



The Bank Group's Strategy for The New Deal on Energy for Africa 2016 – 2025

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Acronyms and Abbreviations

ACCF	Africa Climate Change Fund
AELG	African Energy Leaders Group
AfDB	African Development Bank Group
AFOLU	Agriculture, Forestry and Other Land Uses
AREI	Africa Renewable Energy Initiative
CIF	Climate Investment Funds
DFI	Development Finance Institutions
FAPA	Fund for Africa Private sector Assistance
FFD	Financing for Development
ECON	Chief Economist Complex
ElectriFI	Electrification Financing Initiative
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GW	Gigawatt
ICA	Infrastructure Consortium for Africa
IDEV	Independent Development Evaluation
IEA	International Energy Agency
IFC	International Finance Corporation
INDC	Intended Nationally Determined Contribution
IPP	Independent Power Producer
IPPF	Infrastructure Project Preparation Facility
IRENA	International Renewable Energy Agency
kWh	Kilo Watt hour
LPG	Liquefied Petroleum Gas
MDB	Multilateral Development Institution
MW	Megawatt
NDC	Nationally Determined Contribution
NEPAD	New Partnership for Africa's Development
OFSD	Financial Sector Department
ONEC	Energy, Environment and Climate Change Department
OPSD	Private Sector Department
ORQR	Quality Assurance and Results Department
OSAN	Agriculture and Agro-Industries Department
OSGE	Governance, Economic and Financial Management Department
OWAS	Water and Sanitation Department
PIDA	Programme for Infrastructure Development in Africa
RECs	Regional Economic Community
REFiT	Renewable Energy Feed-in-Tariff
RMC	Regional Member Country
SDG	Sustainable Development Goals
SE4All	Sustainable Energy for All
SEFA	Sustainable Energy Fund for Africa
TWh	Terawatt hours
UA	Unit of Account
UNDP	United Nations Development Programme
USD	United States Dollars

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I. EXECUTIVE SUMMARY

Energy—its availability, reliability, affordability and sustainability – is critical for Africa’s transformation. Modern energy services enable economic growth and have a central role in sustaining inclusive growth: they drive employment and increase productivity across the value chain in agriculture and other sectors. However, shortages, high cost and poor access to energy remain major impediments to Africa’s social and economic progress.

The African Development Bank’s Energy Policy (2012) and the African Development Bank’s Strategy for 2013 - 2022 (also referred to as the Ten Year Strategy) recognise the opportunities and challenges in the energy sector. The Bank’s operations have responded to these opportunities and challenges by addressing a variety of needs across the continent ranging from sector level interventions to project preparation support and transaction advisory work. While these efforts have yielded results much more needs to be done.

The aspiration of the Bank’s New Deal on Energy for Africa is achieving universal access to energy across the continent by 2025—100 per cent access in urban areas and 95 per cent in rural areas, leveraging on- and off-grid solutions and related technological advances.

The New Deal on Energy for Africa is a partnership-driven effort. To achieve and drive towards this goal, the AfDB is working with governments, the private sector, bilateral and multilateral energy sector initiatives to develop a Transformative Partnership on Energy for Africa—a platform for public-private partnerships for innovative financing in Africa’s energy sector. The design of the New Deal draws on consultations with African countries, utilities, private sector investors and financiers and foundations in various forums such as (i) the high-level consultation meeting in Abidjan in September 2015 – at which the concepts and flagship programs were co-developed with public and private stakeholders; (ii) the World Economic Forum—at which the Transformative Partnership on Energy for Africa was launched with African heads of States and Governments and global Partners; (iii) the African Union Summit in January 2016 where several heads of state expressed their full support for this effort and affirmed the appointment of the African Development Bank as the Trustee for the African Renewable Energy Initiative and the host of its Independent Delivery Unit; and (iv) several energy sector meetings, including the PIDA Week; and (iv) several consultative meetings between the Bank’s President and Senior Management and Heads of States and Governments, relevant ministers and stakeholders in Africa and beyond.

The New Deal is built on five inter-related and mutually reinforcing principles: raising aspirations to solve Africa’s energy challenges, establishing a Transformative Partnership on Energy for Africa; mobilising domestic and international capital for innovative financing in Africa’s energy sector, supporting African governments in strengthening energy policy, regulation and sector governance, and increasing the African Development Bank’s investments in energy and climate financing.

This Strategy for the New Deal on Energy for Africa sets out the priorities for the Bank’s interventions in the energy sector from 2016 to 2025. The Strategy will contribute to the transformation of Africa’s energy sector and promote inclusive growth and the transition to green growth by increasing energy production scaling-up energy access improving affordability, reliability and energy efficiency while improving the sustainability of energy systems.

The New Deal focuses on seven strategic themes. that are holding back the development of the energy sector. These strategic themes are: (i) setting up the right enabling policy environment, (ii) enabling utility companies for success, (iii) dramatically increasing the number of bankable energy projects, (iv) increasing the funding pool to deliver new projects, (v) supporting ‘bottom of the pyramid’ energy access programmes, (vi) accelerating major regional projects and driving integration, and (vii) rolling out waves of country-wide energy ‘transformations’. The Bank will implement these themes through a series of flagship programmes such as: the rolling out of an Independent Power Producer (IPP) Procurement Programme (IPP), power utility transformation, early stage project support facilities, funding catalyst programmes, bottom of the pyramid energy financing facilities, mobile payment programmes, regional project acceleration programmes, country wide energy sector turnarounds and transformative partnerships.

The New Deal supports the implementation of other relevant policies and strategies of the Bank. The achievement of other standing policies and strategies of the Bank require significant improvements in Africa’s energy systems, access and security. The New Deal was designed to support the effective implementation of the Bank’s Private Sector Development Strategy (2013 – 2017), the Regional Integration Policy and Strategy (2014 – 2023), the Governance Strategic Framework and Action Plan (2014 – 2018), the cross-cutting Gender Strategy (2014 – 2018), and to achieve the twin goals of the Bank’s Ten Year Strategy – inclusive and green growth in Africa.

The New Deal supports the implementation of the new strategic goals of the Bank, the High 5s: Energy is the lifeblood of the economy. To successfully Feed Africa, Industrialize Africa, Integrate Africa, and Improve the Quality of Life of Africans, we must first Light up and Power Africa. The New Deal was designed to unlock productivity potentials across agribusiness zones and hubs, as well as industrial value chains in all economic sectors in rural and urban areas with a focus on reaching the unserved populations across the continent.

The New Deal on Energy for Africa contributes to the achievement of the Sustainable Development Goals (SDG) in Africa. It directly contributes to achieving in particular, ensuring access to affordable, reliable, sustainable, modern energy for all (SDG 7); ending poverty in all forms (SDG 1); combating climate change and its impact (SDG 13); improving health and well-being (SDG 3); SDG achieving gender equality and empower all women and girls (SDG 5); and reducing inequality within and among countries (SDG 10). By improving access to clean energy, the New Deal will also contribute to social and economic growth and environment sustainability in Africa.

The New Deal on Energy for Africa will assist African countries in achieving the COP 21 Agreement on climate change, especially their Intended Nationally Determined Contributions (INDCs). While the energy sector contributes a major share of greenhouse gas (GHG) emissions in most industrialized countries, historical green-house gas emissions in Africa have been driven by land use change, agriculture and forestry. However, the energy sector has risen to prominence in the past decade. Without transformative actions to accelerate access to affordable, reliable, sustainable, modern energy— for lighting homes, clean cooking, and base load energy for industrialization and wealth creation—population growth will engender increased deforestation and GHG emission in Africa.

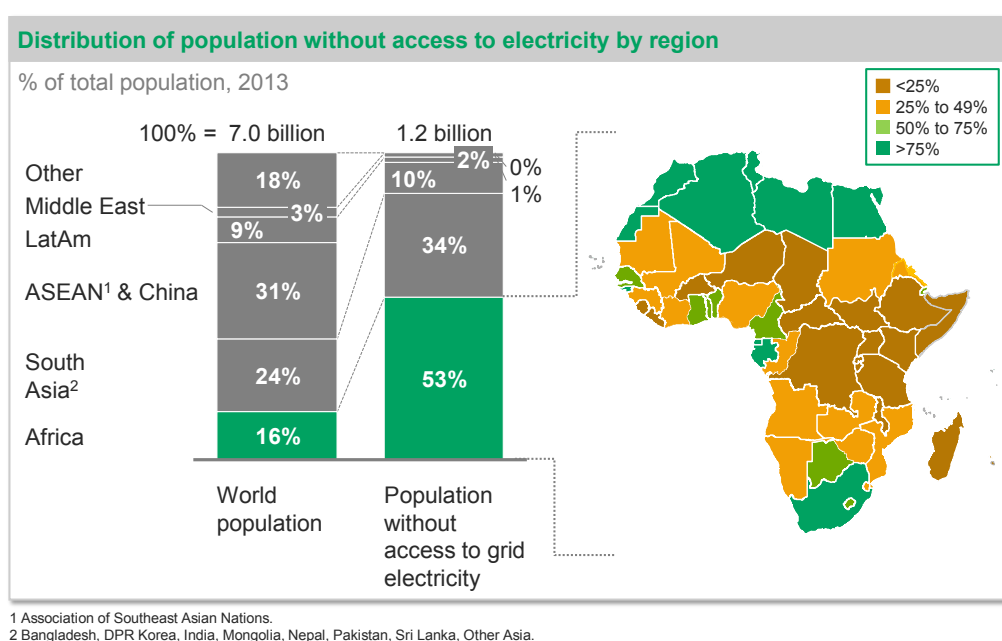
African countries have demonstrated political will and leadership and have submitted ambitious plans to curb GHG emissions in their INDCs, amounting to a reduction in emissions by 2030 of more than 40 per cent against a business as usual baseline. Many INDCs include ambitious plans and policies to scale up renewable electricity generation, increase energy efficiency and reduce emissions from the energy sector. Adaptation in the energy sector is a key component in many Africa's INDCs to ensure that both existing and new energy infrastructures take into account climate impacts which, in turn, can play a crucial role in increasing general societal resilience to disasters and climatic extremes). While some of the emission reductions strategies proposed in the INDCs are unconditional, others are conditional on support from the international community. The New Deal will contribute to the twin goals of the African Development Bank's Ten Year Strategy by prioritising coordinated transformative actions that accelerate the achievement of universal access to affordable, reliable and modern energy services (SDG 7) and enhance the capacity of countries to achieve other SDGs, including climate action (SDG 13).

II. THE CONTEXT OF THE STRATEGY

1. Over 645 million Africans have no access to electricity, and over 730 million rely on biomass for cooking

- Africa's starting point in the energy sector is well known. Africa is home to 16 per cent of the world's population—and to 53 per cent of the global population without access to electricity (Figure 1). Over 645 million Africans (about 40 per cent of the continent's population) have no access to electricity. Sub-Saharan Africa had only 32 per cent access by 2013, up from 30 per cent in 2009—a very slow growth. If the increase in access to electricity continues on the basis of 'business as usual', access will still be less than 45 per cent by 2025.

Figure 1: More than half of the people with no access to electricity live in Africa



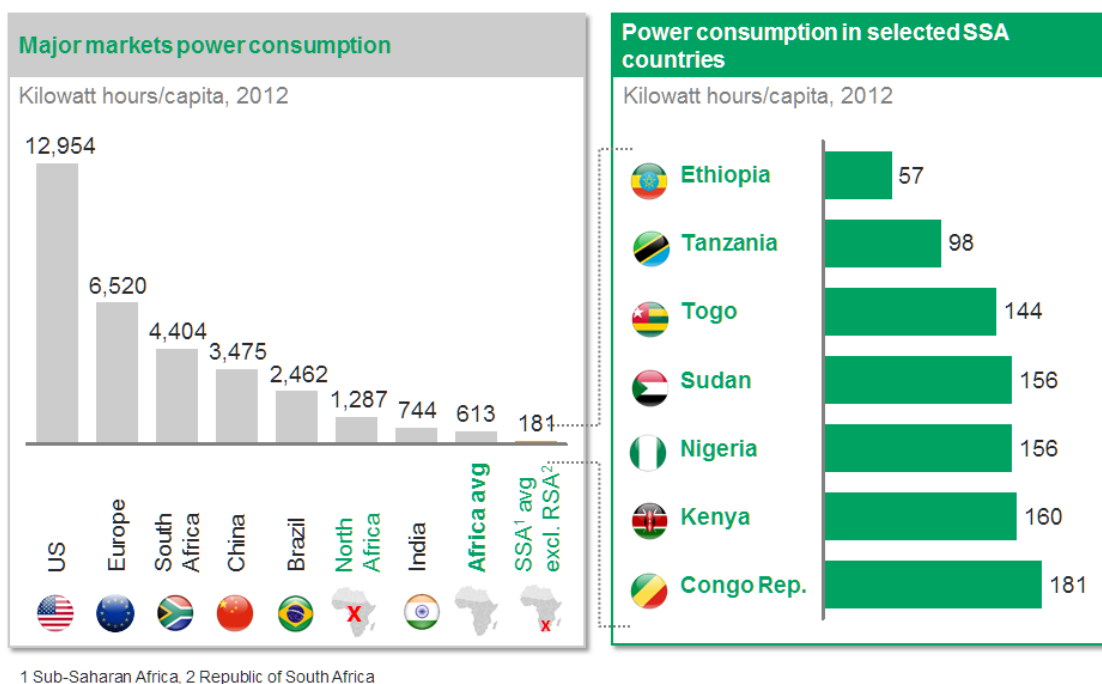
Source: World Energy Outlook 2015; Electricity Access Database, IEA

- **Electricity access rates vary enormously by region.** The access rate is over 85 per cent in South Africa, and over 95 per cent in North African countries. By stark contrast, it is less than 25 per cent in Central and East Africa. In Chad and Sierra Leone, for example, the access rate is lower than 5 per cent.
- **Low access levels to modern energy is one of the reasons many African households resort to the use of harmful energy sources that are detrimental to health and the environment.** According to the World Health Organisation's Global Burden of Disease statistics, approximately 600,000 Africans (mostly women and children) die every year from inhalation of toxic fumes due to the use of wood or feedstock for cooking or lighting.

2. Unreliable and costly power supply hinders socio-economic development

- **For the effective use of electrical power, the issue is not simply one of access.** Even when households and businesses do have access to electricity, they have to contend with the insufficient generation capacity or unreliable supply implied by the weak transmission and distribution infrastructure. Energy supply can be disrupted for long periods. High costs of electricity observed in most Sub-Saharan countries, as high as USD 0.20- 0.50 per kWh, against USD 0.10 per kWh on average worldwide, compromise the affordability of modern energy and the competitiveness of industries.
- **As a result, Africa's power consumption per capita is very low, compared to that of the rest of the world.** The problem is particularly acute in sub-Saharan Africa (excluding South Africa), which has a per capita consumption of 181 kWh. In comparison, power fuels the economic activity of developed countries: the power consumption per capita in the United States is 13,000 kWh per capita and 6,500 kWh per capita in Europe (Figure 2).

Figure 2: Power consumption per capita, especially in sub-Saharan Africa, remains low

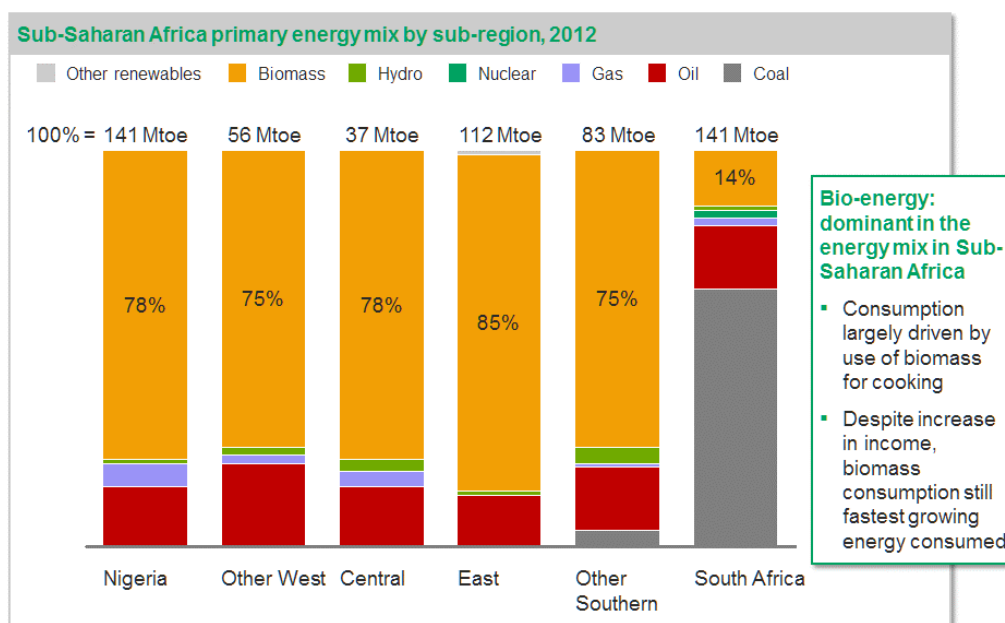


Source: World Development Indicators; World Bank Group; Non-OECD Energy Statistics

- **Lack of power leaves people struggling.** Children are underperforming, as over 90 per cent of primary schools have no access to electricity. Hospitals are unable to utilise life-saving equipment and services, putting lives at risk. High maternal mortality rates are common as a result of poor electrification, especially in rural areas. People are unable progress economically in order to improve the quality of their lives.

- Women and children bear the brunt of the energy deficit.** The impact of energy deficit differs depending on one's gender and socio-economic status, which produces different social and economic outcomes. Different gender defined roles in energy production, distribution and utilization in households, communities and the market mean women and girls are disproportionately affected. Women and children make up the majority of those without access and especially those at the bottom of the pyramid. The energy deficit decreases or blocks income-generating opportunities for women that can be important factors in reducing hunger and poverty levels, and enhancing women's social and political status – thereby promoting the empowerment of women. When women have access to adequate fuel, water supplies, and money for school fees, their children are more likely to attend school, especially the girls, who will not be kept home to help their overburdened mothers. Having money for food and the fuel and equipment needed for processing and cooking also promotes better health for women and their families, and reduces pressures on forests and other ecosystems vulnerable to depletion in Africa
- The reality, however, is that Africans are still relying on unhealthy and inefficient energy sources.** An examination of the total energy consumption, including electricity, automotive oil products and biomass use for cooking, heat and light, shows that most of sub-Saharan Africa consumes more than 75 per cent of its energy through biomass (Figure 3) —compared to 5.5 per cent of total energy consumption from biofuels and waste products in OECD markets.

Figure 3: Biomass accounts for more than 75% of the total primary energy consumption in most sub-Saharan African countries

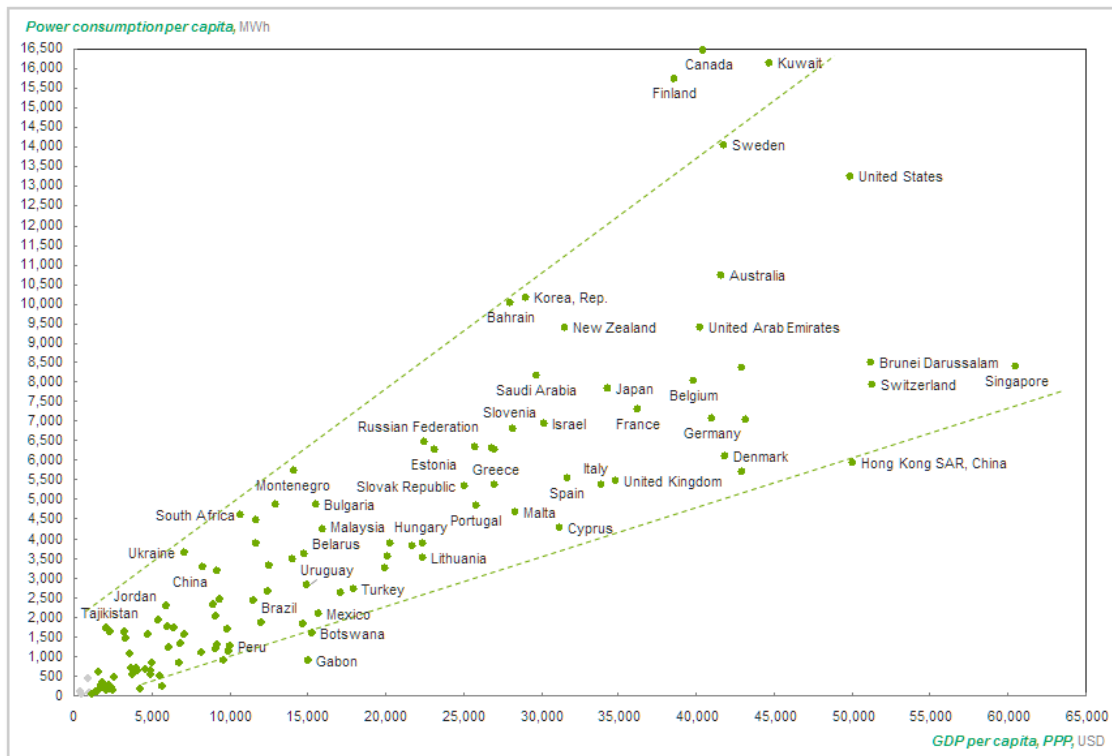


Source: International Energy Agency

3. Energy is the driving force for economies and GDP growth

- **In sub-Saharan Africa, 13.3 per cent of enterprises in the World Bank Enterprise survey cited the lack of reliable electricity as the biggest obstacle to their business.** The survey also found that, across the countries surveyed, an average of 48 per cent of firms owned a generator to substitute their electricity supply and that 4 per cent losses in annual sales was due to electrical outages.
- **There is a clear correlation between GDP per capita and power consumption per capita**, where countries with low power consumption per capita have low GDP per capita.; similarly, high power consumption per capita appears to be correlated with high GDP per capita (Figure 4).

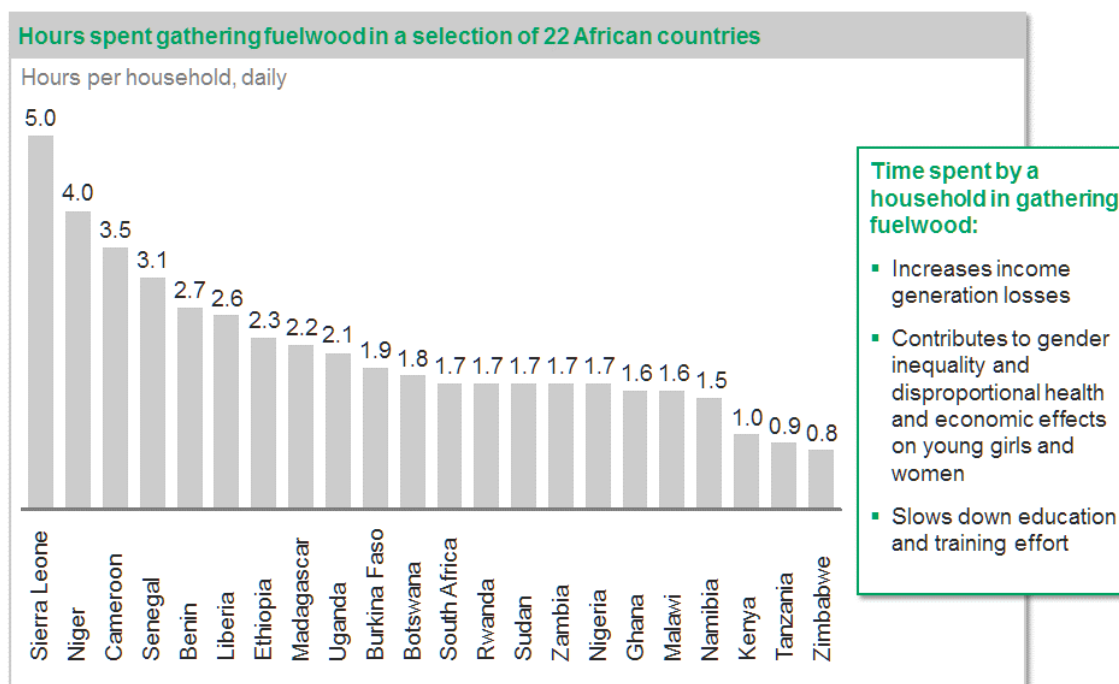
Figure 4: Power consumption is a key driver of economic development and appears highly correlated with GDP



Source: CIA World Fact book

- **Individuals' productivity is an issue.** African men, women and children devote a lot of time to the daily collection of low energy efficiency biomass for cooking and other purposes. In many countries, women and children spend more than 1.5 hours per day per household gathering biomass for energy needs (Figure 5). This practice prevents women from participation in economic activities, and children from attending school. The Swedish Energy Institute estimates that Africa loses USD 30 - 60 billion yearly to negative health effects, environmental degradation and climate change, and reduced economic productivity associated with high levels of biomass consumption.

Figure 5: Households across Africa spend more than 1.5 hours per day gathering fuelwood for cooking, heating and light



Source: Swedish Energy Institute

4. Africa’s energy potential is enormous, with only a fraction of it being currently tapped.

Hydropower provides around a fifth of current capacity but not even a tenth of its total potential has been utilized. Similarly, the technical potential of solar, wind and geothermal energy is significant.¹ Countries such as Cabo Verde, Egypt, Ethiopia, Kenya, Morocco and South Africa have launched major initiatives to utilize solar, wind and geothermal energy, resulting in over 10 GW of capacity contracted. Fossil fuels offer also considerable development opportunities. Africa holds close to 8per cent² of the world’s proven oil and gas reserves³. Over the last decade, oil and gas operations have expanded to include new producers such as Ghana and in recent years, nearly 30% of the world’s oil and gas discoveries were in sub-Saharan Africa, while 2015 marked the largest gas discovery ever made in Egypt and the Mediterranean Sea. Increasing estimates of oil and gas reserves in Eastern and Southern Africa create significant opportunities in the medium to long-term, with several countries progressing towards commercial development.

5. Africa’s transition to a low carbon energy future is critical for global sustainability, especially for addressing climate change.

Economic growth (income per capita), population growth, energy intensity of GDP, and carbon intensity of energy systems continue to be the major drivers of global greenhouse gas (GHG) emissions. About 47 per cent of the increased

¹ The International Renewable Energy Agency estimates the potential for photovoltaics (PV) to provide 657,000 TWh/year, concentrated solar power (CSP) to provide 472,000 TWh/year and wind to provide 458,000 TWh/year. For both CSP and PV, Eastern Africa has the highest potential (175,000 TWh and 220,000 TWh, respectively), followed by Southern Africa (150,000 TWh and 160,000 TWh respectively). In terms of wind potential, Eastern Africa (170,000 TWh) presents the highest potential, followed by Northern Africa (130,000 TWh). The Eastern African Rift Valley has significant geothermal energy potential..

² BP Statistical Review of World Energy, 2015.

³ This potential is probably under-estimated, as Africa is by far the least-prospectied continent across a range of natural resources, including oil and gas.

CO₂ emissions between 2000 and 2010 directly came from energy supply, with industry, transport and buildings contributing 30 per cent, 11 per cent and 3 per cent respectively. Fundamental transitions in the energy supply system and structural transformation in the energy end-use sectors (industry, agriculture, transport and buildings, etc.) are required to stabilise GHG concentrations at low levels. This will include significant improvements in demand and supply side energy efficiency technologies in the short term, and long-term substitution of carbon intensive energy technologies by low carbon alternatives, including renewable energy (RE) options, distributed energy supply technologies, and more efficient appliances that reduce energy intensity of economic production and consumption.

III. THE AFRICAN DEVELOPMENT BANK'S ENERGY SECTOR POLICY

6. **The Bank's Energy Sector Policy⁴ provides a general framework for the Bank Group's energy sector operations.** It has two objectives: (i) to support African countries in their efforts to provide all of their populations and productive sectors with access to modern, affordable and reliable energy services; and (ii) to help African countries develop their energy sector in a socially, economically and environmentally sustainable manner.
7. **The Policy recognises that adequate access to energy is critical for social and economic development of the continent.** Most African countries have inadequate access to affordable and reliable modern energy services, in particular for low income segments of their population. At the same time, energy access and security are fundamental pre-requisites for inclusive and green growth.

The Bank's Energy Policy provides the opportunity to chart a low-carbon development pathway for Africa. Although energy is the largest source of greenhouse gas globally, emissions in Africa are currently driven by poor land use practices, including deforestation. Africa is the least contributor to global GHG emissions, yet the most vulnerable to climate variability and change. Unless transformative actions are taken, Africa's economic growth, social wellbeing and environmental sustainability will be crippled by lack of access to electricity and the effects climate change. It is therefore imperative for the continent to embark on an ambitious agenda to scale up energy access while gradually transitioning to low-carbon energy systems to achieve inclusive and green growth, now and in the future.

A clear role for renewables and energy efficiency

Africa has enormous renewable energy potential – almost unlimited solar potential (10 TW), abundant hydro resources (350 GW), wind (110 GW) and geothermal energy sources (15 GW). The recent years have seen significant advancements in new renewables (Renewable Energy Power Generation Costs 2014, IRENA). For instance, the solar photovoltaic modules in 2014 cost three-quarters less than in 2009, while wind turbine prices declined by almost a third over the same period. The cost of electricity from utility-scale PV systems has fallen by around half since 2010. These changes, which are ongoing, provide the opportunity to rethink traditional approaches to the energy sector. Similarly, energy efficiency, which has not traditionally been a priority in the context of low access rates in Africa, will be a significant consideration going forward as Africa works towards addressing industrial, commercial and residential needs in the context of rapid urbanisation while optimising its energy networks.

⁴ The Policy was approved in October 2012

IV. THE BANK'S ENERGY SECTOR OPERATIONS

8. **The Bank has developed a significant energy sector portfolio in recent years.** The volume of energy sector approvals between 2006 and 2015 totalled around UA 10 billion.⁵ At the end of 2015, the Bank's energy sector portfolio stood at over UA 8 billion with over 100 active projects. The Bank's interventions have ranged from utility-scale generation projects (e.g. 300 MW Lake Turkana Wind Power Project) and crucial regional projects in the context of the Programme for Infrastructure Development in Africa (e.g. Côte d'Ivoire-Liberia-Sierra Leone-Guinea Interconnection and Inga III) to Kenya's last mile connectivity programme, a biofuel facility in Sierra Leone, as well as technical assistance projects. In addition to direct investments, the Bank has also invested through private equity and debt funds that are active in the energy sector and in recent years provided guarantees. Recently, an increasing number of operations have targeted energy sector governance either as a focused operation, e.g. Angola, or as part of a wider program, e.g. Tanzania. Since 2013 the Bank extended support to the development of the gas sector through advisory work in Mozambique and through private and public sector investments in gas processing and transport and distribution in Tunisia.
9. **The Bank is increasingly working on decentralised solutions to maximize inclusive energy development.** Mini-grid and off-grid solutions, which could have renewable energy components, play an important role in providing the rural poor access to energy, especially for production. For instance, the Bank, drawing on resources from the Sustainable Energy Fund for Africa (SEFA), is supporting project preparation for specific mini-grid related projects (e.g. Jumeme in Tanzania) or countries (e.g. Rwanda), along with a market development programme for green mini-grids that aims to remove or reduce market barriers and strengthen the ecosystem for the emergence of a thriving green mini-grid sector in sub-Saharan Africa. The Bank has also taken some preliminary steps in supporting the adoption of clean cooking solutions.
10. **The Bank contributes to regional coordination.** In the context of the Sustainable Energy for All (SE4All) Initiative, the Bank hosts the SE4All Africa Hub in partnership with the AU, the NEPAD Agency and UNDP. The Bank-hosted Hub has organised/contributed to SE4All events, such as the Africa launch of the Decade for Sustainable Energy for All, and developed anchor documents, such as the SE4All Action Agenda⁶ template. Action Agendas and Investment Prospectuses have been finalised or are under development in over 20 countries, several of which are directly supported by the Bank. It is imperative to move towards implementation of these initiatives. Similarly, the Infrastructure Consortium for Africa (ICA) helps infrastructure development, including energy, by catalysing and facilitating the financing of relevant projects and programmes and working to overcome technical and political challenges to infrastructure development.

⁵ UA 9 billion from the Bank's own resources and UA 0.9 billion from other funds (mainly climate finance).

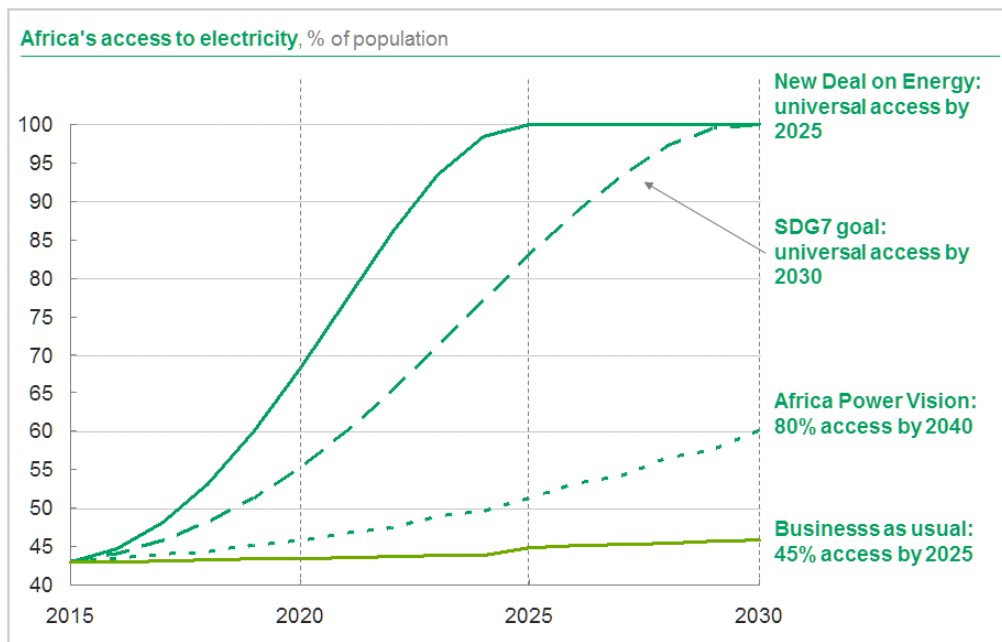
⁶ The SE4All Action Agenda is a strategic and holistic national document looking at the three objectives on universal energy access, doubling the share of renewables and the rate of energy efficiency improvements in an integrated manner. It is to intervene as an umbrella framework for the energy sector development until 2030 that also includes the nexus angles of energy (food security, gender, health, water etc.).

11. **The Bank is also leading Africa’s efforts on transitioning to Green Growth.** With a growing share of its portfolio supporting innovative projects in solar, wind, geothermal and other green energies, the Bank is increasingly better positioned to assist RMCs that wish to integrate green growth in their development plans. The Bank is also involved in a variety of initiatives to provide additional financing for Africa’s challenges in tackling the impacts of climate change, including lower-carbon energy development. The most recent development in this area is the Africa Renewable Energy Initiative (AREI) — an African-owned and led inclusive effort to accelerate and scale-up the harnessing of the continent’s huge renewable energy potential—which is set to achieve at least 10 GW of new and additional renewable energy generation capacity by 2020 and to mobilize the continent’s potential to generate at least 300 GW by 2030.

V. THE BANK'S STRATEGIC OBJECTIVE: UNIVERSAL ACCESS BY 2025

12. **The African Development Bank Group has set an aspirational vision to achieve universal access to electricity by 2025** – 100 per cent access in urban areas, 95 per cent access in rural areas, and sufficient uninterrupted energy supply to cover demand needs for those who are grid-connected. This vision is encapsulated in the New Deal on Energy for Africa.
13. **This is a more aggressive target than other similar aspirations.** For example, the UN's Sustainable Energy for All (SE4All) and Sustainable Development Goal 7 (SDG7) target universal access by 2030 (Figure 6).

Figure 6: The New Deal aspires to achieve universal access by 2025



Source: World Energy Outlook 2014, Brighter Africa report

14. A **'business as usual' attitude will not change the energy outlook for Africa.** If the region continues along its current path, population growth will absorb most of the new connections, thus limiting the change in access rate, if any, to a very marginal rise. By 2025, some countries could still have just 20 per cent access; access rate in some countries could even actually decline.

What does universal access look like?

15. **The rapid growth of Africa's population and GDP is increasing capacity requirements and the number of households that need to be connected to the grid.** Universal access to electricity by 2025 means connecting 205 million households and nearly doubling grid generation capacity (Figure 7).

Figure 7: Universal access by 2025 means connecting over 200 million households and nearly doubling grid generation capacity

	From current energy situation in Africa		To universal access in 2025
Population, M	1 174	x1.3	1 499
GDP, \$ bn	2 175	x1.7	3 742
Electrification rate, %	43%	x2.3	97%
Households connected, M	87	x3.6	292
Grid	83	x2.6	213
Off-grid	4	x20	79
Grid capacity, GW	170	x1.9	332
Consumption kWh/capita	613	x1.5	941
Households using clean cooking, M	70	x3.1	220

+130 M new on-grid connections
+75 M new off-grid connections
+160 GW of new capacity
+150 M with clean cooking solutions

1 Assuming 100% urban electrification and 95% rural electrification

2 Out of 234m households in 2015 and 300m households in 2025

Source: World Energy Outlook 2014, Brighter Africa report, World Bank

16. **Building on its core guiding principles, the New Deal on Energy for Africa focuses on a set of clear strategic building blocks needed to achieve universal access.** These include increasing:

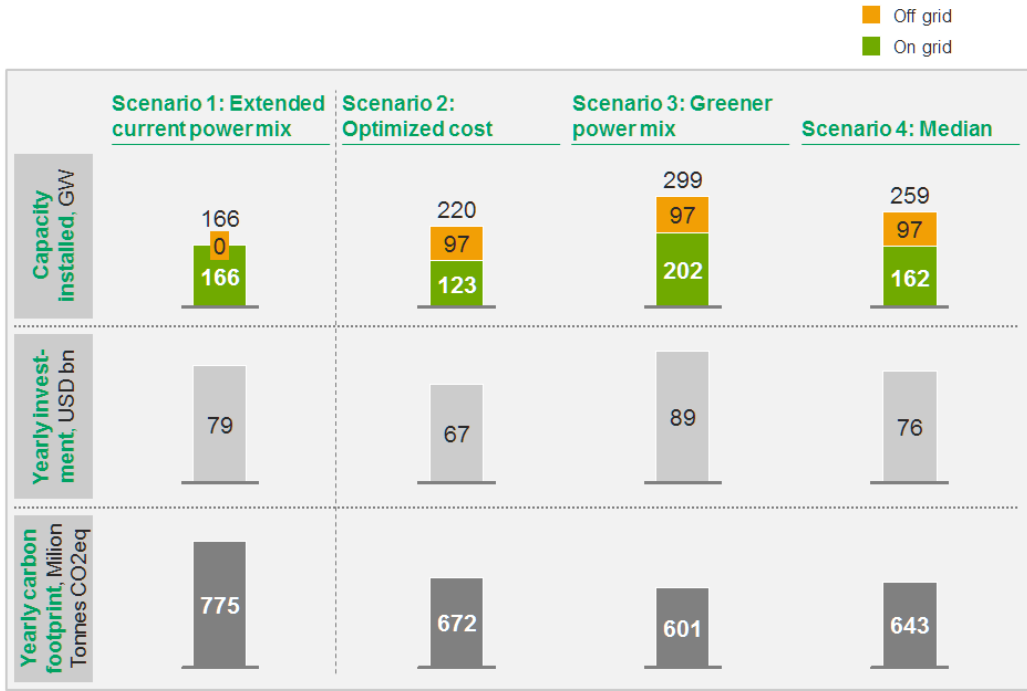
- **on-grid generation to add 160 GW of new capacity by 2025.** To deliver sufficient on-grid energy for industrial, commercial and residential consumption, Africa needs to build 160 GW of new generation capacity across the continent by 2025. This equates to ~800 power plants with a capacity of 200 MW each;
- **on-grid transmission and grid connections that will create 130 million new connections by 2025.** This will be equivalent to a 90-fold replication of Kenya Power's very successful grid connection programme, which delivered more than 1.4 million grid connections from 2011 to mid-2015;
- **off-grid generation to add 75 million new connections by 2025.** Africa needs to deliver 75 million off-grid connections through isolated mini-grids and stand-alone systems. This is the equivalent of creating 300 enterprises with a scale similar to that of M-KOPA, the most successful African off-grid 'Pay-as-you-go' or 'PayGo' solar systems company, which uses mobile payment capabilities for off-grid system purchases and installation;
- **access to clean cooking energy for around 150 million households by 2025.** To eliminate the negative health, economic and environmental effects of traditional cooking methods, Africa needs to increase the access to clean cooking stoves and fuels by 150 million households. This is the equivalent of creating 180 programmes similar to Climate Care, the project that has rolled out 830,000 Gyapa clean cooking stoves; and

- **efficiency technologies along the energy value chain, from generation, transmission, and distribution to the end use sectors.** Energy efficiency and conservation offer a powerful and cost-effective tool for achieving universal access to sustainable energy. Estimates show that 30 to 40 per cent of energy savings can be achieved using currently available technology. African countries will be assisted to identify and implement options to reduce losses arising from production, transmission, distribution and end-use inefficiencies. Policy dialogues with governments and relevant agencies will emphasise the importance of energy efficiency.
17. **The targets illustrate what needs to be achieved at the continental level.** To make it easier to comprehend the targets in terms that are practical, relevant and recognisable, further details are provided in Annex 1. Achieving universal access, however, will happen at the country level. Individual African government need to put policies and resources in place to drive towards universal access at a national level. The various partners behind the New Deal can support these governments but ultimately it is the governments that need to make the decision.
 18. **While the ultimate goal is clear, prioritisation of investment needs to occur along the way.** The AfDB and other institutions will contribute towards ensuring that investments are having the greatest impact in terms of total number of individuals and households being connected, and in terms of the overall developmental impac at national and sub-regional levels. The Bank will also work actively with its partners to help countries to transition toward a low carbon energy future by scaling up best practice energy efficiency technologies and clean energy options.
 19. **The developmental objectives of the Bank will be driven by the scale of need for resolving electrification challenges and expected sustainable development impacts on the member countries.** For countries where there are large numbers of people without power, the scale impact of resolving electrification challenges and connecting tens of millions of households, drives the delivery of the developmental objective of the Bank and other institutions. On the other hand, if a country has a very small population, but the share of the population without access is above 90 per cent, any investments to provide access will have a disproportionately positive affect on the country. The implication from the assessment of these two metrics is that African countries can be divided into three categories (Figure 12).

How much investment is needed to reach universal access?

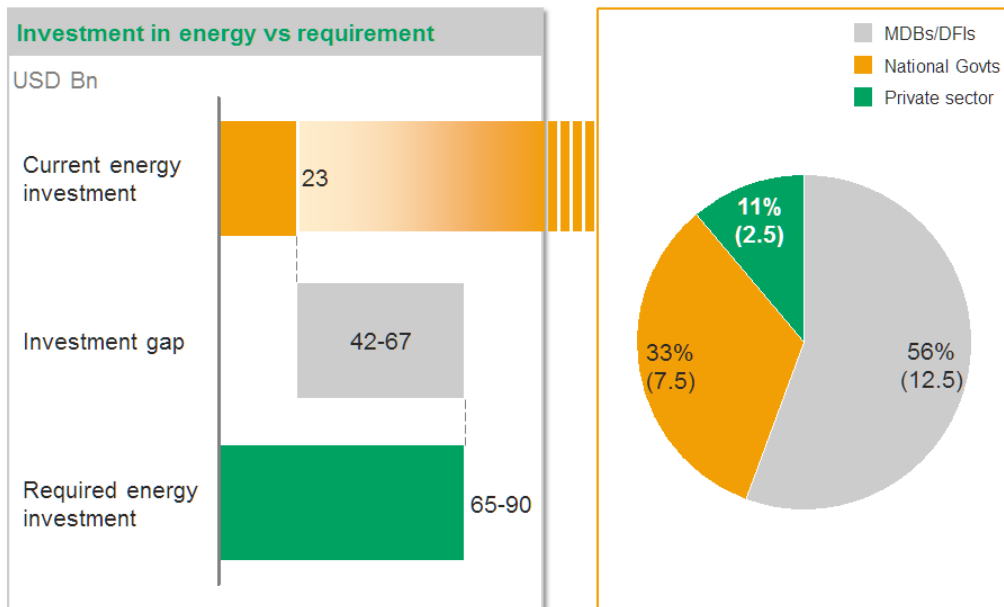
20. **The total investment in the energy sector in Africa in 2014 was USD 22.5 billion.** To achieve universal access by 2025, significant investment is required in generation, transmission, distribution, and off-grid connections. The total potential investment figure is extremely dependent on the actual technology that is built, but there is a need of between USD 65 billion and USD 90 billion to be spent on an annual basis over the next ten years (Figure 8).

Figure 8: Overview of capacity, investment and carbon footprint of four generation scenarios



These figures below illustrate that an additional USD 42-67 billion must be invested yearly into the energy sector (Figure 9). This will require a huge and concerted effort.

Figure 9: Significantly more investment required compared with actual investment



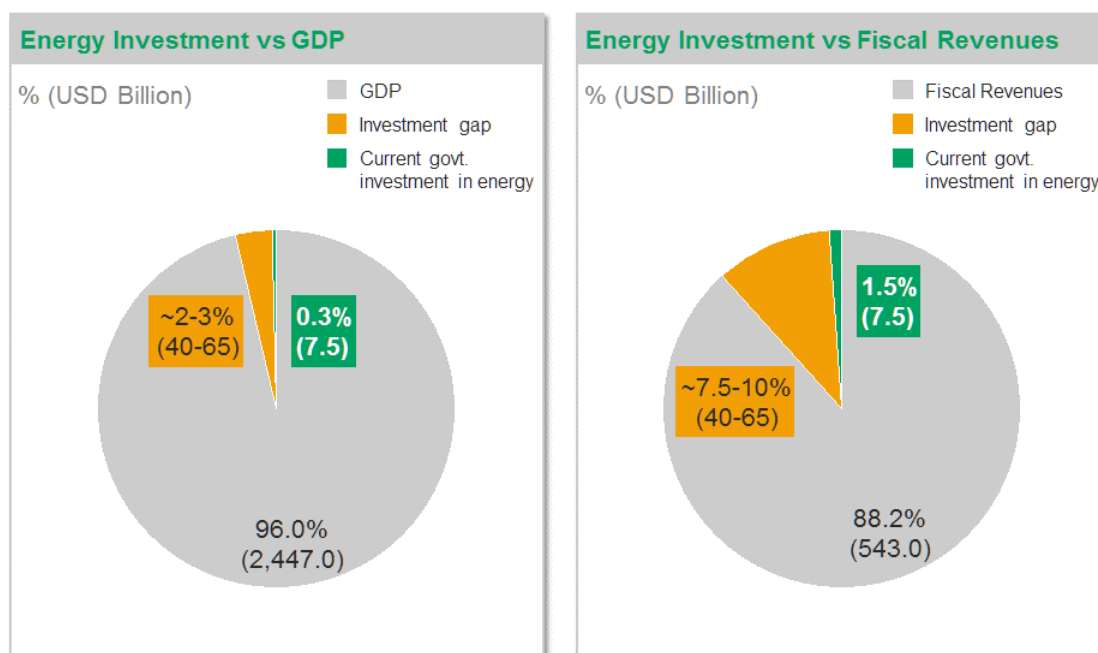
Source: ICA Infrastructure Financing Trends; PPI database

- **To deliver on the New Deal on Energy, African governments could be encouraged to play a more active role by allocating significantly more funding to the energy sector.** Currently, African governments' contributions to energy investment amounted to 0.3 per cent of GDP, or approximately 4 per cent of fiscal revenues (taxes and resource rents). These contributions could be increased by decreasing fuel and electricity subsidies, which were approximately USD 170 billion, or 7 per cent of GDP, in 2013. Another way for governments to channel increased funding into the energy sector would be to create an enabling environment for increased private sector participation.
- **Multilateral and bilateral institutions could channel more funding, not only by increasing their own efforts, but also by acting as catalysts for more funding by other players.** DFIs can leverage their resources to significantly crowd in more funding as Mandated Lead Arrangers or as anchor investors, or guarantors. They can provide African governments and utilities with the support to put the right policies and governance structures in place, and help create an attractive environment to increase private sector investment.

21. **African government investment in the power sector**

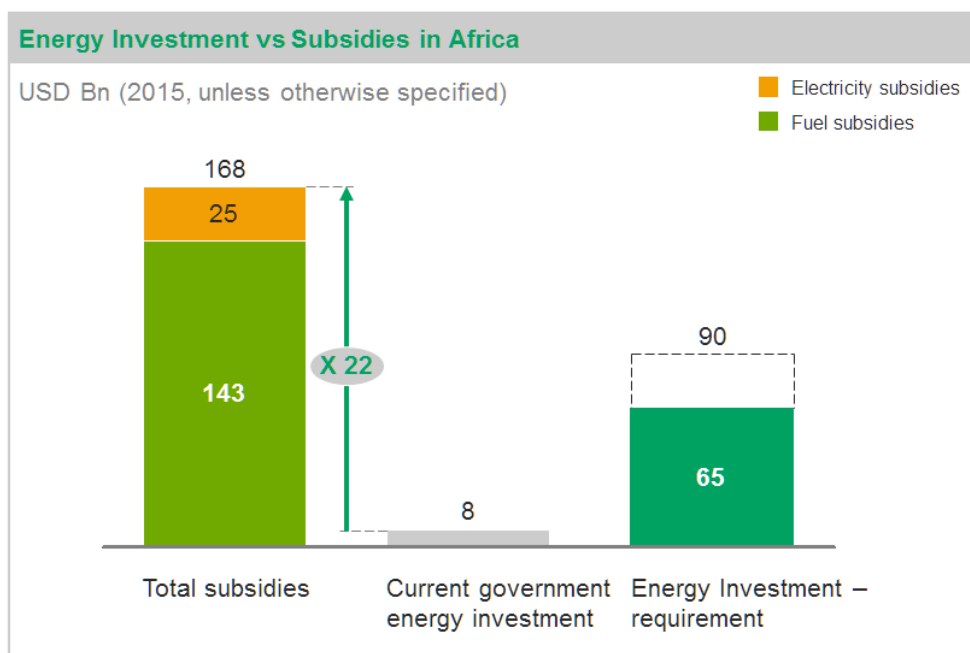
- **Africa and the global community have what it takes to meet this USD 65 - 90 billion challenge, or closing the USD 42.5 – 67.5 billion investment gap.** Domestic resource mobilisation is the key. If Africa uses just 7.5 to 10 per cent of the total amount of USD 600 billion in tax revenues and resource rents it collects every year, we can solve the problem. If Africa uses just 2 to 3 per cent of annual GDP, the investment gap could be addressed (Figure 10). If fuel and electricity subsidies were halved, the investment gap could be narrowed. Subsidies were 22 times the investment in energy, representing approximately 7 per cent of GDP (Figure 11). In recent years, some countries have taken measures to reduce fuel subsidies.

Figure 10: African governments could bridge the energy investment gap if they channeled approximately 2-3% of GDP, corresponding to 7.5-10% of fiscal revenues



Source: ICA Trends 2014; Africa Economic Outlook; World Bank

Figure 11: Energy subsidies are approximately 22x the investment in the energy sector by national governments



Source: ICA Trends 2014; IMF subsidies database

22. Private sector investment in the power sector

- Of the USD 22.5 billion invested in energy in 2014, USD 4.8 billion was private sector investment, USD 2.5 billion of which was pure private sector financing. Private sector companies have shown great interest in developing projects in Africa, as evidenced by the large IPP power plants in Morocco and South Africa.
- According to the African Infrastructure Investment Survey, by the Infrastructure Consortium for Africa (ICA), the main reasons behind the low investment levels in African infrastructure are lack of political will, policy uncertainty, corruption, lack of transparency problems with project feasibility. For the objective of New Deal on Energy to be achieved, the private sector would need to significantly increase its investment in power. This will only come, however, through action by the public sector. Investments are more likely to increase when regulations are clearer, effective mechanisms for cost recovery are put in place, utilities are credible as counter-parties for power purchase agreements, and returns on investment are clearer.

23. Where should the financing for universal access come from?

- Total investments need to be more than tripled across the board. That said, different players will play different roles, and ultimately, the aspiration should be for the private sector to play a larger than has traditionally been the case. Below are possible scenarios and outcomes:

- *Scenario 1: Proportional ramp up.* As indicated previously, if all parties currently funding the energy sector were to increase their funding proportionally, MDBs and DFIs would end up contributing over USD 40 billion annually, the private sector would contribute USD 8 billion, and the governments would cover the balance of USD 25 billion.
- *Scenario 2: Private sector failure.* If the governments are unable to structure their systems in order to attract the private sector, government investments would need to increase by 6.5 times from USD 7.5 billion to USD 48 billion annually (assuming at least a doubling of MDB/DFI financing). Given the above figures of tax revenue, overall GDP, and most importantly, the various energy subsidies in place, this increase is achievable.
- *Scenario 3: Effectively enabling the private sector.* Ultimately, the aspiration is for the private sector to play a central role. If government spending levels were to remain constant, but governments were to effectively put in place the right enablers, private sector funding would need to increase 17 times from the current USD 2.5 billion to USD 43 billion (again, assuming a doubling of MDB/DFI financing). The real challenge here is the capacity of the public sector to make the sector more attractive for investment, by stabilizing and reforming regulations.
- At this point, no matter what the final contribution of the public vs. private vs. DFIs in financing the sector, the current focus is to get all players to significantly increase their contributions, and most importantly, to get the governments to create an environment that is attractive for investment.

Africa should prioritise based on categories of needs

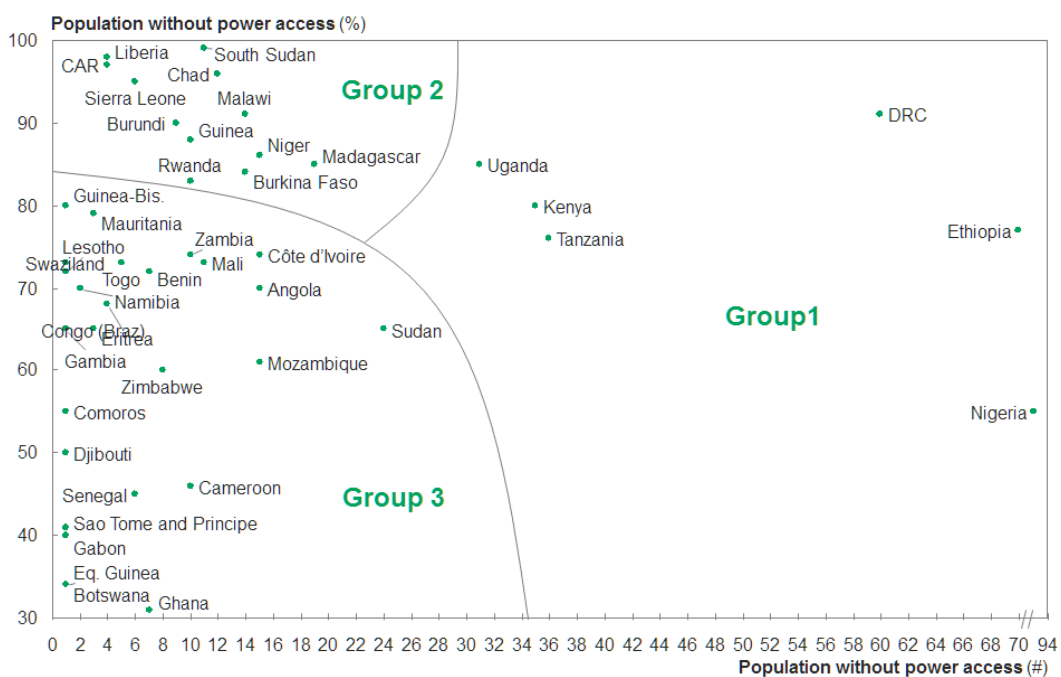
24. Two metrics that can be used to prioritise the broad range of countries are the total population without access, and the share of the population without access. For countries where there are large numbers of people without power, the scale impact of resolving electrification challenges and connecting tens of millions of households, drives the delivery of the developmental objective of the Bank and other institutions. On the other hand, if a country has a very small population, but the share of the population without access is over 90 per cent, any investments to provide access will have a disproportionately positive affect on the country.
25. The implication from the assessment⁷ of these two metrics is that African countries can be divided into three groups (Figure 12).
26. The first group consists of countries with the largest populations without access to power. The six countries in this group have more than 30 million people without access to power. Nigeria, with over 90 million people without access, heads this group. Ethiopia and the Democratic Republic of Congo (with 70 million and 60 million, respectively, without power) are other critical countries to focus on. The remaining three are Kenya, Tanzania and Uganda. These countries have a critical energy problem, but a different approach is required for each. Ethiopia, for example, is in the process of building excess generation capacity, so what it needs is to provide adequate connections. Nigeria already

⁷ This assessment did not include South Africa, or any North African countries.

has over 70 million people connected, but the power supply is erratic. Nigeria’s most important priority needs to be a rapid increase in generation capability to meet the demand of existing connections. More than 325 million people without access to electricity, which is more than 50 per cent of the African population without access to power, live in these six countries.

27. The second group is made up of countries that tend to be smaller with consistently less than 20 per cent of the population having access to power. This group comprises twelve countries with a combined population without access of nearly 130 million (an average of 11 million per country— representing 21 per cent of the total African population without access). On average, these twelve countries have over 90% of their population without access to electricity.
28. The third group comprises countries that have smaller absolute populations without access, and typically over 20 per cent of the population with access. There are more than 25 countries in this category, with a total of 155 million people without access to power (on average 6 million without access per country). These countries have an average of 60 per cent of their population without access to power. This is not to say that these countries should be deprioritised, but that these elements should be taken into account during investment decisions.

Figure 12: Countries categorised by percentage and amount of population without power access



Source: International Energy Agency 2014

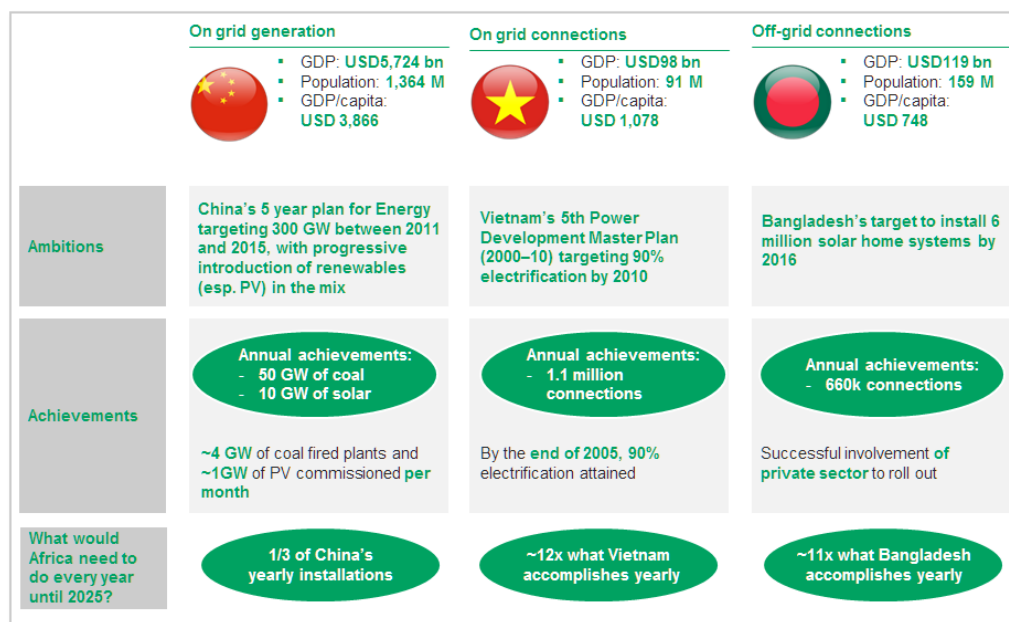
Africa can draw on successful case studies

29. The New Deal on Energy’s aspirations and targets may seem highly aspirational, but Africa has no choice. Unless these goals are achieved, the continent will slip farther behind the rest of the world in terms of economic growth and quality of life. for its citizens. The good news is that Africa can learn from some success stories. Asia has

trodden a similar path and has delivered similar targets in record time as outlined here (see Figure 13 and Annex 3). In Africa too there are success stories.

- With coal alone, China has delivered more than 50 GW of new capacity per year since 2011. In addition, it is now installing 10 GW of solar PV capacity every year. Vietnam added 5.5 million new on-grid rural connections in five years, the equivalent of 1,100,000 connections per year, or 11 million in 10 years. From 2012 to 2014, Bangladesh installed 2 million new solar home systems, or 660,000 a year.
- To realise the New Deal, every year until 2025 Africa would need to deliver one-third of China’s annual commitments to reach its on-grid generation target; accomplish (as a whole continent) 12 times what Vietnam (a single country) has accomplished annually in terms of new on-grid connections; and achieve 11 times what Bangladesh has done annually to boost the number of off-grid connections.
- In Africa, Tunisia’s planning processes and successive five-year plans incorporated rural electrification into broader integrated rural development and provided incentives to the national utility, *Société Tunisienne de l’Electricité et du Gaz*, resulting in universal access. Similarly, Kenya has connected around 1.8 million households since 2011 through large scale electrification programme led by the national power utility.

Figure 13: In Asia, very high ambitions have been fulfilled in record time



Source: WEO, press

- Interestingly, one of the best examples in Asia in clean cook stoves is in Cambodia, where they launched the New Lao Stove (NLS) project. Africa can emulate the Cambodian model, which involved the local community in the manufacture and distribution of stoves. That said, Cambodia's total roll out of

stoves (approximately 2 million in 10 years) is only double the figure recorded by Climatecare in Ghana (approximately 830,000 since 2007).

- These success stories demonstrate that the aspirations of the New Deal on Energy for Africa are achievable—with the right focus and the collaboration of all stakeholders (Figure 14). For instance, the six countries with the largest absolute number of people without access would need to run a programme the scale of Vietnam’s for seven and a half years in order to deliver the required on-grid connections, and slightly more than four years of the Bangladeshi programme (Figure 13) to deliver off-grid connections. The smaller countries with very low rates of electrification would require one and a half years of the Vietnam on-grid programme, and less than one year of the Bangladeshi programme. Finally, the countries with smaller absolute population in general with an access rate of less than 20 per cent implying an unconnected population of 6 million people each, means that might require less than one year of the Vietnam programme and the Bangladeshi programme.

Figure 14: On a country by country basis, the challenge is achievable

when compared to Asian markets

Millions

x Number of years required if operating at the same scale as Bangladesh
x Number of years required if operating at the same scale as Vietnam

	Total unconnected population	Unconnected per country (average)	Total #of unconnected households ¹	Total connections required ²			
				On grid ³		Off grid ⁴	
Tier 1 (3 countries)	325	54	10.8	8.1	7.4	2.7	4.2
Tier 2 (16 countries)	128	11	2.1	1.6	1.5	0.5	0.8
Tier 3 (25 countries)	155	6	1.2	0.9	0.8	0.3	0.5

1 Based on the assumption of five people per household
 2 Based on the high level assumption of 50/50 rural / urban split, and 50% of rural will be off-grid connections, leaving 50% of the rural and 100% of urban will be on-grid connections;
 3 Vietnam achieved 1.1 million on-grid connections in their programme
 4 Bangladesh achieved 660k off-grid connections in their programme

VI. THE NEW DEAL ON ENERGY FOR AFRICA

30. **The New Deal on Energy for Africa is a partnership-driven effort.** To achieve and drive towards this goal, the African Development Bank is working with governments, the private sector, and bilateral and multilateral energy sector initiatives to develop a Transformative Partnership on Energy for Africa, a platform for public-private partnerships for innovative financing in Africa's energy sector. The New Deal is built on five inter-related and mutually reinforcing principles: raising aspirations to solve Africa's energy challenges; establishing a Transformative Partnership on Energy for Africa; mobilising domestic and international capital for innovative financing in Africa's energy sector; supporting African governments in strengthening energy policy, regulation and sector governance; and increasing the Bank's investments in energy and climate financing.
31. **There are various initiatives that have been and are being launched such that will help make the journey to universal access easier.** These initiatives have been set up to provide the levels of funding and the type of focused efforts needed to reach the goals. The New Deal on Energy for Africa will work towards maximizing collaboration on such initiatives by acting as a central coordination point for all of the initiatives that are currently underway, but which are not always fully aligned with each other.
32. **The New Deal will work closely with a number of existing initiatives**

The Bank will work side by side with the World Bank Group and other MDBs to scale up investments in the energy sector. In addition, the following initiatives are already partnering with the Bank on the New Deal.

- Power Africa – a transaction and partnership-driven model launched by US President Barack Obama in 2013. Power Africa's goals are to add 60 million new electricity connections and generate 30 GW of new generating capacity by 2030.
- Energy Africa campaign – launched by the UK in late 2015 focuses primarily on off-grid solar energy projects, with a view to overcoming financial hurdles and the market failures that prevent firms from raising capital, and also overcoming the policy and regulatory barriers to household energy access.
- Electrification Financing Initiative (ElectriFI), launched by the European Commission during COP 21, aims to support market development and private sector initiatives for affordable, sustainable and reliable energy solutions.
- Sustainable Energy for All (SE4All), launched by UN Secretary-General Ban Ki-moon in 2011, aims to achieve three main goals by 2030: ensuring universal access to modern energy services, doubling the global rate of improvement in energy efficiency and doubling the share of renewable energy in the global energy mix.
- African Energy Leaders Group (AELG) – launched in January 2015, it brings together political and economic leaders at the highest level to drive the reforms and investment needed to end energy poverty and sustainably fuel the continent's economic future.

Africa Renewable Energy Initiative

The AREI, which was launched during COP 21 in Paris, developed under a mandate from the African Union and endorsed by African Heads of State and Government on Climate Change, seeks to to accelerate and scale up the harnessing of Africa's huge renewable energy potential.

The AREI is firmly anchored in the context of sustainable development and climate change. It shows how low to zero carbon development strategies can be achieved in African countries through climate finance and means of implementation according to the principles of the UN Framework Convention on Climate Change. It recognises the critical importance of rapid expansion of energy access for enhanced well-being, economic development and the fulfilment of all Sustainable Development Goals.

The Bank will host the AREI's Independent Delivery Unit and also act as AREI's Trustee.

33. **The New Deal supports the implementation of other relevant policies and strategies of the Bank.** The achievement of other standing policies and strategies of the Bank require significant improvements in Africa's energy systems, access and security. It is designed to support the effective implementation of the Bank's Private Sector Development Strategy (2013 – 2017), the Regional Integration Policy and Strategy (2014 – 2023), the Governance Strategic Framework and Action Plan (2014 – 2018) and the cross-cutting Gender Strategy (2014 – 2018); and ultimately achieve the twin goals of the Bank's Ten Year Strategy – inclusive and green growth in Africa.
34. **The New Deal supports the implementation of the new strategic goals of the Bank, the High 5s.** Energy is the lifeblood of the economy. To successfully *Feed Africa, Industrialize Africa, Integrate Africa, and Improve the Quality of Life of Africans*, we must first *Light up and Power Africa*. The New Deal is designed to unlock productivity potentials across agribusiness zones and hubs as well as industrial value chains in all economic sectors in rural and urban areas with a focus on reaching the underserved populations across the continent.

The New Deal underpins all the other High 5s

Access to modern energy will directly contribute to increased productivity in agriculture, through irrigation, mechanization, and the use of fertilizers. Going forward, access to modern, reliable and affordable energy is indispensable to move forward the value added chain of agricultural outputs.

African enterprises attribute unreliable power supply as the biggest constraint to the growth of their business, ahead of corruption and access to finance. Industrial facilities are particularly concerned as they require large amount of reliable baseload powers, and any interruption in the power supply can damage the production equipment. For certain large sectors with limited possibilities to differentiate outputs, like aluminum, chemicals, refining, firms are likely to compete directly on input prices, and in particular power prices. The objective of the New Deal to develop 160 GW of on-grid capacity and to focus on regional projects to enable economies of scale will provide access of more reliable and affordable energy to potential industries and will be a significant enabler to successfully implement the Industrialize Africa High Five.

The New Deal has a clear regional dimension. It aims at accelerating the completion of large regional projects to achieve economies of scale and foster cooperation between neighboring countries. While the current fragmentation of African markets, and infrastructures is a major impediment to growth, modern energy fostered by the New Deal will enable access to information technologies, knowledge and efficient means of transportation. As such, access to modern energy will contribute to the integration of the continent, and enable access to regional and global markets.

Furthermore, the New Deal also encourages off-grid solutions, leveraging on recent technological developments. As such, it is designed to maximize impacts on rural areas where access to modern energy is likely to give access to new services and economic opportunities, and contribute to the improvement of the quality of life of Africans as stated in the High Fives.

35. **The New Deal on Energy for Africa contributes to achieving the Sustainable Development Goals (SDGs) in Africa.** It directly contributes to achieving in particular, – ensuring access to affordable, reliable, sustainable, modern energy for all (SDG 7); – ending poverty in all forms (SDG 1); combating climate change and its impact (SDG 13); SDG 3 improving health and well-being (SDG 3); achieving gender equality and empower all women and girls (SDG 5); and reducing inequality within and among countries (SDG 10). By improving access to clean energy, the New Deal will contribute to social, economic and environment sustainability in Africa.

VII. WHAT DOES THE NEW DEAL ENTAIL AND HOW WILL AFDB SUPPORT IT?

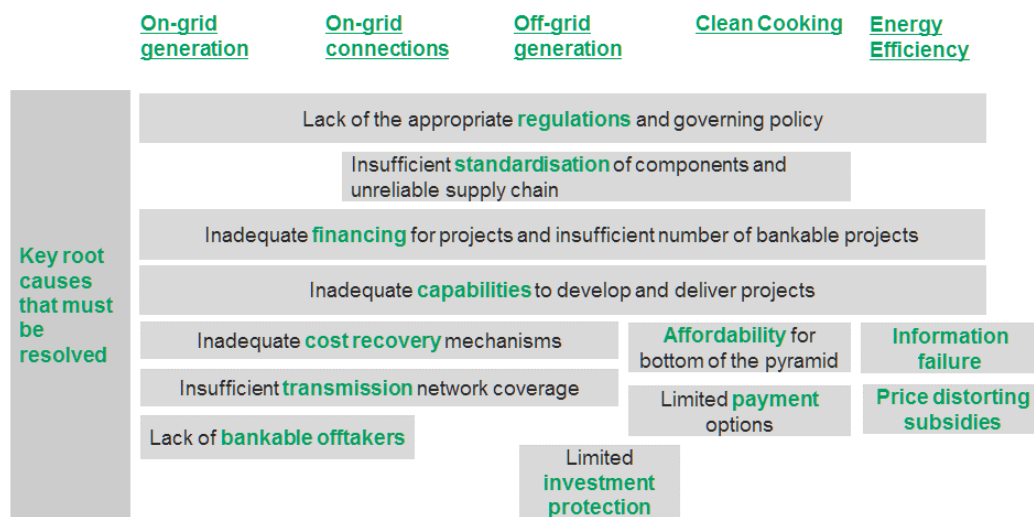
Identifying the obstacles

36. **Achieving universal access requires addressing certain underlying barriers.** There are several uniform obstacles that must be overcome to deliver Africa's on-grid generation, on-grid transmission and off-grid generation goals. The obstacles for clean cooking solutions have some overlap with the other obstacles, but also present a new set of challenges. Energy efficiency too has obstacles in common with the other goals.
- **On-grid generation:** The challenges to achieving the 160 GW target include poorly tailored policy and regulatory environment to attract adequate private sector participation; lack of public sector funding; the low amount of projects that reach financial closure due to bankability issues; insufficient capability of the utilities to design, and manage projects of the size required to achieve success. Furthermore, there is insufficient transmission infrastructure to deliver the power. There are also challenges with regional integration, which is key to providing more people with the benefits of large, cost efficient and environmentally friendly power plants.
 - **On-grid connections:** The challenges facing the 130 million grid household connections include insufficiently tailored policy and regulatory environment, inadequate institutional and financial capacity on the part of several utilities to roll out large-scale electrification programmes, inadequate cost recovery mechanisms to ensure return on investment, affordability aspects for lower-income segments and weakness in the supply chain networks.
 - **Off-grid generation:** The challenges to achieving the target of 75 million new off-grid connections include the lack of clear policy and regulation around tariffs and other incentives for project developers, how project developers/suppliers will be protected from risk of arrival of the grid, insufficient technical skills to plan the layout in the countries and where decentralised solutions make the most sense. The lack of standardization and quality certification of modules to avoid counterfeit supply and protect consumers is also a challenge to address. Finally, the financial difficulties are the high cost of these solutions, the mechanisms for consumers to access the energy services and appliances.
 - **Clean cooking solutions:** Obstacles to the market penetration of clean cooking solutions include a lack of clear regulations and standards for the stoves, limited awareness among the consumers, resistance to change, insufficient capacity of local manufacturers to deliver products that respond to user needs, limited development of liquefied petroleum gas (LPG) infrastructure and affordability of the equipment. Other challenges are poor distribution networks of cooking fuels and inadequate enforcement of the regulations related to forestry, fuelwood collection and charcoal transformation.
 - **Energy Efficiency and Conservation:** Achieving the full advantage of energy efficiency potentials is hindered by the presence of market, financial and

technological barriers. Market barriers include (i) the low priority given to energy efficiency issues, (ii) Information failure which stands amongst the most important barriers to the deployment of energy efficient technologies, (iii) Energy price distortion through subsidies and regulations. Financial barriers include: (i) The initial cost barrier as energy-efficient products tend to be more expensive than their less efficient counterparts, (ii) Uncertainty associated with energy efficient projects and the lack of standardised measurement and verification protocols, (iii) The absence of energy efficiency awareness among financiers is also an important barrier to increased energy efficiency investments.

37. **The building blocks of the New Deal demonstrate some overlap in the causes that inhibit the development of the energy sector** (Figure 15). The New Deal’s focus is to ensure that the root causes are systematically addressed and thereby to lay the foundation for growth across the energy sector.

Figure 15: Factors inhibiting the development of the energy sector



The New Deal addresses seven strategic themes

38. **The New Deal will contribute towards delivering universal access by addressing seven strategic themes.** These strategic themes are: (i) setting up the right enabling policy environment, (ii) enabling utility companies for success, (iii) dramatically increasing the number of bankable energy projects, (iv) increasing the funding pool to deliver new projects, (v) supporting ‘bottom of the pyramid’ energy access programmes, (vi) accelerating major regional projects and driving integration and (vii) rolling out waves of country-wide energy ‘transformations’. These themes are the over-arching initiatives that all partners will be working towards. The Bank will support these themes through the launch of a set of flagship programmes (indicative) as illustrated in following section.
39. **Partnership and coordination is crucial for the New Deal.** The ambitious agenda of universal access cannot be implemented by the Bank or other organization in isolation and will require collaboration that will take a variety of forms, and will evolve over time. Collaboration will not be restricted to traditional partners but will also focus on newer

and non-traditional players. Accordingly, the Bank will increase dialogue and engage with traditional actors (e.g. World Bank, European Commission) and non-traditional actors (e.g. The Energy and Resources Institute) to strengthen and forge partnerships. In all the flagship programmes outlined in the context of the strategic themes the Bank will seek to work with partners to jointly develop and implement projects. Finally, the role of civil society organisations will be important, especially as the Bank scales up its work. The Bank will liaise as appropriate with organisations that fund, design, or implement development-related programs or projects and those involved in advocacy.

Theme #1: Setting up the right enabling policy environment

40. This involves advising and supporting governments on designing policies and setting up efficient sector regulation and governance, focusing on cost reflective tariffs, building credible counter-parties, developing and strengthening public private partnership frameworks and ensuring appropriate risk allocation. This continues to be critical across the continent, and all donors are playing a role in this space.
41. **Flagship #1: Standardised independent power producer (IPP) procurement programme.** The Bank will support the implementation of IPP procurement across multiple countries. The programme will start with two countries (that are deemed ready) then roll out new waves on an annual basis. The scale of this programme is significant, with the target of launching 30 country-specific programmes over the next five years, with the programme sizes ranging from 250 MW for small countries, across three waves, up to 2,500 MW for large countries, across three waves. Clearly, a programme of this scale will require the combination of a broad range of advisory support, policy-based loans, debt facilities and guarantees—effectively using the Bank's full toolkit to deliver the programme. The Bank is currently in dialogue with South Africa's IPP Office about the adaptation the country's RE IPP procurement model for use in a wider context.
42. In addition, the Bank will build its PPP Unit's capabilities to be able to adapt IPP frameworks to the local conditions, in collaboration with Regional Member Countries (RMCs). The Bank will also provide technical assistance support for RMCs to draft reforms to enable and/or scale up private sector participation.
43. **Flagship #2: Renewable energy programme.** The New Deal is anchored on the premise that the RMCs should decide which energy source they wish to pursue and that the Bank will assist them, in line with its applicable policies and guidelines. The Bank will also encourage RMCs to consider renewable energy options where appropriate. The development of renewable energy requires a focus, not just on projects, but also on the wider policy and enabling environment. In this regard, the Bank's work on the Africa Renewable Energy Initiative (subject to approval by the Board) will play an important role. The AREI (whose goals were outlined in section VI) aims to ensure adequate electricity access not just for households and for local and national productive sectors. Small-scale farming and micro-, small- and medium-scale enterprises need adequate and regular energy to thrive. . Accordingly, the AREI has outlined various policy approaches and programmes for the continent. These include support for existing and future renewable energy projects. The Bank's work in the area of renewable energy will not be restricted to AREI-related aspects, but will extend to the scaling up of ongoing projects in the area (e.g. green mini-grids).

44. **Flagship #3: Energy efficiency programme.** Energy efficiency is often the lowest-cost means of increasing the reliability, affordability and sustainability of energy supply, and reducing energy-related carbon dioxide (CO₂) emissions, especially in low income countries with high energy intensity of economic production and consumption activities. Though Africa has very high energy intensity, the potential of reducing CO₂ emissions and increasing energy access through energy efficiency measures remains untapped because of a wide range of non-economic barriers.⁸ The New Deal will encourage Regional Member Countries to introduce policies and incentive systems relevant to national contexts to increase technical efficiency across the energy value chain. The Bank will also encourage changes in energy consumption behaviours to enhance demand side efficiency in all economic sectors: houses, public buildings, commercial enterprises and industry. The Bank has already commissioned market studies to lay the foundation for this flagship programme.

Theme #2: Enabling utility companies for success

45. The key activities under this theme will include technical assistance to utilities for capacity building, restructuring (unbundling, privatisation and concessions) and operations improvement (loss reduction and revenue recovery).
46. Arrears for state-owned power utilities are mounting (average 0.6 per cent of GDP) and debt is accumulating (average 1.5 per cent of GDP). The metering used in many African countries does not prevent theft of electricity by customers. Utilities have recorded large technical, commercial and collection losses because of congested network, deteriorating infrastructure and billing/collection inefficiencies. Current aggregate losses are well in excess of 20 per cent and the quintile with the lowest performing utilities averages 48 per cent. Technical and commercial losses are one of the major contributors to tariffs not being fully cost reflective. National governments and regulators regularly question (often rightly so) utilities' requests for tariff increases to cover high losses. Effectively driving down losses has become the quickest and most effective way for an electricity sector to move towards cost reflectivity.
47. At the larger scale, there are moves towards bringing in the private sector to manage and, in some cases, take over distribution assets, in order to improve operations. Examples include privatisations, concessions or management contracts in Nigeria, Kenya, Tanzania, Cameroon, Cote d'Ivoire, and Liberia. A series of distribution concessions or privatisations (similar to the cases in Ghana and Liberia) are expected over the next decade. Various donors (including the AfDB) have supported utility restructuring programmes and now need to reinforce and increase those efforts.
48. **Flagship #4: Power utility transformation programme.** With the goal of supporting the drive to make utilities credible off-takers in the sector, the AfDB will support the

⁸ Studies on diffusion of renewable energy technologies in Africa show that energy efficiency is not yet a priority for most countries - https://www.unido.org/fileadmin/user_media_upgrade/What_we_do/Topics/Resource-efficient_low-carbon_production/EE_africa.pdf

strengthening of utilities by launching a programme with two focus areas: restructuring of utilities and operational transformation of utilities.

49. The Bank will significantly improve its capabilities to support national utilities in the process of privatisation or restructuring by strengthening its own advisory support and providing funding for technical assistance, which will provide further advisory support for policy, regulatory, legal and financial structuring. In this regard, the New Business Delivery Model approved by the Board includes a full Complex on Power, Energy, Climate Change and Green Growth with dedicated Directorates (as detailed in the section on Implementation Approach) and the presence of Director Generals and their associated teams in the regions. This flagship will be a priority area for 2016.

50. Secondly, the Bank will focus on supporting operational improvement at 30 utilities, with the overarching goal of significantly reducing losses, and improving the overall cost position. Key areas of focus will be as follows:

- Supporting the introduction of prepaid meters and smart meters, where economically viable, and the provision of financial and technical support for installation.
- Providing technical and financial support to upgrade transmission and distribution infrastructure.
- Setting up revenue recovery and protection plans.
- Supporting the sector more broadly to work towards cost reflective tariffs and other cost recovery interventions.
- Providing, where appropriate, technical assistance and necessary financing for upgrading existing plants, and encouraging Bank-supported projects to use the best technology available subject to availability of appropriate financing. This could entail a switch to more efficient fuel or increasing efficiency for example by opting for combined cycle turbines rather than open cycle gas turbines.
- Creating new revenue streams by augmenting the fibre optic capacity in transmission lines (which is used only partially by the utilities) and leasing it to telecommunication companies.

51. For utilities in the bottom quartile, a target of 15 percentage point loss reduction in 5 to 7 years is envisaged and targets for other utilities will be set accordingly.

52. In addition, the Bank will support utilities' efforts to take advantage of other relevant technology advancements such as smart grids as they grow and refurbish their networks.

Theme #3: Dramatically increasing the number of bankable energy projects

53. This entails various stakeholders focussing on aggregating project development capital, and channelling it through highly capable private sector organisations involved in world-class project development, including private sector financing and legal institutions.
54. Development banks provide limited funding for early project development, with even more limited funding for small-scale developers offering mini-/off-grid solutions, sustainable biofuels and clean cooking manufacturing. The AfDB has several structures in place for project preparation activities such as the Sustainable Energy Fund for Africa (SEFA), which funds project preparation activities for renewable energy projects; the NEPAD IPPF, which conducts project preparation for regional projects (this includes limited advisory support and receives a maximum funding of around UA 10 million p.a.); the Fund for Africa Private Sector Assistance (FAPA) that supports private sector development, including SMEs; and Africa50, which has project development as one of its mandates. Other DFIs have similar sets of initiatives and funds. Currently, there is limited coordination across the funds, even within the same organisations, so greater emphasis needs to be placed on better coordination.
55. **Flagship #5: Early stage project support facility.** In order to increase the pipeline of viable projects, the AfDB will seek to pursue a variety of key activities. The Bank will seek to restructure the project preparation processes to improve coordination across multiple instruments and will drive targeted attempts to scale up existing funding and advisory facilities for project development.
56. In addition, as a part of the flagship to strengthen early stage project support, the Bank will also seek to develop a funding and advisory facility along the lines of IFC's Infraventures. The facility will take equity participation in project development and procure project development resources for them. In order to deliver world class project development resources, the Bank will also seek to build relationships with leading private sector project development companies (e.g., world class financiers; world class legal support). In developing the proposed funding and advisory facility, rather than providing funding / grants directly to the owners and developers, the Bank expects to provide 20 per cent of the overall pre-project equity finance to be paid directly to private sector legal, technical and financial contractors for a variety of project development activities. The Bank also expects to set a target of raising an additional UA 175 million per annum from other DFIs for the pre-project preparation fund that it will jointly design and establish with partners to ensure good contracting processes and transparent operations.

Theme #4: Increasing the funding pool to deliver new projects

57. In order to accomplish this, the Bank will focus on scaling up the pool of finance that will be used to create greater leverage on the financial markets, significantly increasing the availability and use of blended finance to increase the pool of concessional finance available for new projects, and buying down certain categories of risk for the private sector.

58. The Bank has several facilities with diversified solutions (grants, loans and guarantees). The Bank's current yearly investment in energy is around UA 1 billion⁹ (UA 0.35 billion non-sovereign and UA 0.68 billion sovereign in 2015). The Bank's project pipeline requires multiple types of support financial, technical and legal at different development stages (from pre-feasibility to contracting) and the project pipeline has a significant drop-out rate attributable more to poor quality issues rather than to lack of funding. However, the Bank (and most DFIs) will have to overcome the challenges of lack of funding flexibility, headroom constraints, resource constraints and limited early stage funding (despite investment in private equity funds). Among existing facilities in the Bank's ecosystem, several are dedicated to climate finance, and these will become even more of a focus as the Bank targets increasing climate investment to 40 per cent of total new investment by 2020. The climate finance sources currently available are the Climate Investment Funds (CIFs), Global Environment Facility (GEF), Sustainable Energy Fund for Africa (SEFA), Africa Climate Change Fund (ACCF) and Green Climate Fund (GCF).
59. The Bank will combine available sources of funding and optimise balance sheet leverage: All AfDB projects are co-financed by public or private sector players, but AfDB has limited mobilisation of its private sector funds (5 to 10 per cent), in part because internal processes limit Lead Arranger possibilities, and because collaboration between DFIs is complex and long.
60. **Flagship #6: Funding catalyst programme.** This will focus on setting up the processes required to increase the availability and use of blended finance to increase the capital pool available for new projects. The Bank will raise its target for equity investment in energy projects (non-sovereign) and try to achieve that target by leveraging climate finance and other sources of funding. To further leverage the institution's balance sheet, the Bank will scale up partial risk guarantee operations. In addition, the Bank will design more flexible solutions for small and medium projects (e.g. a debt fund for SMEs and blended finance approaches for demand-side energy efficiency). Finally, in order to be more effective in its activities the Bank will seek to simplify and standardise processes with a view to ensure that it can take more anchor investor and lead arranger roles and offer a range of financing options to project developers that balances equity and debt finance.

Theme #5: Supporting 'bottom of the pyramid' energy access programmes

61. The Bank will support these programmes in two significant ways. It will initiate funding programmes that will increase the availability of financing for small scale on-grid and off-grid access solutions and the adoption of clean cooking solutions. It will also support the implementation of innovative and affordable payment mechanisms.
62. Some Bank funding programmes support bottom-of-the-pyramid¹⁰ projects, e.g. SEFA, but they have their limitations. These limitations include the fact that small projects are often below the AfDB minimum investment threshold and few alternative funding

⁹ In addition, there was UA 215 million funding from other sources in 2015 (UA 200 million under the aegis of the Accelerated Co-Financing Facility for Africa and UA 15 million from CIF, GEF, SEFA and EU-Africa ITF).

¹⁰ The term "Bottom-of-the-pyramid" is used here in a wider sense than the consumer goods industry's segmentation of people with less than USD 2.5 / day

options are available; limited financial support options exist for crucial barriers for smaller start-ups, such as hedging foreign exchange risk; and where local businesses are able to access local financing support, the loan interest rates tend to be extremely high.

63. The success of this strategic theme requires collaborative efforts across multiple DFIs and governments around several key actions. The objective is not for the Bank to pursue all of these actions, but rather to coordinate, and ensure that different parties are pursuing and delivering on programmes, such as:

- setting up a bottom of the pyramid energy access facility that provides concessional funding and grants for the poorest communities based on set criteria;
- creating a low interest debt fund that creates a micro-financing facility to be coordinated and delivered by local commercial banks;
- deploying teams to analyse community needs and identify where energy poverty and affordability is the most severe;
- potentially subsidising costs of off grid power for communities that cannot afford to pay the full tariff; and
- setting up suitable pay-as-you go regulatory environments and business frameworks that are easily implemented in collaboration with major cell phone companies.

64. **Flagship #7: Promote 'Bottom-of-the-pyramid' access programmes.** The focus of the Bank's efforts will be to launch a large scale energy access financing facility to promote last mile / off-grid energy access, including a combination of concessional financing for commercial institutions, as well as grants for bottom-of-the-pyramid consumers. This flagship will primarily focus on the establishment of a targeted financing package, and the use of a range of different support mechanisms, but will also include supporting the technical development of off-grid and on-grid last mile projects. In low income countries with weaker capacities, targeted public operations will be part of the programme involving the implementation of rural electrification agencies awarding, through competitive bids, rural electrification concessions and investments grants to private sector firms committing to the connection of the highest number of households.

65. **Flagship #8: Mobile payment programme.** The focus of this is to fast track development and rollout of the PayGo model by (a) strengthening the regulatory environment in markets to allow for mobile payments, and (b) supporting the strengthening of the overall business model. This will be done in collaboration with key industry players both from the mobile telephony industry as well as from the off-grid electrification side. The Bank will launch a programme in conjunction with cell phone companies. The objective will be to benchmark existing payment platforms, then develop a suitable regulatory model that facilitates the PayGo model, and finally support governments through a combination of financing and technical assistance to help them create the required enabling environment. Where appropriate, the Bank will collaborate with mobile solution providers to identify additional areas where support is required to strengthen the value proposition of the PayGo model.

66. **Flagship #9: Access to clean and efficient cooking solutions.** This flagship will adopt an inclusive market-based approach covering both end-user cook stoves and fuels, and pursue tailored interventions specific for each country or region. It will focus on three key areas: (i) enabling environment: the Bank will support policy and regulatory reforms, the adoption of international standards, labelling and certification practices, and the

establishment of testing facilities; (ii) supply side: the Bank will support SME development and scale up the integration of women into the clean cookstoves and fuels value chain through technical assistance for technology and business development, guarantees and first loss provisions to increase access to both equity and debt financing (including grants to accelerate deployment of nascent businesses) in collaboration with local institutions to increase access to credit and drive down interest rates; and (iii) demand side: the Bank will support behaviour change communication initiatives, awareness campaigns, and marketing efforts by stove manufacturers, national alliances, fuel producers, and public institutions to improve desirability and the capacity to use clean and more efficient cooking solutions.

67. The Bank will also promote mechanisms to drive down the initial stove cost, where this is a major barrier to adoption, and improve the affordability of modern fuels.

Theme #6: Accelerating major regional projects and driving integration

68. The aim of this focus area is to (i) accelerate the development of regional power projects by providing technical and legal advisory support (e.g. transmission optimisation, multi-entity PPA frameworks); (ii) ensure the bankability of regional projects and contribute to their funding (e.g. early-stage funding and guarantees); and (iii) support the development of regional power markets. Key activities will include identifying major regional projects, particularly those with regional interconnections included in their mandate, and systematically driving them to completion.

69. Regional projects have the potential to reduce investment and power costs by 5-15 per cent depending on countries and technologies. However, technical, financial and legal closing is a very long process that can take 5 to 7 years from pre-feasibility to agreement. The AfDB has several regional projects in its pipeline and regional power pools—East African Power Pool (EAPP), Southern African Power Pool (SAPP) and the West African Power Pool (WAPP) —all of which have published regional master plans for major energy projects. SAPP needs USD 5.6 billion for its generation projects and USD 80 billion for its transmission projects. In addition to the long, complex process of closing a regional project, it is very difficult to coordinate all the countries involved in a project. To overcome these obstacles, the donors will work to establish a technical/legal fast-track for large-scale regional projects including project assistance. Emphasis shall be placed on the acceleration of technical studies for regional projects and on the promotion of solutions for legal advisory and regional stakeholder alignment.

70. Even though regional integration is a key strategic goal of the AfDB, and while most donors are focused on energy, the process of funding regional projects remains long and complex. This is partly because regional power groups have different funding situations and requirements. Greater funding is required for regional large-scale projects, but such projects are vulnerable to higher governance risks of governance and payment default.

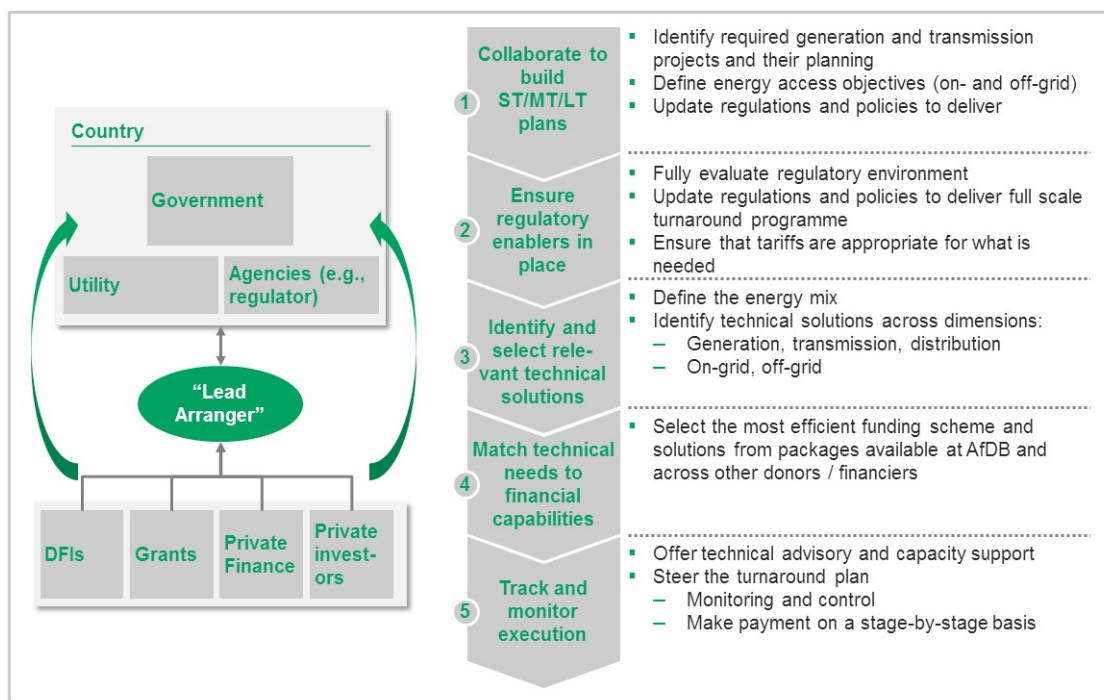
71. **Flagship #10: Regional and sub-regional project acceleration programme:** The Bank will seek to establish a financial fast-track for large-scale regional projects. The Bank is also expected to put its own capital to work in order to contribute to the funding of regional projects. In addition to its interventions under the aegis of the Program for Infrastructure Development in Africa (PIDA), the Bank will undertake complementary

actions such as strengthening the capacities of regional organizations (regional economic communities, power pools, specialized energy institutions) encouraging exchanges and dialogue between governments within a region and supporting regional and national initiatives to facilitate technical and regulatory harmonization.

Theme #7: Rolling out waves of country-wide energy ‘transformations’

72. A central theme tying all elements together is the systematic implementation of country-specific transformation programmes. In close collaboration with Heads of State, Ministers of Energy and Ministers of Finance of RMC, the Bank will coordinate major development institutions to launch end-to-end energy system turnarounds. These programmes will include energy system planning, restructuring of the national regulatory environments, matching donors to targeted interventions, and bringing in the private sector to drive development of capacity and connections.
73. The most critical factor in the transformation of a country’s energy sector is political will. Without political will, and country ownership, the country will not be able to establish the right regulatory framework, ensure the tariff is cost reflective, ensure that there is a credible counter-party for private sector players, and in general, ensure that successfully resolving the energy challenge of the country is the top priority. It is imperative that these country-wide energy sector transformations are only launched in countries where sufficiently large political consensus and energy is on top of the agenda. The African Energy Leaders Group could also advocate for appropriate support. In these situations, the Bank, and all other donors, should provide a focused, coordinated effort to do everything that it takes to ensure that this political will pays off. These efforts will involve most of the flagship initiatives mentioned earlier, and apply them systematically to that country, ensuring real progress in investment, helping to manage the potential fall out of tariffs being raise, but ultimately, helping to deliver everything the country needs in the energy sector. The country-level engagement should build on current efforts, in particular the SE4All Action Agendas, developed as the umbrella energy sector document, and national implementation framework for SDG 7, in many countries.
74. The idea is to pursue a five-phase country-wide transformation coordinated by a ‘lead arranger’ (see Figure 16). This transformation involves all aspects from devising the appropriate planning and enabling mechanisms to tracking and monitoring execution. The turnaround programme will be coordinated by a central ‘lead arranger’ who acts as an interface between a country’s government/utilities/agencies and financing bodies. The most appropriate DFI, which will obviously differ from one country to the next, should take the role of lead arranger. taking into account the overall context.

Figure 16: Five-phase country transformation coordinated by a 'lead arranger'



75. Though certain challenges will arise, the AfDB will in some situations act as a lead arranger. The AfDB already advises some public/private projects, and is taking on the lead arranger role in some cases. The AfDB's role as a lead arranger is often at governments' request, since the Bank is trusted as an honest broker. However, there is a risk that the Bank's influence may be insufficiently leveraged to accelerate projects and turnarounds, or that its image could deteriorate in the eyes of these governments. Its private sector advisory resources would need to be reinforced.

76. **Flagship #11: Country-wide energy sector transformation.** The Bank will coordinate the launch of country-wide turnaround programmes (update regulatory frameworks, optimise on-grid project funding, support access to electricity and clean cooking solutions for the bottom of the pyramid, etc.) and act as a lead arranger when relevant.

77. The focus of the country-wide turnaround programmes is clear: they are an all-encompassing effort helping a given country to fully resolve its energy challenges. Identifying and successfully engaging on the first two programmes (scheduled for 2016) has to be one of the Bank's top priorities. Given the challenging context, appropriate project management capabilities need to be established and there are some key actions that the Bank will take. To coordinate the launch of the turnaround programmes, the Bank will design and apply selection criteria for the countries to be prioritised, identify and coordinate with interested DFIs (and select the most appropriate as lead arranger per country), and define and deploy a plan to ensure an adequate regulatory environment as requirement for the turnaround.

78. The Bank should also build lead arranger capabilities, encompassing fast track, technical, financial and legal expertise to accelerate regional projects. It may be helpful for countries to set up stakeholder management units for the coordination of energy projects with other DFIs drawing on existing efforts. When acting as a lead arranger, the Bank will establish the necessary governance bodies and processes to support the

implementation of the turnaround plan (including, for example, financial resources control, risk monitoring unit), and monthly checks.

Transformative Partnership on Energy for Africa

79. The seven strategic themes above and the associated flagship programmes articulate the key themes required to overcome obstacles to universal access in Africa. In addition to the aforementioned themes and flagship programmes, there is an overarching flagship: the Transformative Partnership on Energy for Africa. The Transformative Partnership is designed to provide a platform for coordinated action by partners (private and public) and for innovative financing. The Partnership will unlock Africa's energy potential and eventually foster a transition to low carbon energy futures. It will help reduce duplication and promote the pooling of resources to achieve economies of scale in Africa's energy investments.
80. There are several entities—multi-lateral institutions, bilateral agencies, investment funds, climate funds, commercial banks, private equity, non-profit organisations, foundations, advisors and many others— — each playing its part in helping to increase access to energy in Africa. The Bank envisages playing a central coordinating role across a variety of institutions to achieve the objective of universal access. Building on its existing efforts, such as its role as the SE4All Africa Hub, the Bank will step up coordination, specifically by identifying relevant DFIs and their capabilities, creating and maintaining a database of technical assistance mechanisms in Africa, and ensuring DFIs' active participation in knowledge and capability sharing to ensure knowledge transfer and align the project assessment process.
81. In addition, the Bank will scale up cooperation with specialised organizations, such as the International Renewable Energy Agency and the Global Alliance for Clean Cook stoves, multilateral entities, such as the European Union and the European Commission, and bilateral partners such as China, which established the Africa Growing Together Fund. The Bank will also continue to spearhead further collaboration with the private sector stakeholders, such as the Private Investors for Africa, and relevant associations, such as the World Energy Council, to help address sector-level challenges and design innovative instruments which can mitigate risks and therefore attract private investment. The Bank will collaborate closely with Bank-supported initiatives such as the African Legal Support Facility (ALSF) and Africa50, which has a significant focus on project development and investment in the energy sector.
82. Finally, the Transformative Partnership will aim to draw in the higher education ministries, universities and professional training institutions to increase the availability and the skills of power engineers and technicians. Private sector players also have a role in contributing to the creation and development of a technical training ecosystem to provide the countries with the sufficient number of qualified technicians and engineers.

VIII. ALIGNMENT OF THE NEW DEAL WITH GLOBAL GOALS INCLUDING THE SUSTAINABLE DEVELOPMENT GOALS AND THE PARIS AGREEMENT ON CLIMATE CHANGE

83. At the Climate Change Conference in Paris, 195 countries adopted the Paris Agreement which, in enhancing the implementation of the Convention¹¹, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:
- (a) “holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;
 - (b) increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and
 - (c) making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development” (Article 2.1).
84. The same Article of the Agreement notes that the “Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances” (Article 2.2).
85. The Paris Agreement also covers critical elements including mitigation, adaptation, loss and damage, finance, technology, and capacity building with compliance addressed via a transparency framework. It does not prescribe specific mitigation actions or which emission levels should be achieved by when. Instead, it focuses on individual, bottom-up voluntary, climate mitigation plans documented in INDCs submitted by countries.¹²
86. COP 21 Agreement concludes the series of major landmark events of 2015 that shapes global responses to sustainable and inclusive development: from financing for development (FFD) in Addis Ababa,¹³ to the Sustainable Development Goals (SDGs) in New York¹⁴. Climate action (SDG 13), is one amongst 17 Sustainable Development Goals adopted by the United Nations General Assembly in November 2015, including the achievement of universal access to affordable, reliable and modern energy services by

¹¹ The ultimate objective of (the United Nations Convention on Climate Change (UNFCCC)) and any related legal instruments that the Conference of Parties may adopt is to achieve, in accordance with the relevant provisions of the of the Convention, stabilization of greenhouse gas concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner” unfccc.int

¹² Parties shall also communicate a pathway to (i) to peak CO₂ emissions as soon as possible (with a recognition that it will take longer for developing countries); then, (ii) to achieve net greenhouse gas neutrality in the second half of this century

¹³ The Addis Ababa Action Agenda adopted at the Third International Conference on Financing for Development Conference in Addis Ababa, 13–16 July 2015 provides a broad framework for addressing the challenge of financing and creating an enabling environment at all levels for sustainable development,

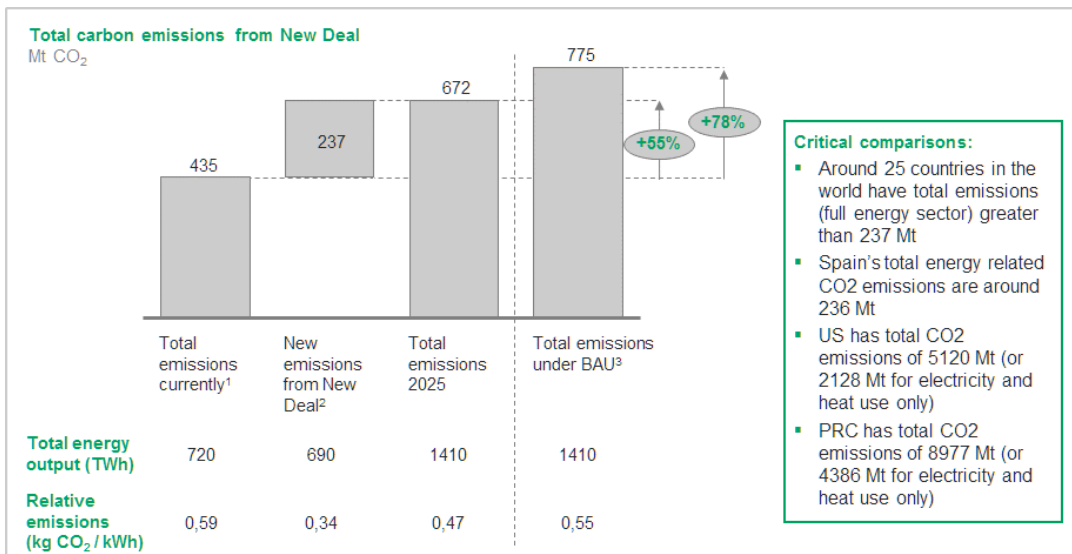
¹⁴ Resolution 66/288 of the seventieth session of the United Nations General Assembly adopted 2030 Agenda for Sustainable Development and the Sustainable Development Goals.

2030 (SDG 7); decent work and economic growth (SDG 8), zero poverty (SDG 1), zero hunger (SDG 2), reduced inequalities (Goal 10), among others. The FFD discussions in the run up to COP 21 highlighted the need for scaled up financing (from billions to trillions) to achieve the SDGs in the developing world.

87. To achieve inclusive and green growth, the twin goals of the African Development Bank's Ten Year Strategy, coordinated transformative actions are required to implement the global agreements reached in 2015, especially the SDG 1 – 17 (which includes Climate Action, SDG 13) and the associated COP21 Agreement, the acceleration of universal access to affordable, reliable and modern energy services by 2030 (SDG 7) among others) in a holistic, comprehensive and systemic manner. Such an integrated approach will ensure that the industrialized and industrializing nations can attain the *socio-technical transitions* required to decouple economic growth activities from environmental impacts, including CO₂ emissions, as they transition to the desired low-carbon development pathways to keeping global temperature below 2°C and reducing progressively to 1.5°C.
88. The New Deal on Energy for Africa contributes to achieving the Sustainable Development Goals (SDG) in Africa. It directly contributes to the effort towards, ensuring access to affordable, reliable, sustainable, modern energy for all (SDG 7); ending poverty in all forms (SDG 1); combating climate change and its impact (SDG 13); improving health and well-being (SDG 3); on achieving gender equality and empower all women and girls (SDG 5); and reducing inequality within and among countries (SDG 10). In addition, by improving access to clean energy, the New Deal will aid social, economic and environment sustainability in Africa.
89. The New Deal on Energy for Africa will assist African countries in achieving the COP21 Agreement, especially the Intended Nationally Determined Contributions (INDCs) of African countries, and beyond. While the energy sector contributes a major share of greenhouse gas (GHG) emissions in most industrialized countries, historical greenhouse gas emissions in Africa have been driven by land use change, agriculture and forestry, but the energy sector is becoming important during the past decade. Without transformative actions to accelerate access to affordable, reliable, sustainable, modern energy – for lighting homes, clean cooking, and base load energy for industrialization and wealth creation —population growth will engender increased deforestation and GHG emission in Africa.
90. Initial projections show that that the implementation of the New Deal on Energy for Africa at a 'cost optimized' scenario would lead to significant decoupling in carbon emissions from the continent by 2025 (see Figure 17). Although total energy output is more than doubling, carbon emissions are only rising by about 55 per cent (from 435 Mt p.a. to 672 Mt p.a.). There is also a very significant decline in relative carbon emissions, from 0.59 kg / kWh down to 0.47 kg / kWh under the cost optimized scenario for the New Deal.¹⁵

¹⁵ Energy mix under current situation is 48% gas, 32% coal, and 17% hydro. Energy mix assumed in the New Deal from "cost optimized" scenario, which includes 43% new gas, 23% new solar (including off-grid), 17% new coal, 13% new hydro, and the balance (4%) coming from wind, geothermal, and other sources.

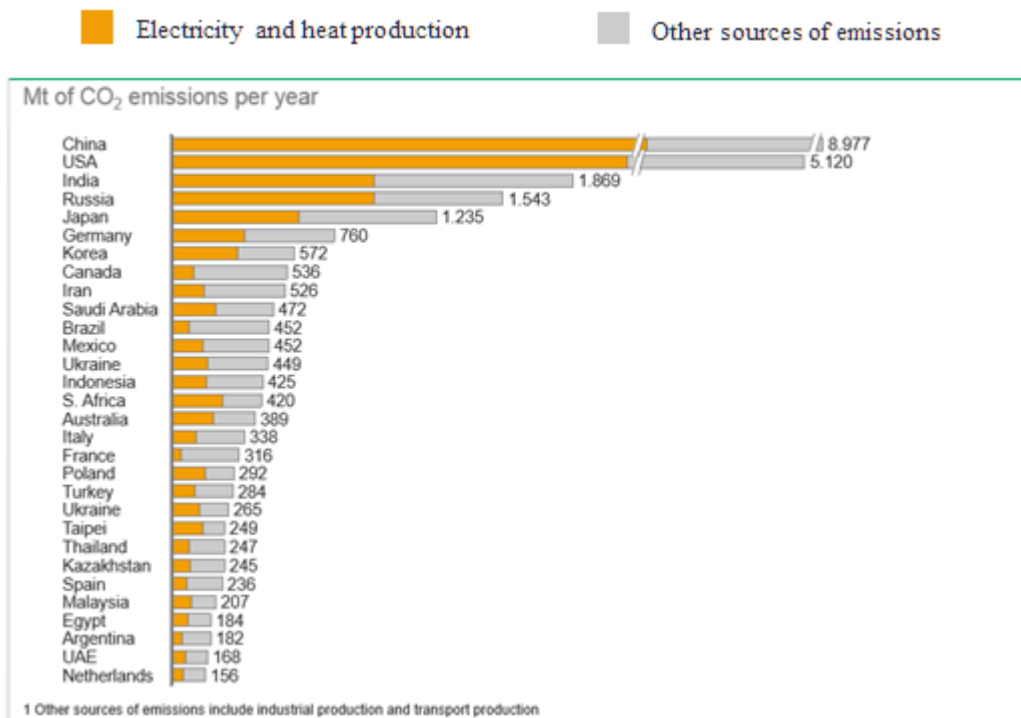
Figure 17: The New Deal will lead to significant decoupling of CO₂ emission per unit of increase energy output by 2025



Source: IEA data

91. At the global scale and in comparison with other continents, the 237 Mt CO₂ (the increment to get to 672 Mt CO₂) to attain universal access by 2025 is insignificant (see Figure 18). Around 25 countries in the world have total emissions (full energy sector) greater than 237 Mt. The US alone has total energy-related CO₂ emissions of 5120 Mt (2128 Mt for electricity and heat use only). The People's Republic of China (PRC) has total CO₂ emissions of 8977 Mt (or 4386 Mt for electricity and heat use only).

Figure 18: Comparison of energy-related emissions by country



Source: IEA data CO₂ emission from fuel combustion

92. A large share of energy-related CO₂ emissions comes from a small number of countries. (IEA, 2014). Africa is decoupling from a low base, and the New Deal will reduce emission relative to current Business as Usual Scenario. In addition, the African Development Bank is committed to tripling its climate finance to USD 5 billion per annum by 2020 to support mitigation and adaptation efforts as elaborated in the INDCs of African Countries.

Africa's Commitments to the FFD, SDGs, and Paris Agreement

93. **Overall Emissions Reduction:** Africa is the least CO₂ emitting region but most vulnerable to climate variability and change. However, it is demonstrating global leadership in combatting climate change. Fifty three of the 54 African countries submitted INDCs with ambitious emissions reduction targets, focusing on the key emission sources including land-use and forestry, gas faring, and energy efficiency measures. These INDCs have set out the continent's plans to address climate change through the improvement of climate resilience and the reduction of emissions.¹⁶ African countries' commitments in their INDCs demonstrate a more than equitable contribution to global emission-reduction efforts. Figure 19 compares the share of global emissions reductions offered by African countries with their share of 2012 global GHG emissions. The figure shows that the vast majority of African countries have proposed emission reductions that are equal to or greater than their share of 2012 emissions. Indeed, 18 African countries have proposed emissions reductions that would result in their share of 2030 reductions being more than double their share of 2012 emissions. Eight of these countries have proposed reductions shares that would be more than five times greater than their 2012 emissions shares.

94. Accelerating access to modern energy services is central to curbing emissions in African INDCs. Access to modern energy services is a pre-condition for successful implementation of the COP 21 agreement and achieving SDGs in Africa. Without transformative action to address Africa's energy challenges, the continent's ability to achieve the Sustainable Development Goals, especially goal 7 on universal access to affordable, reliable and modern energy services, will be compromised, and its contributions to global CO₂ budget will increase significantly. African INDCs recognize this and rank energy as offering the second largest potential for emissions reductions next to AFOLU (Agriculture, Forestry and Other Land Use). All African INDCs include emissions reductions measures in their power generation sectors, and almost 40 per cent of overall emissions reductions in 2030 will come from the energy sector (Figure 20). The top three most common measures included in INDCs are power generation measures, energy efficiency measures and transport measures. The INDCs specify what each country will achieve unconditionally with their own resources and what they can achieve only with the availability of resources from the international community.

¹⁶ Generally, Africa's GHG and CO₂ emissions budget is different and efforts to reduce emissions should focus on the main sources of emissions which is land-use and forestry (AFOLU).

Figure 19: Emissions reductions as share of historical emissions

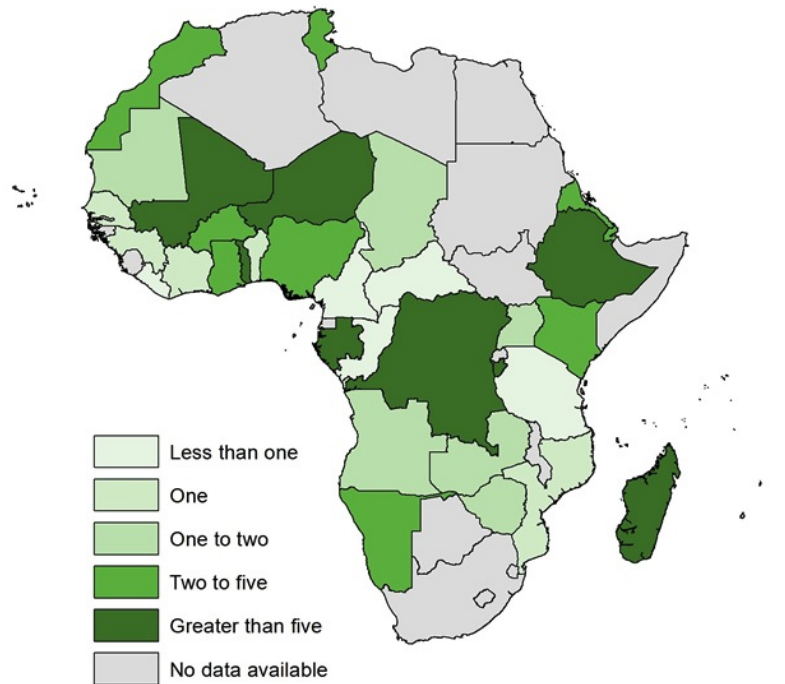
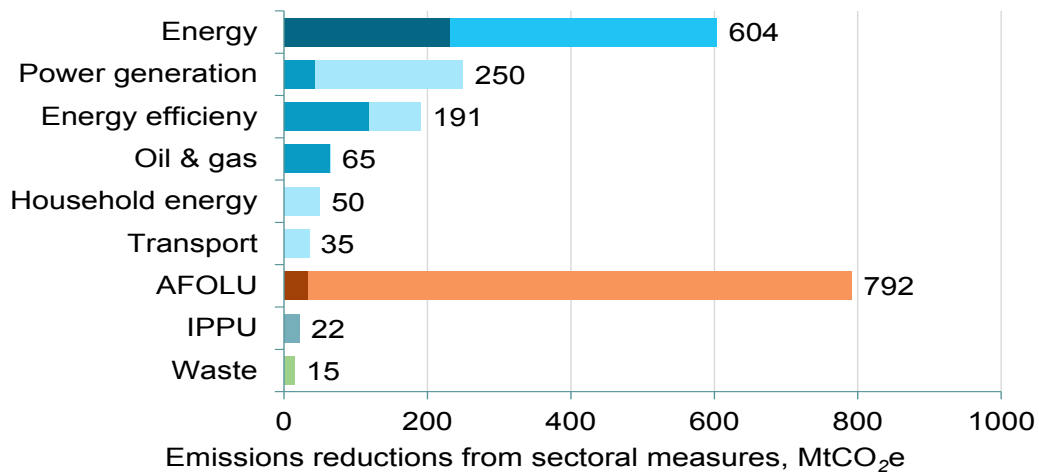


Figure 20: Measures in Africa’s INDCs to Curb Emissions



Note: Brighter colours indicate conditional reductions, darker colours indicate unconditional reductions.

95. Countries have also identified various pathways to achieve these reductions, taking into consideration their national circumstances and endowments. In addition to the prioritization of energy measures, African INDCs include ambitious plans, policies and bold targets to increase the use of renewable technologies by 2030, with varying targets that range from the share of renewables in the energy mix, the share of renewables in the electricity mix, the share of renewables in electric generation capacity, additionally installed electric generation capacity and total installed electric generation capacity.

96. While Renewable Energy technologies cannot yet fully substitute conventional energy sources, they are getting better and cheaper, and present opportunities for the future energy systems, globally. Africa's INDCs recognize this, and have factored in considered policies and technologies that demonstrate some of the highest levels of emission reductions ambition in the world, while ensuring that food production and sustainable economic growth are not hindered. Based on their comparative factor endowments and conditional upon international support, many identify the land use sector as the greatest source of emissions—driven by demand for charcoal, land clearance for agriculture and logging; Ethiopia has one of the highest targets to reduce emissions compared to business as usual; Cape Verde aims for 100 per cent renewable energy; and many others list natural gas as a major part of their efforts.
97. Beyond commitments in the INDCs, African countries are already taking action that requires effective support through the pledges made at COP 21. The AU Summit in January 2016 adopted the Africa Renewable Energy Initiative (AREI), which was launched at COP 21, and reaffirmed the role of the Bank as the Trustee for AREI and the host of its Independent Delivery Unit. If effectively supported as per the pledges already made by the G7, this has potential for massive roll out of renewable energy technologies by 2020. A number of countries are taking action. In South Africa, we have seen the transparent IPP procurement programme contract over 6,000 MW of renewable energy (of which several of the early projects are already operational), Ethiopia is harnessing its hydropower potential (including the Gilgel Gibe III project that came on stream in late 2015) Kenya is tapping its potentials in geothermal, wind and solar home systems as it diversifies from reliance on hydropower. For these efforts to succeed, the countries need to continue investments in conventional energy sources to provide base load energy to power their economies.
98. The New Deal on Energy was developed in consultation with public and private stakeholders to support RMCs in achieving their global commitments especially the SDGs and COP21 Agreement, within the context of their national development plans, concurrently. Beyond the INDCs, it will assist RMCs in building capacities and policies for transitioning to low carbon and climate resilient economies as soon as is technically and economically feasible.
99. Adaptation in the energy sector is a key component of African INDCs' proposed adaptation efforts. Over forty per cent of countries have planned energy sector adaptation measure. Adaptation in the energy sector is crucial for maintaining energy access and supply. Infrastructure investments can also increase resilience to extreme events. Climate change has the potential to impact the entire energy supply chain, including supply and demand, resource endowments, infrastructure, and transportation. The Bank will continue to screen for climate risk and build resilience into every investment in the New Deal for Energy in Africa through the Bank's Climate Safeguards System. The New Deal will also implement several measures that have been identified in African INDCs as crucial to enhanced adaptation in the sector.
100. Significant investment is needed to implement Africa's INDCs. It is estimated to cost about USD 1.2 trillion to implement Africa's INDCs. Only 25 countries have provided sectoral costs for which energy sector investments are estimated at about 40 per cent of the total cost. If supported with adequate climate finance, Africa can harness its rich renewable energy resources and transition toward cleaner technologies in the

conventional energy sector. That way, Africa would be able to harness its fossil fuel endowments at reduced carbon budgets.

IX. IMPLEMENTATION APPROACH

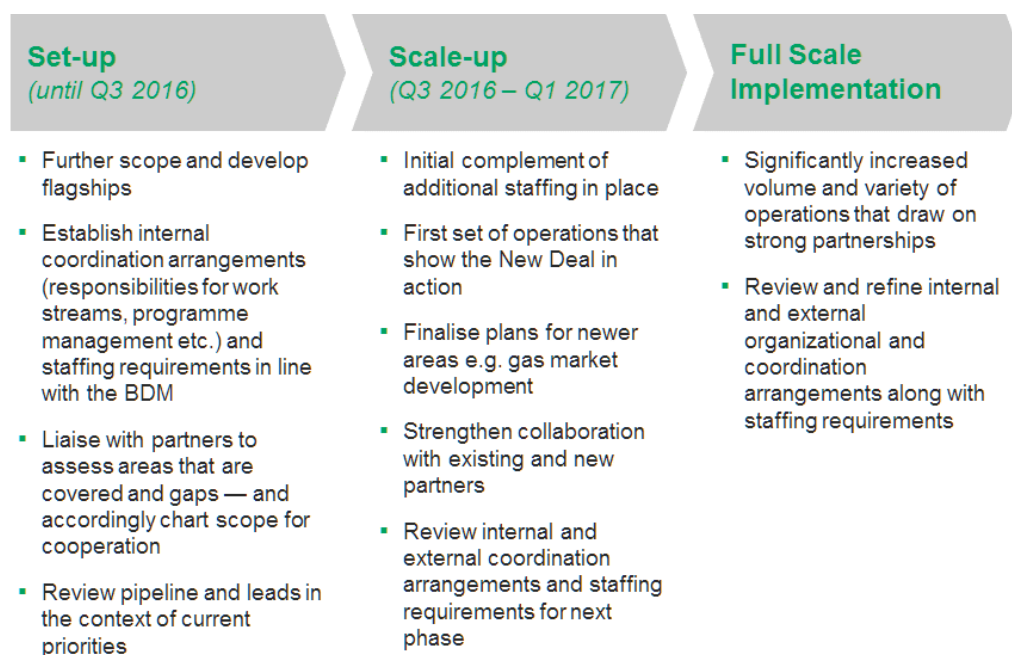
Organisational approach

101. The range of priorities, in particular areas such as energy sector reform, utility reform, off-grid access and demand-side energy efficiency – will require additional skills and staffing, and collaboration with institutional partners. In the third quarter of 2016, a cross-complex Presidential Task Team has been established to liaise with the relevant AfDB Departments to proceed with the implementation of the Transformative Partnership on Energy for Africa and further refine the implementation plans for the New Deal. This will lay the foundation for creating a core group of skilled AfDB personnel with appropriate exposure, and external partners who will work in delivering the aspirations of the New Deal. Thereafter, appropriate recruitment will ensure that the Bank is positioned to deliver on the New Deal as envisaged.
102. To successfully complete the development and execution of programmes aimed at universal energy access by 2025, the AfDB will organise itself to focus adequately on the relevant activities as per the new business delivery model that establishes a new Complex responsible for Power, Energy, Climate and Green Growth. The Complex will be made up of five Directorates: Power Systems Development; Climate Change and Green Growth; Energy Statistics, Policy and Regulation; Renewable Energy; and Energy Partnerships. Led by a Vice President, and a team of Directors with international experience and reputation in the cross-cutting issues of Power, Energy, Climate and Green Growth, the Complex will lead cutting edge work to implement the flagship programs of the New Deal.
103. The Strategy will be delivered by the Bank Group in concert with associated entities, such as the African Legal Support Facility (ALSF) and Africa50, and other institutional partners within and outside Africa. To ensure cross-Complex coordination and alignment of activities and continuously crowd in skills and expertise from external partnerships, to accelerate delivery on the ground in countries and across regions, the Presidential Task Team will coordinate the engagement of all Bank departments – sectoral, regional and corporate departments.
104. Operations will be prioritised based on the potential for greatest impact and country buy-in, while also taking into account geographical balance and coverage of fragile states. As outlined earlier, countries may be classified by total population without access and the share of the population without power access and accordingly be categorised into three groups (see Figure 12). The case of clean cooking is largely similar. While the intention is not necessarily to focus exclusively on countries with largest numbers of people without access, it is likely that these countries will feature prominently in planned interventions during the early years. Simultaneously, the Bank will also work with fragile countries to address sector level challenges and to provide public sector financing for network expansion and access programmes in the short term. In addition, regional or sub-regional projects (such as Ruzizi III) will also be treated as priorities as they contribute towards optimal solutions for the sub-regions and the continent as a whole.
105. The indicative flagship programmes, mentioned earlier in the context of the strategic themes, will be developed further during the second and third quarters of 2016 as part

of the preparations to implementation of the New Deal (Figure 21). However, the Bank's work will not be restricted to the programmes mentioned earlier, further initiatives will be developed in due course.

106. The implementation of the flagships programs will be tailored to the specific country context as relevant. For instance, in fragile states the immediate focus is likely to be on public sector operations to support the utility complemented by efforts to promote off-grid energy solutions by private entrepreneurs. Conversely, in countries where the energy sector is more developed and where there is significant private sector interest, the Bank's financing will likely focus on catalytic private sector financing or guarantees for IPPs and public sector financing for network expansion.
107. The Bank has commenced the development of an implementation plan that outlines the indicative work plans for the various programmes, along with the organisational implications. This is meant to be a living document that will inform the rolling three-year budget process (and a working draft has been provided separately). As the new complex on Power, Energy, Climate and Green Growth is established, we expect that the number of personnel working on this area will double by 2018 to around 100, with a similar two-fold increase in the administrative budget (excluding costs for advisory work linked with the flagships).

Figure 21: The New Deal will be implemented in phases



Lessons learned will be incorporated into operations

108. In the course of the implementation of the New Deal, the Bank will draw on the emerging lessons from its intervention and on the IDEV report on the Evaluation of Bank Assistance in the Energy Sector.

109. At the strategic level, the evaluation identifies the lack of requisite political will as an obstacle to the improvement of the energy sector. The New Deal clearly recognizes the need for political will across the board. In the case of the country-wide turnaround programmes, the idea is to focus on countries that demonstrate requisite political will. IDEV's early recommendation is also to strive for partnership model which is the partnership is the driving force of the New Deal .
110. At the sector level, the IDEV evaluation finds that regulatory environments are not sufficiently tailored to attract private investments and financial difficulties endured by the sector (owing in part to inadequate cost recovery mechanisms). The New Deal intends to address these issues with its two themes, which focus on setting up the right enabling environment and improving the condition of utilities.
111. At the project level, for instance, in the context of regional interconnections, one of the lessons is that is important to synchronize, through proper and coordinated planning, the timing of funding for projects from different sources to ensure concurrent implementation schedules and avoid completing portions of the assets only for them to remain stranded. Furthermore, to enhance socio-economic impacts of the projects there is a need to ensure that the necessary distribution infrastructure for reliable and affordable electricity is also developed to reach the local communities.

Mainstreaming Gender Equality

112. While the Bank acknowledges that energy access benefits all segments of the population, the Bank is equally conscious that gender disparities place women and girls at a distinct disadvantage (e.g. women and children form the majority of the 600,000 deaths/year from the inhalation of toxic fumes due to the use of wood or feedstock for cooking or lighting). Accordingly, the Bank will strengthen the gender focus of its operations in line with the Gender Strategy 2014 - 2018 following the guidelines, tools and material currently being developed to support gender mainstreaming in the energy sector. Energy operations will follow these guidelines and undertake the relevant gender analysis, incorporate special measures to close identified gender gaps and ensure that results are disaggregated to identify different impacts on women and men. Nonetheless, the Bank is committed to the promotion of more socially inclusive and gender-responsive interventions, including specific efforts on increasing access to clean cooking solutions.
113. The Bank will augment the extent to which gender analyses and gender diagnostics influence the design and implementation modalities of its energy operations at local, national and regional levels. The Bank is developing sector-specific guidance tools and materials that will better inform the nature and scale of gender mainstreaming in its energy sector investments. The Bank will also seek to enhance women's capabilities to engage in direct and indirect employment opportunities, income generation activities and entrepreneurial schemes, in conjunction with the work on Jobs for Youth and Affirmative Finance Action for Women in Africa. The Bank will endeavour to promote street lighting that could contribute towards safer environments and support women and girls in pursuing economic, educational and social activities.
114. The Bank will engage in relevant policy and advocacy efforts across its RMCs by fostering greater linkages between energy and gender aspects, notably through its

continued support of the design of the ECOWAS Policy for Gender Mainstreaming in Energy Access and its Implementation Strategy. Finally, the Bank will promote the development of knowledge products that explore the nexus between gender and energy considerations and are tailored to the African context.

Capacity building

115. The Bank recognizes that capacity building is crucial to the achievement of the objective of universal access. The scaling up of the energy sector is only possible if men and women with the right level of skills are available to utilities, IPPs and other rapidly developing energy businesses. Accordingly, the Bank operations will include capacity building in projects as appropriate and support dedicated training facilities, research networks, African Networks of Centres of Excellence and relevant departments of tertiary and vocational levels. Capacity building will also play a crucial role in contributing towards Africa's use of new technologies as the energy sector grows and develops in an environmentally sustainable manner. Finally, the Bank will encourage peer-to-peer learning, exemplified by the recent cooperation between Comoros and Côte d'Ivoire that facilitated the sharing of the Ivorian experience with its energy sector recovery and development.

Environmental and social sustainability

116. The Bank will seek to enhance the sustainability of energy production, supply and consumption from an environmental, social and economic perspective in order to address local, regional and global environmental concerns. In this respect, all operations shall reflect and comply with the Bank's social and environmental standards, as defined in the Bank's Integrated Safeguards System. The Bank will work with governments to identify projects that will help countries and regions move towards an environmentally and socially sustainable energy future. In particular, the Bank will give careful consideration to pre-project phases to ensure that appropriate mechanisms and safeguards are developed to deal with potential negative environmental, social and financial impacts on the long-term effectiveness of its energy-related projects.

Financing

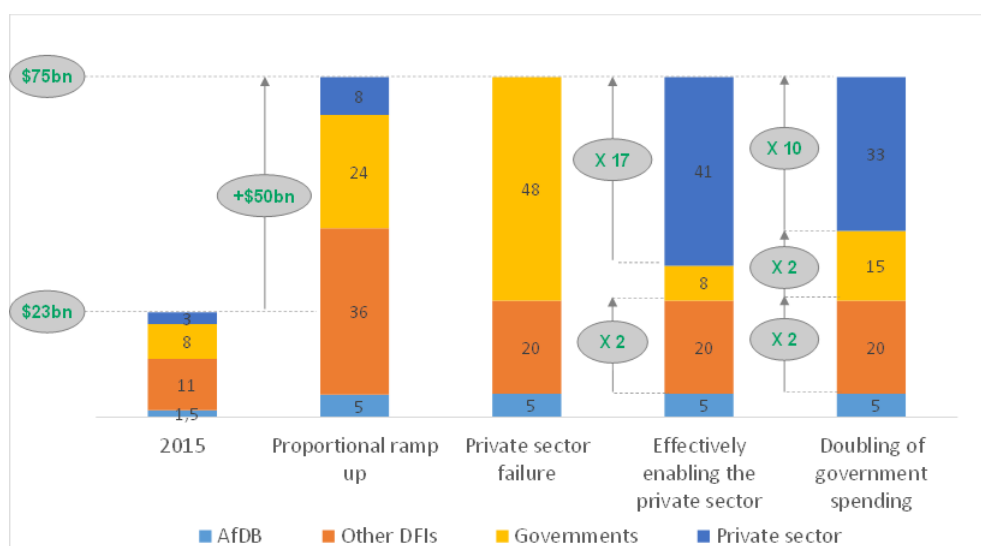
117. The Bank's own resources invested in energy sector operations are expected to be around UA 8.5 billion during 2016 to 2020, while leveraging additional financing. Over the subsequent five-year period, the Bank's operations will ultimately ramp up to around UA 6 billion per year, including UA 2 billion of non-sovereign financing and UA 0.7 billion channelled through lead arranger operations, along with co-financing from relevant facilities and concessional climate finance sources. The indicative annual financing for the period 2016 – 2020 and 2021 – 2025 is outlined below. In addition, the Bank expects its energy investments, both public and private, to contribute towards catalysing additional financing and especially private-sector funding into the sector.

Average annual investments targets for the periods 2016 to 2020 and 2021 to 2025

	Average annual investment (UA billion)	
	2016 to 2020	2021 to 2025
ADF	0.46	0.50
ADB	1.24	2.60
...of which sovereign	0.65	1.10
...of which non sovereign	0.59	1.50
Lead arranger	0.25	0.57
Co-financing (EU AIF, ACFA, AGTF etc.)	0.35	0.78
Climate finance (CIFs, GEF, GCF, SEFA etc.)	0.33	0.65
Total	~ 2.6	~ 5.1

118. The Bank's financing will be in a mix of foreign and local currency depending on the project context. The Bank will try to provide local currency financing where possible to address currency risk issues and also contribute to the development of local financial markets.
119. With the abovementioned financing approach, the Bank will play its role by scaling up its operations by around three-fold. If other DFIs double their operations and governments maintain or double their investments, the stage for enabling the private sector to make the remaining investments is set (Figure 22).

Figure 22: Investment Scenarios to achieve universal access by 2025 (USD billion)



Monitoring and Evaluation

120. As outlined in the Results Management Framework (Annex 1), the Bank's financing is expected to contribute toward the development of 22 GW of capacity, provide over 12 million households with access to electricity connections, around 16 million households

with clean cooking access and over 25,000 direct jobs and train over 25,000 people. This does not include the impact that disruptive innovation can bring to the sector.

121. The monitoring and evaluation will be further refined and will draw on the results measurement framework being designed for the period 2016-2019. The energy results measurement framework is designed to monitor efforts towards ensuring access to energy and the transition to a lower-carbon growth path. The availability of reliable data is an area of concern but indicators are being developed accordingly, with further refinements to be made. The Bank will also draw on the Africa Infrastructure Knowledge Program (AIKP), for indicators such as policy reform, as appropriate.
122. The Power, Energy, Climate and Green Growth Complex and other relevant departments will monitor the implementation of the strategy through annual monitoring of the delivery, seeking to ensure appropriately balanced progress across the set of priorities identified in the strategy and across the full region. The ongoing monitoring (especially a mid-term review) will enable the Bank to fine-tune the priorities and the results measurement framework to ensure that the Bank has delivered against the priorities of the New Deal and contributed to universal access and a low carbon growth path in African countries by 2025.

X. CONCLUSION

123. The New Deal on Energy for Africa's goal of universal access to electricity is an ambitious one. For such a huge transformation to be delivered within 10 years, the New Deal must become the top priority of all African government, major donors and financing institutions. The New Deal on Energy for Africa is driven by the following five inter-related and mutually reinforcing principles:

- **Raising aspirations to solve Africa's energy challenges:** The New Deal calls on partners to raise aspirations and mobilize political will and financial support to address Africa's energy challenges. This is a pre-requisite for the achievement of the UN's Sustainable Development Goals (SDGs) agreed in New York in September 2015, and for the implementation of the global climate change deal reached at the UN summit (COP 21) in Paris in December 2015.
- **Establishing a Transformative Partnership on Energy for Africa:** The New Deal will be implemented through a partnership designed to provide a platform for coordinated action by private and public partners and for innovative financing. The Partnership will unlock Africa's energy potential and eventually foster a transition to low carbon energy futures. It will help reduce duplication and pool resources to achieve economies of scale in Africa's energy investments.
- **Mobilizing domestic and international capital for innovative financing in Africa's energy sector:** To achieve universal access by 2025, innovative mechanisms are required to mobilize an additional USD 40-70 billion annually in domestic and international capital. This is a significant increase on the USD 22.5 billion invested in the sector in 2014. Achieving this scale of energy financing requires collective action by all public and private stakeholders to create enabling conditions for financial flows, develop bankable projects, reform utilities, and enhance the absorptive capacities of African countries.
- **Supporting African countries in strengthening energy policy, regulation and sector governance:** The New Deal will build on and further scale up the Bank's investments in the "soft" infrastructure of national governments and institutions, to enhance energy policies, regulations, incentive systems, sector reforms, corporate governance, and transparency and accountability in the energy sector.
- **Increasing the AfDB's investments in energy and climate financing:** Over the past five years, the AfDB has invested some USD 6 billion in the energy sector. Under the New Deal, the Bank will ramp up its investments to provide finance and guarantees, co-financing and syndication. Between 2016 and 2020, the Bank expects to invest USD12 billion over 5 years, to leverage USD 50 billion in public and private financing for investments in the energy sector. In addition, it will triple its climate finance to about USD 5 billion per annum, and leverage about USD 20 billion in private and public sector investments in climate mitigation and adaptation by 2020.

124. The aspiration ahead of us is great. We do not have a choice. It is an obligation and an imperative that we owe to the continent. The New Deal on Energy for Africa is the AfDB's commitment to delivering that obligation.

125. The New Deal on Energy for Africa is a partnership-driven effort to achieve the goal of universal access. The AfDB is working with governments, the private sector and bilateral and multilateral energy sector initiatives to develop a Transformative Partnership on Energy for Africa, a platform for public-private partnerships for innovative financing in Africa's energy sector. The New Deal on Energy for Africa was designed to unify all of the other efforts geared towards universal access to energy in Africa.
126. The Bank's strategy of the New Deal on Energy for Africa builds on the Bank's Energy Policy, growing strengths and experiences, while placing emphasis on scaling up activities to accelerate universal access to modern energy by 2025. The successful implementation of the New Deal on Energy for Africa will catalyse the achievement of the twin goals of the Bank's Ten Year Strategy: inclusive and green growth in Africa. It will also act as a significant enabler for the Bank's efforts to *Feed Africa, Industrialise Africa, Integrate Africa* and *Improve the Quality of Life of Africans*.
127. Following the discussions with the Committee on Development Effectiveness (CODE), the Board is hereby requested to approve this Strategy for the New Deal on Energy for Africa to enable Management to proceed with its implementation.

ANNEX 1: Results Management Framework

Level 1: Energy Sector Development in Africa					
Indicator	Unit	Baseline 2015	Indicative Target 2020	Indicative Target 2025	Source
Electricity installed capacity (Africa)	GW	170	225	330	IEA/AIKP
Electricity losses: transmission, distribution and collection (Africa)	%	over 20%	15%	10%	IEA/AIKP
Population with electricity access - SSA	%	32%	40%	97%	IEA/AIKP
Population with access to clean cooking solutions - SSA	%	18%	35%	97%	IEA/AIKP
<i>Note: access will be refined in due course to reflect Tier 3 and above for both electricity and cooking</i>					
Level 2: Bank's contribution to the energy sector in Africa					
Indicator	Unit	Expected Target 2016-2020	Expected Target 2021-2025	Source	
Installed electricity generation capacity - Total	GW	7	15	AfDB	
Installed electricity generation capacity - On grid	GW	6.9	14.5	AfDB	
Installed electricity generation - Mini grids / off-grids	MW	50	250	AfDB	
Installed renewable electricity generation capacity - Renewables	GW	4	10	AfDB	
Additional households with electricity access (direct connections)	Number	2 million	10 million	AfDB	
Additional households with clean cooking access	Number	4 million	12 million	AfDB	
New or improved power distribution lines - National	Km	28,000	60,000	AfDB	
New or improved power transmission lines - National	Km	4,400	10,000	AfDB	
Cross-border power transmission lines	Km	4,000	5,000	AfDB	
High-level partnership programmes created	Number	10	5	AfDB	
Direct jobs created (male/female)	Number	4,000 / 6,000	15,000 / 15,000	AfDB	
People trained (male/ female)	Number	4,000 / 6,000	15,000 / 15,000	AfDB	
Level 3: How well is the Bank managing its energy portfolio?					
Indicator	Unit	Baseline 2015	Indicative Target 2020	Indicative Target 2025	Source
Average time between approval and first disbursement (active portfolio)	Month	16.5	6	6	AfDB
New projects with gender-informed design	%	50	95	100	AfDB
New projects with climate-informed design	%	70	80	100	AfDB
PCRs rated satisfactory	%	100	100	100	AfDB
PCRs with gender-disaggregated data	%	40	100	100	AfDB

ANNEX 2: Illustrating the targets

On-grid generation: 160 GW of new capacity

To achieve the aspiration of meeting the grid-based demand of households and industries by 2025, Africa would need to build 160 GW of capacity, which equates to 800 plants of 200 MW. This is a huge task. Over the last 10 years, Africa has commissioned 377 plants with individual capacity greater than 10 MW, just 80 of which had capacity of over 200 MW.

In total, Africa has commissioned 67 GW of capacity since 2005. Of this, 74 per cent sits in North and South Africa; the rest of the continent only accounts for 26 per cent. To create 160 GW of new on-grid generation capacity over the next 10 years, Africa needs to commission 2.3 times the amount that has been commissioned in the last 10 years.

On-grid transmission: 130 million new connections

Some countries in Africa (Kenya and South Africa) have run very successful electrification programmes.

South Africa's national utility, Eskom, has run a country-wide electrification programme for many years, since the mid-1990s. At its peak between 1995 and 1999, Eskom electrified 1.2 million households, delivering the equivalent of 300,000 new connections a year.

Over the last four years, Kenya has delivered 1.8 million connections. Kenya Power, the national utility, delivered 1.4 million of these connections through a series of programmes jointly funded by the African Development Bank and the World Bank. As a part of this programme, in the last 12 months alone, Kenya has delivered over 800,000 new connections. What makes Kenya's success remarkable is the focus on the urban and peri-urban areas of Nairobi.

To achieve our target of 130 million connections, Africa needs to repeat the Kenya Power programme—90 times over.

However, large urban settings like Nairobi make electrification easier because with higher population density and shorter distances, more households can be connected in a shorter time than rural areas. While delivering 130 million new connections requires a replication of the Kenya Power programme 90 times over, the challenge is that Africa does not have many cities the size of Nairobi. As such, the overall challenge will be even more difficult to achieve. The bigger problem lies outside these large cities where grid electrification is more complex and costly to roll out. Focus will have to be, not only on last mile connections, but also on extension of transmission and distribution assets.

Off-grid generation: 75 million new connections

Over the last few years, a new business model has begun to emerge: PayGo. This 'pay as you go' system uses mobile payment platforms to pay for solar home systems. Users typically make a single up-front payment, after which a weekly payment is deducted from their cell phone bills.

Such systems can be used to pay for electricity, allowing for the creation of innovative business models that reflect customers' ability to pay.

The leader in this space is a company called M-KOPA, which works largely in East Africa. As of the end of September 2015, M-KOPA had installed over 250,000 solar home systems across its network. Other companies are fast emerging, including Mobisol, Azuri and M-Power. An emerging start-up, Nova Lumos, is duplicating the concept in Nigeria.

To realise 75 million new off-grid connections, Africa needs 300 companies with the installed network of M-KOPA. A more realistic solution might be to help M-KOPA expand to 10 times its current size and create 30 companies of a similar scale. Solar home systems are a commercially viable proposition for energy access in rural areas: they have a business model that works and can be scaled up quite easily, so the private sector is willing to invest in them.

Clean cooking solutions: 150 million new clean cooking solutions

Clean cook stoves help to cook food much more efficiently, resulting in the consumption of less fuel and also production of less harmful emissions.

In West Africa, one programme that has successfully rolled out clean cooking solutions is Climatecare, which has sold 830,000 clean cook stoves since their programme initiation in 2007. They provide the Gyapa stove, which is 50-60 per cent more efficient than a standard cooking solution. In addition, their collaboration with Relief International provides training, quality control and strategic investment, which is also provided through various forms of carbon financing. Climatecare has helped to build local manufacturing of the Gyapa stove, guaranteeing employment for ceramists and metal artisans.

If Africa can launch similar programmes 180 times, it will be able to deliver clean cooking solutions to 150 million more households across the continent. This will require significant additional support from climate financing to support and strengthen the financial viability of clean cook stoves.

ANNEX 3: Asia's experience with the rapid provision of energy access

China: 300 GW of on-grid generation in five years

In 2011, China launched its five-year energy plan to create 300 GW of new on-grid generation. Over this period, it installed 50GW of coal-fired plants and 10GW of solar PV a year, the equivalent of commissioning 4 GW of coal-fired plants and 1GW of Solar PV per month. Africa needs to achieve just one-third of China's annual capacity until 2025 to have sufficient energy to "light up and power Africa".

Environmental pressure is forcing China to introduce clean energies progressively into its mix. By 2016, it aims to achieve one-third solar PV instead of coal for new capacity installation. However, coal remains the dominant power source. In 2007 China overtook the United States to become the world's largest emitter of carbon dioxide. It is on track to double annual US carbon dioxide emissions by 2017. By 2040, China's coal power fleet is expected to be 50 per cent larger than it is today.

Africa can learn from China's example, however, improving the continent's fuel mix from the start by complementing coal- and gas-based technologies with renewable energy technologies.

Vietnam: 5.5 million new on-grid connections in five years

Vietnam is an extraordinarily successful example of a country that has nearly achieved universal access.

In 1976, one year after the end of the war, just 2 per cent of the country's population had access to electricity. By 2009, access was 96 per cent—the number of people with access grew from 1.2 million to 82 million—and by 2012, it was at 98 per cent.

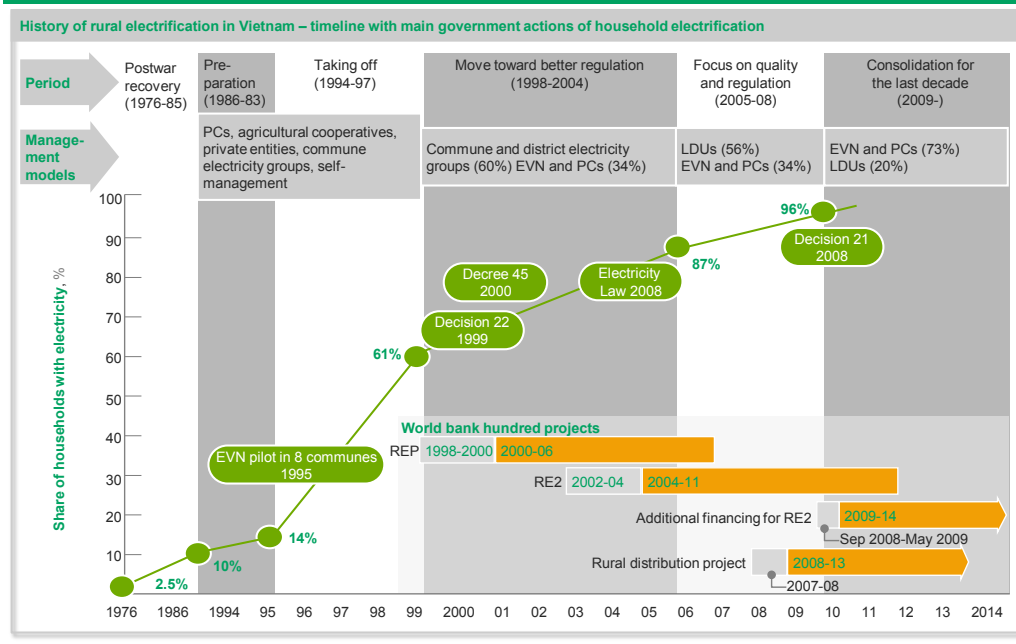
Vietnam followed a constant but rapid process. At the height of the electrification programme, in the five years between 1995 and 1999, Vietnam added 5.5 million new rural connections to the grid (Figure 14).

Six factors combined to help Vietnam to achieve such remarkable results:

- **Strong government commitment, clear objectives, long-term vision.** Local and central government addressed the people's strong willingness to get electricity access. They set targets and pledged to support the electrification process and – critically – the policy makers stood by these promises. The strategy was anchored in clear objectives, implemented gradually and fine-tuned over time to reflect changing priorities. The government adopted different approaches at different times but never lost sight of the overarching goal.
- **Cost-sharing and multiple sources of funding.** Cost-sharing between provinces, communes, districts and the Prime Minister's Office made it easier to finance and build rural systems. It also created a sense of ownership from all parties.
- **Utility as a champion.** Vietnam Electricity (EVN), the country's largest power provider with a monopoly on transmission, followed a well-formulated programme, set achievable goals and communicated these to service providers and government. It was given a clear mandate and resources to use for power generation and to expand the transmission and distribution network.

Vietnam added 3 million connections to the grid in five years

Preparation Implementation



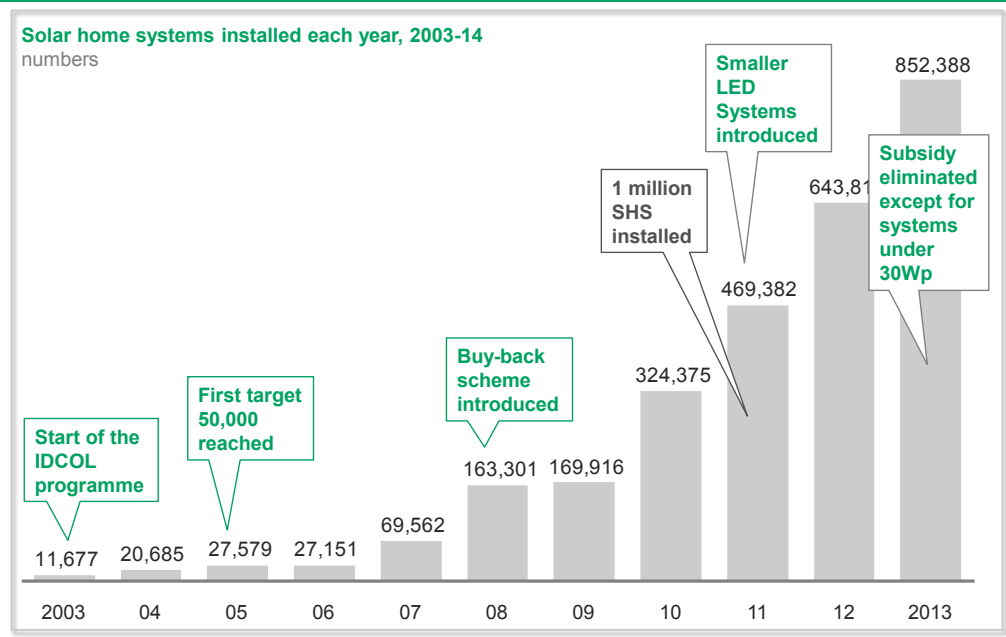
- **Collaborative effort with clear allocation of responsibilities.** All levels of government cooperated, committing to the effort and supported one another. Central, provincial and local government agreed on a framework, and involved rural communities in building low-voltage networks.
- **Appropriate technical choices.** The medium-/low-voltage split and the support of multiple stakeholders to build networks created rapid access to electricity. In collaboration with the World Bank, Vietnam unified and universally adopted technical standards.
- **Economic sustainability.** EVN struck the right balance between creating reasonable returns for investors and making new connections and electricity use as affordable as possible.

Africa is already learning from this case example: Kenya Power replicated many of these success factors to deliver 1.4 million new grid connections. It proposed reliable, safe and cheap power access to slum communities instead of fighting illegal grid connections. It defined a slum-electrification programme and implemented it through a community-based approach. It collaborated with two World Bank programmes, the Kenya Informal Settlements Improvement Project and the Energy Management Assistance Programme. It became a champion of urban- and slum-electrification and developed off-grid solutions in rural areas. It coordinated the electrification programme at the local slum level and was much more involved in the process than other stakeholders. And it sustained its business model by setting up a cheap, flexible, pay-as-you-go payment system and granting subsidies for access only, not consumption.

Bangladesh – 2 million solar home systems in three years

In 2003, the Government of Bangladesh launched a micro-finance model, the Solar Home System (SHS) Programme, implemented by the Infrastructure Development Company Ltd (IDCOL). At the beginning of the programme, the country had just 11,700 home solar systems. From 2011-2013, it installed 2 million across the country.

Bangladesh installed 2 million solar home systems in three years (2011-2013)



SOURCE: World Bank, IDCOL, press

Four factors have contributed to the success of the Bangladeshi programme:

- **Appropriate financial and technical solutions were put in place to meet buyers' needs and match their ability to pay.** The financial solutions included consumer credit terms where by partner organisations provide micro-finance loans to households that are required to make a down payment equivalent to 10 to 15 per cent of the cost of the system. They repay the remainder over two to three years at market interest rates. The partner organisation's financing terms allow for the refinancing of 80 per cent of the solar home system price to a maximum of USD 230 per system. On the technical side, IDCOL's Technical Standards Committee prepared specifications and periodically updates them to reflect technological advances. It also certifies products, and warranties are required for all key components.
- **Strong presence of local agencies and IDCOL.** In the early phases of the programme, the traditional financiers of the partner organisations were unwilling to finance what they saw as 'non-productive loans' for solar home systems. At this point, IDCOL stepped in to provide a combination of subsidies and refinancing through its own financier, the World Bank. In addition, IDCOL trains partner organisations in critical areas such as cash flow management, business planning and technical features.
- **Demographics of the population being targeted (non-controllable factor).** A combination of rising rural incomes reduces the need for subsidies. High population density and enabling improved economies of scale have made the cost economics much more viable for large scale roll-out.
- **Strong political will and involvement.** Most importantly, the government of Bangladesh has strongly contributed to the success of the off-grid programme, by having the political willingness to increase access to power and creating alignment for this at the highest level, creating appropriate institutions to support the initiative and ensure technical and financial success, and building a whole industrial ecosystem to promote local content and increase the local integration of the components.