Infrastructure at Competitive Costs
AfDB	Kariba Dam Rehabilitation	2014–2026	Guarantee security of 1,080 MW supply for Zambia	US$75 million (public loan)	Sustain over 1 million grid-connected customers	N/A	1,080 MW sustained and increased support to solar and wind connectivity	Pillar 1: Expand Generation and Invest into Infrastructure at Competitive Costs
AfDB	Batoka Gorge Hydroelectric Scheme, Advisory Service	2020–2027	Support the preparation and procurement process for the hydropower plant on the Zambezi River, shared between Zambia and Zimbabwe	US$5 billion (public-private partnership)	N/A	N/A	Project sizing to be confirmed. (600 MW estimated for Zambia)	35% increase in national power capacity
Sweden	Beyond the Grid Fund for Africa (BGFA), Zambia	2019–2028	Bring clean and affordable off-grid energy access to underserved populations	US$20 million (grant)	Solar home systems, mini-grids, power usage effectiveness	N/A	N/A	822,680 households and small/micro businesses targeted
Sweden	Modern Cooking Facility for Africa (MCFA), Zambia	2021–2028	Bring clean and affordable cooking solutions to underserved populations	US$7.5 million (grant)	N/A	Clean cooking technologies	N/A	550,000 Zambians targeted (to be expanded as of 2025)

					Contribution to Compact Targets			
Development Partner	**Project Name**	**Timeline**	**Project Description**	**Funding (including from the private sector)**	**Access to Electricity**	**Access to Clean Cooking**	**Renewable Energy Installed**	**Binary & Numerical Targets**
Sweden	Kariba Dam Rehabilitation	2014–2026	Guarantee security of 1,080 MW supply for Zambia	US$25 million (grant)	Sustain over 1 million grid-connected customers	N/A	1,080 MW sustained and increased support to solar and wind connectivity	Pillar 1: Expand Generation and Invest into Infrastructure at Competitive Costs
Sweden	Energy Efficiency for Sustainable Livelihoods/ EELA Zambia (project proposal being appraised)	2025–2029	Increase uptake of energy-efficient appliances Enhance skills for repair, maintenance, and end-of life treatment of energy-efficient appliances, including e-waste management Promote clean technology solutions	US$6 million (grant)	N/A	N/A	N/A	TBA
U.N. Office for Project Services (UNOPS) (Funded by The Rockefeller Foundation)	Energy access for 1,000 rural communities in Zambia (Sustainable Energy for All, "SEforAll")	October 2024–November 2026	Support the viability, optimization, and growth of private-sector mini-grids across all provinces of Zambia, including targeted financial incentives for consumption growth and a dedicated investment strategy component for 2030 scale-up	US$5 million	Energy access for 1,000 rural communities in Zambia	N/A	15 MW	Pillar 1: Expand Generation and Invest into Infrastructure at Competitive Costs

Annex II
Metric of Key Indicators

Pillars	Metrics/Indicators			Data (latest available)
Pillar 1 Expand Generation and T&D Networks	• Generation Capacity Installed/Available (MWs) • % Thermal, % Renewable (including BESS) • Average Annual Growth Rate (%) (over last three years)			• Total capacity: 3811.3 MW[17] • Energy mix: 13.8% thermal (coal, diesel, heavy fuel oil), 86.2% renewable (hydro + solar) • Installed capacity increase: 13.83% from 2021 to 2022, 0.9% from 2022 to 2023 • Average annual increase: 0.935%
	• Energy Produced Annually (MWh), Total • % Thermal, % Renewable (including variable renewable energy sources/battery energy storage system) • Average Annual Growth Rate (%) (over last three years) • Average Cost per kilowatt-hour (kWh): Thermal, Renewable			• Total generation: 19,372.92 GWh • Energy mix: 99.99% renewable (hydro + solar), 0.01% diesel • Average change: +10% from 2021 to 2022, -0.14% from 2022 to 2023
	• Energy Imported Annually (MWh), Total • Average Annual Growth Rate (%) (over last three years) • Average Cost per kWh (US$)			• Total: 293.7 GWh in 2023 vs. 18 GWh in 2022, a 1531% increase[18] • No change (0%) from 2021 to 2022
	• Energy Exported Annually (MWh), Total • Average Annual Growth Rate (%) (over last three years) • Total revenue (US$)			• Total: 3661.2 GWh • 25.25% increase from 2022 • 35.95% increase from 2021 to 2022
	Transmission Network (HV, MV), Total: Length (km); Voltage (kV): Transfer Capacity (MW/MVA)			• 12,705 km transmission line[19] • 330 kV: 5112 km • 220 kV: 893 km • <220 kV at 60 kV: 6,700 km
	Rehabilitation			Information not available
	Expansion			Information not available
	Distribution Network (LV), Total: Length (km); Voltage (kV): Transfer Capacity (MW/MVA)			Information not available
	Rehabilitation			Information not available
	Expansion			Information not available
	Access to Energy (electricity and clean cooking)			Electricity: 47.8% (2022)[20] Clean cooking: 8.9% (2022)[21]
	Number of New On-Grid Connections (by customer type[22]) in 2023			9,866[23]
		2022	2023	2024
	Households	13,178	9,280	Information not available
	Industries	-	-	Information not available
	Commercial	2,430	1,008	Information not available

[17] Energy Regulation Board, "Energy Sector Report 2023," 2023, https://www.erb.org.zm/wp-content/uploads/files/esr2023.pdf; Energy Regulation Board, "Energy Sector Report 2022," 2022, https://www.erb.org.zm/wp-content/uploads/files/esr2022.pdf; and Energy Regulation Board, "Energy Sector Report 2021," 2021, https://www.erb.org.zm/document/the-energy-sector-report-2021.

[18] Percentage calculated based on the 2022 and 2023 values: $\% = \frac{V2023 - V2022}{v2022} \times 100$

[19] Ministry of Energy Zambia, "The Integrated Resource Plan (IRP)," 2023, https://www.moe.gov.zm/irp/.

[20] United Nations, "SDG7 Energy Compact of Zambia," https://www.un.org/sites/un2.un.org/files/2021/09/zambia_final_compact_template_2308.pdf.

[21] Ibid.

[22] E.g., residential, commercial, industrial, etc.

[23] A balance between the ERB's 2022 and 2023 Energy Sector Reports under the Electricity Services Access Project new connection of the Rural Electrification Authority. *See:* Energy Regulation Board, "Energy Sector Report 2023," 2023, https://www.erb.org.zm/wp-content/uploads/files/esr2023.pdf; and Energy Regulation Board, "Energy Sector Report 2022," 2022, https://www.erb.org.zm/wp-content/uploads/files/esr2022.pdf.

Pillars	Metrics/Indicators	Data (latest available)
Pillar 2 Regional integration	Transmission Interconnectors (HV), Total: Length (km); Voltage (kV): Transfer Capacity (MW/MVA)	Information not available
	Energy Traded in Bilateral Power Purchase Agreements/Memorandum of Understanding (MOU)	Information not available
	Energy Traded in Power Pool (MWh)[24]	20,118
	Transmission Wheeling Charges (US$ per kWh)	Information not available
	Payables (arrears)/Receivables (US$)	Information not available
Pillar 3 DRE/Clean Cooking	Number of New Mini-Grid Connections (by customer[25] type) (last three years, if possible)	0.1 million 2023[26]
	Number of Solar Home Systems (last three years, if possible)	3.3 million 2023[27]
	Number of Clean Cooking Connections/Appliances	343,679 in 2022[28]
	Total (private) Investment Needs by 2030 (US$, percentage), Split (by grid, mini-grid, off-grid, and clean cooking); Spilt (by generation, transmission, distribution, and access) Domestic and International	• Total: US$9 billion out of US$12 billion representing 75% of the total investment • Grid: US$7.5 billion out US$9 billion representing 83% of the private-sector investment • Off-grid: US$1.5 billion out of US$9 billion representing 17% of the private-sector investment • Clean cooking: 0%
Pillar 5: Sector Reforms and Sustainable Utilities	Utility Financial Profitability (per audited accounts): Net Income/Loss (US$ amount and US$/kWh) for Discos, Transcos, Gencos	Information not available
	(Regulator) Tariff Policy, Average End-User Tariffs (per kWh), and Trajectory to Full-Cost Reflectivity (current % of recovered costs to achieve 2030 target)	Information not available
	Total Subsidy Amount (US$); Path/Timelines to Full-Cost Reflectivity (estimate)	Information not available
	• Aggregate Technical Commercial & Collection Losses: % Reduction Targets Per Year • Number of Metered/Unmetered Customers • Number of Prepayment Meters	• Information not available • Metered: 3,861,557[29] • Prepaid: 3,861,557[30]
	• Level of Debt: Payables to Government, IPPs, Other Vendors • Level of Arrears: Receivables from Government/Public Entities (any prepayment meters). • Revenues by Breakdown of Customer Types (e.g., from households, industries, commercial, mines, imports, etc.) • Capital Restructuring Plan (yes/no)	Information not available
	Load Shedding (e.g., average number of hours per day and/or estimated lost MWh per annum)	3–7 hours per day
Additional - Cross-Cutting for consideration	• Capacity-Building Requirements (US$) (at all levels) • Alignment of Power-Sector Least-Cost Expansion Plans to Country, Long-Term Strategies, and Nationally Determined Contributions/Paris Agreement: Yes/No • Household Affordability (i.e., % level of household disposable income available for energy services and/or % of households receiving energy subsidies) • Jobs or Gender % in Energy Sector	• Information not available • Yes • Information not available • 0.3%[31]

[24] ZESCO's exports (MWh) by export market to SAPP for January to June 2023.
[25] E.g., residential, commercial, industrial, mining, etc.
[26] Ministry of Energy Zambia, "The Integrated Resource Plan (IRP): Projections," 2023, https://www.moe.gov.zm/irp/.
[27] Ibid.
[28] Based on the 2022 Living Conditions Monitoring Survey, an estimate was made that the number of households using clean cooking is equivalent to the number of clean cooking connections or appliances. Specifically, the number of households electrified is multiplied by the percentage of households using clean cooking, assuming each household has only one cooking appliance.
[29] Currently, all electrified customers are metered. Based on the 2022 Living Conditions Monitoring Survey, it is estimated that 3,861,557 households are electrified.
[30] In Zambia, all electrified households have prepaid meters, which are also referred to as "metered households."
[31] The sector's workforce is currently small, accounting for only 0.3 percent of Zambia's total workforce, with a significant gender imbalance—91.7 percent male and 8.3 percent female. *See:* Ministry of Labour and Social Security Zambia, "2021 Labour Force Survey Report," 2021, https://www.mlss.gov.zm/wp-content/uploads/2023/08/2021-Labour-Force-Survey-Report.pdf.
[31] World Bank, "Batoka Gorge Hydro-Electric Scheme," 2018, https://documents1.worldbank.org/curated/zh/574651518042899815/pdf/123272-WP-P155492-PUBLIC-HSAP-Bakota-Gorge-Feb-2018.pdf.

Annex III
Pipeline Power projects

A. Public Sector Projects								
S/N	**Project**	**Investment Costs (USD million)**	**Capacity (MW)**	**Status**	**Opportunities**	**Date of Start of Operation**	**Responsible Office**	**Technology**
	Generation Projects							
1.	Lusiwasi Hydro	25	12	• Currently operating at 4MW. • Plant rehabilitation required. Procurement of contractor is in progress.	Concessional financing to unlock – • Support for up to 2,400 households' annual electricity/access consumption. • Contribute towards attainment of NDCs through switching to a clean energy source for lighting and cooking.	2027	ZESCO	Hydro
2.	Kalungwishi Project including the transmission line	600	247	• ZESCO is in discussions with strategic equity partners.	• Provision of debt project financing • Open access regime providing multiple off-taker options • Developing hydropower potentials away from the drought-prone southern parts of the country	2028	MOE/ZESCO	Hydro
3.	Batoka Gorge	5,000	2400	• Procurement of consultancy services for updating both feasibility and ESIA underway	• Provision of debt project financing • Private Sector participation • Open access regime providing multiple off-taker options • Strong commitment from both the Zambian and Zimbabwean governments • Low environmental foot-print	2030	MOE	Hydro
4.	Luapula River	500	271	• Prefeasibility Studies completed. • Funds partially secured for full Feasibility Studies	• Strong commitment from both the Zambian and Congo DR governments • Private sector participation through	2030	MOE/MWDS	Hydro

A. Public Sector Projects								
S/N	**Project**	**Investment Costs (USD million)**	**Capacity (MW)**	**Status**	**Opportunities**	**Date of Start of Operation**	**Responsible Office**	**Technology**
				through AUDA-NEPAD	Co-financing in equity and/or project debt financing • Open access regime providing multiple off-taker options • Developing hydropower potentials away from the drought-prone southern parts of Zambia • Increasing access to electricity services in the mining-rich areas in Zambia and DRC			
5.	Luapula ZESCO Solar Project	70	50	EPC Contractor procured	• Provision of debt project financing • Open access regime providing multiple off-taker options • Diversifying the primary energy mix	2027	ZESCO	Solar
6.	Lusiwasi Lower Hydro	196	86	Renewal of ZEMA permit in progress	Concessional financing to unlock – • support up to 26,000 households' annual electricity consumption. • Contribute towards attainment of NDCs through switching to a clean energy source for lighting and cooking.	2029	ZESCO	Hydro
7.	TAZAMA GAS PIPELINE WITH POWER PLANT	900	1100 km pipeline 400 MW Power Plant	Pre-feasibility study undertaken.	• Provision of equity and/or debt project financing including preparatory studies • Private Sector Participation • Open access regime providing multiple off-taker options • Strong commitment from both the Zambian and Tanzanian governments	TBA	TAZAMA	Natural Gas

A. Public Sector Projects								
S/N	**Project**	**Investment Costs (USD million)**	**Capacity (MW)**	**Status**	**Opportunities**	**Date of Start of Operation**	**Responsible Office**	**Technology**
8.	Potential Coal Projects	TBA	900	300MW existing	• Co-financing in equity and/or debt of baseload power • Diversifying the primary energy mix • Enhanced Energy security •	TBA	MOE/Private Sector	Thermal
	Inland Transmission Projects							
9.	Pensulo - Mansa Transmission	200	700 MVA	Procurement underway.	Concessional financing to unlock – • increasing access rates in the northern parts of the country • enhanced system stability in Luapula province	2027	ZESCO	Transmission
10.	Luano-Kansanshi-Lumwana-Kalumbila Transmission line	132	700 MVA	• ESIA approved.	Concessional financing to - • Private Sector Participation • improve system reliability and security of supply • increase transfer capacity to the mining-rich north-western parts of the country Province	TBA	ZESCO	Transmission
11.	Kafue West - Muzuma Transmission Line	115	700 MVA	• Procurement underway and to be completed by end of first quarter.	Concessional financing to - • improve system reliability and security of supply • increase transfer capacity	2026	ZESCO	Transmission
12.	Muzuma - Nambala Transmission	200	1400 MVA	• Pre-feasibility study and ESIA underway.	Concessional financing to - • improve system reliability and security of supply • increase transfer capacity to the mining-rich areas in North-Western and Copperbelt provinces	2026	ZESCO	Transmission

A. Public Sector Projects								
S/N	**Project**	**Investment Costs (USD million)**	**Capacity (MW)**	**Status**	**Opportunities**	**Date of Start of Operation**	**Responsible Office**	**Technology**
	Interconnector Projects							
13.	ZIZABONA Interconnector	76	700 MVA	• AFDB advertised for consultants to update the feasibility and ESIA reports.	• Private sector participation through equity and/or project debt financing • Open access regime • Centrally located to support regional integration and Zambia's aspiration to be the hub of regional electricity trade	2028	ZESCO	Interconnector
14.	Zambia - Malawi Interconnector	20	1400 MVA	Feasibility study and ESIA underway.	• Private sector participation through equity and/or project debt financing • Open access regime • Centrally located to support regional integration and Zambia's aspiration to be the hub of regional electricity trade	2028	ZESCO	Interconnector
15.	Zambia - Mozambique Interconnector	137	1400 MVA	• Feasibility study including ESIA completed. • AfDB are assisting with project structuring.	• Private sector participation through equity and/or project debt financing • Open access regime • Centrally located to support regional integration and Zambia's aspiration to be the hub of regional electricity trade	2030	ZESCO	Interconnector
16.	Solwezi (Kansanshi) – Kolwezi (Panda) Transmission Interconnector	104	1400 MVA	• Feasibility studies are completed. • Project implementation model under study, being coordinated by AfDB	• Private sector participation through equity and/or project debt financing • Open access regime • Centrally located to support regional integration and Zambia's aspiration to be the hub of regional electricity trade	2026	ZESCO	Interconnector
17.	Zambia-Angola	TBA	1400MVA	• Resource mobilisation for feasibility and development ongoing	• Private sector participation through equity and/or project debt financing • Open access regime	TBA	GRZ/ZESCO	Interconnector

A. Public Sector Projects								
S/N	Project	Investment Costs (USD million)	Capacity (MW)	Status	Opportunities	Date of Start of Operation	Responsible Office	Technology
					• Centrally located to support regional integration and Zambia's aspiration to be the hub of regional electricity trade			
18.	Smart Grid Roadmap for Zambia	70.84M Euros	Various Project components for the entire network	• AFD funded the Technical Assistance to develop the Smart Grid Roadmap for Zambia • Final report has listed projects for implementation under Phase 1 (2023 – 2026); Phase 2 (2026 – 2029) and Phase 3 (2029 -2032	This project presents various opportunities in making the Grid Smart to for a stable and reliable Interconnected Power System which will position the Country as a net export in the Region	2025	ZESCO/ERB	Various projects in Generation, Transmission and Distribution
	Grid Expansion Projects			•				
19.	Number planned of grid expansion projects - Various	1020	Various	• Resource mobilisation to undertake feasibility studies underway • Investment in Distribution – 33kV network • Investment in On-Grid access • Last mile connection (Densification) (Grid access)	Financial constraints	2025	REA/ZESCO	Grid expansion
	Off – Grid Projects			•				
20.	Mini grid and Solar Home Systems	2185		• Resource mobilisation to undertake feasibility studies underway • The targeted number of connections for Mini grids is 328,304. • Targeted number of household and public connection for solar home systems is 1,440,007 •	Financial constraints	2025	REA	Solar

Annex IV
Connection Projections by Technology (2025 to 2030)

Access to Electricity Target	Grid	Mini-Grid	SHS	Total
Rural	739,560	328,304	1,440,007	2,507,871
Urban	720,000	0	0	720,000
Total	**1,459,560**	**328,304**	**1,440,007**	**3,227,871**

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