I. BACKGROUND

The Africa Energy Market Place (AEMP) is the Bank’s new energy-investment-delivery platform, the first event of which will take place at the African Development Bank in Abidjan on July 5th - 6th 2018. The first batch of countries selected includes:

1. Côte d'Ivoire
2. Egypt
3. Ethiopia
4. Nigeria
5. Zambia

AEMP is a tripartite platform established with the goal of removing barriers to private sector investments in the energy sector by bringing together key government representatives, development partners and private sector investors. AEMP will also pave the way for showcasing transactions at the Africa Investment Forum1 to be launched by the African Development Bank in November 2018 in South Africa. Key AEMP objectives include:

1. **Country-specific discussion focusing on removing barriers/issues to private sector investments.** This entails country roundtables to (i) prioritize and accelerate the necessary sector reforms to attract private investment across the energy sector; (ii) review and fast-track priority transactions; and (iii) generate new deal pipeline by identifying project opportunities that could be advanced from concept to bankability.

2. **Peer-to Peer learning and knowledge exchange.** AEMP offers opportunities to Government officials to engage with peers in other countries and draw on lessons, insights and best practices of relevance to effect energy sector transformation.

3. **Networking and partner engagement.** AEMP offers opportunities for interaction with senior representatives from the development partner and private investor community, allowing for the identification of financial support and investment opportunities.

The following sections of this orientation paper have been informed by stakeholder consultations in order to identify the most pressing issues for discussion at the country roundtables, with a view to facilitate focused dialogue and convergence on priority actions to be undertaken by each stakeholder group. Specifically, these sections include (I) a brief overview of the energy sector, (II) a pipeline of priority projects, (III) key on-grid sector challenges/actions, (IV) key off-grid sector challenges/actions, (V) and other sector challenges. The paper concludes with an action matrix (VI) capturing key deliberations on issues discussed.

As a key outcome, participants are expected to actively co-create and commit to Joint Action Plans, which will serve as roadmaps for delivery of identified actions towards unlocking investments.

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1 The Africa Investment Forum is a multi-stakeholder, multi-disciplinary collaborative platform for the economic and social development of the continent. AIF is a transactional marketplace dedicated to advancing projects to bankable stages, raising capital and accelerating closure of deals. The African Development Bank is championing the first edition on the 7-9 November in Johannesburg, South Africa. For more information visit www.africainvestmentforum.com.
II. Overview

Key Government Reforms:

- **2013 energy policy**: long-term objectives: (i) Increase the share of non-hydro renewable energy in the national energy mix to 16 per cent and reduce industrial energy consumption by 25 per cent by 2030. (ii) Diversification of energy production sources from 84.3% of fossil fuels and 20% of renewable energy in 2015 to 66% of fossil fuels and 34% of renewable energy in 2020 (iii) 58% of fossil fuels and 42% of renewable energy by 2030.

- **Electricity Code 2014**: liberalized the generation, transmission and distribution segments, keeping only dispatching activity under state monopoly and providing third party access to the transmission network.

- **National Development Plan**: invest $20 billion by 2030 and add 150 megawatts to the grid each year until 2020.

- Renewable resources **in an embryonic stage of development** due to the lack of a proven legal framework.

General Information:

- **Energy is an absolute priority** for the Government of Côte d'Ivoire (GoCI). Since 2011, approximately $6.6 billion has been invested in infrastructure to increase electricity generation.

- **Renewable energies**: the action plan for the electricity sector by 2030 provides for the modernisation of existing rural diesel networks with photovoltaic systems. At least 12 pilot projects in rural areas are expected to be completed.

- **First sub-Saharan African country to turn to independent power producers** (IPPs) to meet energy demand (since 1995). Cash flows from the electricity sector are managed through a "cash waterfall" giving priority to payments to private investors (production and gas exploration). This proven framework has enabled Côte d'Ivoire to attract new private investment in power generation.

- **Target of a total installed capacity of 4,000 MW by 2020** (currently 2,199 MW) and 6,000 MW by 2030.

- **Priority of PPP hydroelectric projects** to increase renewable and affordable energy production in order to achieve the 2020 target of 150 megawatts more to the grid p.a.

- **Support exports under WAPP** to meet the growing demand in the region.

- **Mobilisation of funds to date**: Exim Bank of China (US$800 million); AfDB (US$180 million); EU (€69.73 million); AFD (€120 million); WB (US$325 million); EIB (€117.7 million); BOAD (€134 million); KFAED (Kuwaiti Dinars 7 million).
### III. PRIORITY PROJECTS

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Size (MW)</th>
<th>Technology</th>
<th>Sector</th>
<th>Project promoter/Developers/Consortium/Type of contract</th>
<th>Project Costs (MW)</th>
<th>Funding gap / Support sought</th>
<th>Risks / Major problems</th>
<th>Implementation date / Financial closing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ELECTRICITY GENERATION PROJECTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micro-hydro portfolio</td>
<td>76 MW</td>
<td>Micro-hydro</td>
<td>Public/Private</td>
<td>GoCI / Private</td>
<td>266</td>
<td>266</td>
<td>Lack of feasibility studies</td>
<td>2020-2025</td>
</tr>
<tr>
<td>Biomass portfolio</td>
<td>190 MW</td>
<td>Biomass</td>
<td>Private</td>
<td>Private</td>
<td>365</td>
<td>365</td>
<td>Lack of feasibility studies</td>
<td>2020-2025</td>
</tr>
<tr>
<td>Solar Portfolio</td>
<td>175 MW</td>
<td>Solar</td>
<td>Private</td>
<td>Private</td>
<td>311</td>
<td>311</td>
<td>Lack of feasibility studies</td>
<td>2020-2021</td>
</tr>
<tr>
<td>Scaling Solar (2 x 30 MW)</td>
<td>60 MW</td>
<td>Solar</td>
<td>Private</td>
<td>GoCI / IFC</td>
<td>100</td>
<td>100</td>
<td>Site Selection</td>
<td>2020-2021</td>
</tr>
<tr>
<td>Singrobo</td>
<td>44 MW</td>
<td>Hydro</td>
<td>Private</td>
<td>IHE</td>
<td>84</td>
<td>N/A</td>
<td>N/A</td>
<td>2021</td>
</tr>
<tr>
<td>Ciprel V</td>
<td>390 MW</td>
<td>Thermal</td>
<td>Private</td>
<td>CIPREL</td>
<td>509</td>
<td>509</td>
<td>Seeking financing</td>
<td>2020-2021</td>
</tr>
<tr>
<td>Azito IV</td>
<td>253 MW</td>
<td>Thermal</td>
<td>Private</td>
<td>AZITO</td>
<td>290</td>
<td>290</td>
<td>Seeking financing</td>
<td>2020-2021</td>
</tr>
<tr>
<td>Coal-Fired (2 x 350 MW)</td>
<td>700 MW</td>
<td>Thermal</td>
<td>Private</td>
<td>SNEDAI</td>
<td>1750</td>
<td>1750</td>
<td>Lack of feasibility studies</td>
<td>2022-2025</td>
</tr>
<tr>
<td><strong>ELECTRICAL ENERGY TRANSPORT PROJECTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boucle 400 kV</td>
<td>151 km</td>
<td>Transport</td>
<td>Public</td>
<td>GoCI / FTP</td>
<td>172</td>
<td>172</td>
<td>Lack of feasibility studies</td>
<td>2020-2021</td>
</tr>
<tr>
<td>Boucle Est</td>
<td>513 km</td>
<td>Transport</td>
<td>Public</td>
<td>ETAT / FTP</td>
<td>156</td>
<td>156</td>
<td>Lack of feasibility studies</td>
<td>2021-2022</td>
</tr>
<tr>
<td>Corridor Nord</td>
<td>277 km</td>
<td>Transport</td>
<td>Public</td>
<td>ETAT / FTP</td>
<td>131</td>
<td>131</td>
<td>Lack of feasibility studies</td>
<td>2021-2022</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4134</td>
<td>4050</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### IV. PRIORITY SECTOR CHALLENGES – ON GRID

#### PRIORITY SECTOR CHALLENGES – ON GRID

<table>
<thead>
<tr>
<th>CHALLENGE</th>
<th>ON-GOING ACTIONS</th>
<th>BRIDGING THE GAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Viability of the Sector</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| - Increase in operating deficit in 2014 and 2015 due to the use of HVO liquid fuel as a substitute for natural gas deficit. | - The Government of Côte d'Ivoire has implemented staggered tariff increases: a 10% increase on 1 July 2015, followed by a 2.5% increase in July 2017 for manufacturers. | - Government of Côte d'Ivoire:  
  Raising $400 million to fill the sector's deficit.  
  Rates should be indexed to inflation and reflect prices based on real energy costs.  
  Improving efficiency by combating fraud and making investments.  
  Development partners:  
  - Technical assistance and budget support for the sectoral deficit  
  - Design of a structure of concessional loan products and grants for flexible loan structures/longer maturities to facilitate the implementation of lower tariff structures for PPPs (e.g. Scaling Solar Zambia model to obtain 7cts/Kwh)  
  - Potential government budget support through bilateral engagement to help bridge the sector's deficit. |
| - Deficit due to the depreciation of the EUR/FCFA against the US dollar, thus increasing the cost of gas, exacerbated by the volatility of oil and gas prices. | - AfDB: Government Budget Support, Public Service Reform  
  - EU: TA programme for a competitive tendering unit in the field of energy  
  - IFC/World Bank: RE Roadmap & Scaling Solar + Renewable Energy Roadmap under development for 2025  
  - Azito/CIPREL: Introduction of combined cycle generation capacity (steam turbines) to reduce fuel dependency.  
  - USAID/Power Africa: Continuous willingness to pay survey (for electricity). Study requested by ANARE (December 2017 - July 2018). |                                                                                 |
| - In 2015, the average rate of 69 FCFA/kWh against a total cost of 81.44 FCFA/kWh leading to a deficit of 40 billion FCFA in the sector. |                                                                                 |                                                                                 |
| - Late payments by IPPs and gas suppliers (Azito, Ciprel, Foxtrot and Petroci) resulting from the low cash margin caused since 2015 by the sharp rise in the dollar rate, liquid fuel production and accentuated by the crisis on tariff adjustment in 2016. |                                                                                 |                                                                                 |
| Natural gas supply shortages                                                                 |                                                                                 |                                                                                 |
| - The Government of Côte d'Ivoire depends on natural gas discoveries and development to meet its commitments to domestic growth and regional exports. | **USTDA/Power Africa**: Regional Gas Assessment (ongoing) |                                                                                 |
| - Existing gas production corresponds to existing electricity demand (except peaks), but not entirely for other potential users (refinery, industry, transport). |                                                                                 |                                                                                 |
| - There is great uncertainty about the supply of future power plants (Azito extension, new Ciprel, new Songon even if Aggreko is shut down) + other potential users (refinery, industries, transport). It will depend on existing production (Foxtrot), new connection (Foxtrot and CNR), new project (Vitol CI 202...), potential new discoveries and LNG imports. |                                                                                 |                                                                                 |
| - The sector is very heavily dependent on a single gas infrastructure. |                                                                                 |                                                                                 |
- The development of regional natural projects could support electricity production from neighboring countries.

- Technical assistance consortium (Korea, AFDB, Italy, Power Africa) to support the government and Petroci with integrated expertise and support.

## Tender procedures for concessions

- Projects are subject to public procurement rules. Process deadlines are important.
- The complexity of the projects requires the reinforcement of the capacities of the actors for the analysis of offers and negotiation processes to obtain competitive prices.
- Public procurement regulation
- Strengthening the skills of the actors

- Plan for the systematic deployment of a competitive bidding process to reduce the costs of PPIs in PPPs.
- Set up technical assistance for the structuring of calls for tenders and negotiations
- Inventory the potential of RE by source/feasibility studies to make them available under PPPs.
## V. PRIORITY SECTORAL CHALLENGES - OFF-GRID

### Policy and regulatory framework

- The development of renewable energies is in its infancy due to the lack of a proven legal framework.
- Absence of specific regulations for mini-grids
- The current process for issuing licenses and permits is unclear, costly in terms of costs and time, thus imposing new or additional financial risks on already fragile mini-grid projects and limiting developers’ interest in entering the electricity market
- Absence of a site allocation policy for off-grid power generation projects

- AFD has launched an off-network support initiative through an off-balance sheet/guarantee mechanism for local banks. SUNREF program.
- The EU will launch the Electrify initiative to support mini-grid projects
- USAID/Power Africa: Integrated advisor to the Minister of Energy to help develop an off-grid strategy.
- EIB interest in financing off-network actors (corporate loans)
- USAID/Power Africa supports the Ministry of Energy in the preparation of the Renewable Energy Development Strategy
- USAID/Power Africa supports CI-Energies in developing a list of low population density localities (camps) for off-grid electrification projects

- Creation of the REEF fund and closure of the EIF for off-grid projects.
- Encourage off-grid East African players to venture into the Ivorian market by injecting additional equity capital for international expansion.
- USAID/Power Africa supports the Ministry of Energy to put in place adequate regulations for the development of mini-grids with transparent and rapid tendering procedures that would reduce costs and risks while providing greater security for developers, operators and consumers

### Customs duties and other charges

- Expensive off-grid services due to high customs duties and taxes on imported off-grid products.
- Lack of quality standards for solar equipment entering the market, including photovoltaic panels and autonomous domestic systems.

- USAID/Power Africa provides technical assistance to the Ministry of Energy to establish quality standards for solar equipment entering the market
- USAID/Power Africa assists the Ministry in defining a list of solar equipment and devices eligible for exemption from taxes and customs duties

- Targeted policy to reduce customs duties on imported products for off-grid electrification projects.
<table>
<thead>
<tr>
<th>Start-up financing</th>
<th>Access to finance programmes targeting low-income consumers (micro-financing, transfer of concessional financing facilities to rural electrification programmes).</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Lack of financing and structuring of micro-projects</td>
<td>● Concession financing mechanism (national, regional) based on an agreement with public services, municipalities allowing bank financing based on a license (intangible asset), according to the GSM license financing mechanism.</td>
</tr>
<tr>
<td>and consumer financing.</td>
<td>● International asset-backed financing program with partial credit guarantee models involving some development partners.</td>
</tr>
<tr>
<td>● Reluctance to finance projects by commercial banks</td>
<td>● Encourage and support established major players with strong balance sheets to venture off-grid. Example MTN/Lumos or recently Orange Energy Ventures with high massification capacities.</td>
</tr>
<tr>
<td>due to limited experience in the off-grid space.</td>
<td>● Subsidy program required for mini-network infrastructure.</td>
</tr>
</tbody>
</table>
## VI. OTHER SECTOR CHALLENGES

### OFF-GRID
- The off-grid market is emerging in Côte d'Ivoire. There are still challenges related to the weak capacities of public and private actors. This capacity weakness affects all actors in the off-grid solar ecosystem, including policy and regulatory authorities, as well as companies involved in the market that do not have the means to supply remote areas and limited technical capacity to support industry growth.
- Lack of information on the opportunities and constraints of the national off-grid market (lack of a Single Window / Off-Grid Information Office)

### ON-GRID
- Transmission lines and distribution networks are old and overloaded. Transmission losses on the high-voltage (HV) grid are estimated at 6%, while technical and non-technical distribution losses are around 16%.
- Meeting the growing demand. Since 2012, an economic boom has seen the CIV's energy demand increase by about 6% per year. The Government of Côte d'Ivoire's target has been set at 6,000 MW of installed capacity (currently 2,200 MW) by 2030.
- Total electrification of Côte d'Ivoire before 2025. The government's objective is to provide abundant energy at a lower cost for the population and industry.

### ONGOING ACTIONS BY DEVELOPMENT PARTNERS

**AFRICAN DEVELOPMENT BANK**
(i) Interconnection (225 kV lines) Côte d'Ivoire-Liberia-Sierra Leone and Guinea (€41 million)
(ii) Upgrading of electricity transmission and distribution networks. Doubling of the 225 kV Soubré -San Pedro line. (124 M€)

**FRENCH DEVELOPMENT AGENCY**
(i) Rehabilitation of Buyo groups;
(ii) Extension of networks; Rural electrification (€120 million)

**WORLD BANK / SFI**
(ii) Construction and reinforcement of substations and a 225 kV transmission line
(iii) Extension of the distribution network in 10 regional capitals (€325 million)

**EUROPEAN UNION**
(i) Technical assistance programme for the establishment of a competitive energy tendering unit (3-year programme)
(ii) Extension and strengthening of distribution networks in Abidjan, Bouaké, San Pedro, Social Connections and Institutional Support

**EXIM BANK CHINA**
(i) Electrification of 500 rural communities,
(ii) Construction of 945 km of 225 kV grid, Construction of 736 km of 90 kV grid,
(iii) Construction of 15 225 kV substations, Construction of 12 90 kV substations ($800 million)
WEST AFRICAN DEVELOPMENT BANK
(i) 225 kV Azito, Djibi, Bingerville, Anani 1, Yopougon 3;
(ii) 90 kV Anoumanbo, Grand Bassam source substations; 90 kV Yop1-Yop2 link;
(iii) Extension of distribution networks in Abidjan and securing of source workstations and HTA networks (€134 million)

EUROPEAN INVESTMENT BANK
(i) Construction of the Yamoussoukro dispatching centre;
(ii) Extension and strengthening of distribution networks Abidjan, Bouaké, San-Pedro
(iii) Efficient street lighting (€117.7 million)

KUWAITI DEVELOPMENT FUND
(i) Construction of the 225 kV substation at Adzopé,
(ii) Construction of the 225 kV Akoupé Zeudji - Adzopé line
(iii) HTA network restructuring. (7 M KWD)
## VII. COLLECTIVE ACTION PLAN FOR SUMMARY DECLARATION

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solutions Proposed</th>
<th>Actions</th>
<th>Entit(ies) Responsible</th>
<th>Timeline</th>
</tr>
</thead>
</table>
| 1. Financial Viability of the Sector | **Government of Cote d'Ivoire:**  
- Indexing of tariffs to inflation and **effective application** of cost-reflective tariffs  
- Plan the systematic deployment of a competitive bidding process to reduce PPI costs in PPPs.  
**Development Partners:**  
- Budget support for the sectoral deficit ($300 million)  
- Design of a structure of concessional loan products and grants for flexible loan structures with longer maturities to facilitate the implementation of lower tariff structures for PPPs (See USTDA/OPIC Model for Scaling) | **Government / Technical and financial partners**  
- Carry out the tariff review of the electricity sector  
- Prioritize the tendering process in projects  
- Make official government requests for budget support to TFPs  
- Participate in initiatives to facilitate TFPs’ access to competitively priced financing  
- Improve the technical and commercial performance of the electricity sector  
- Collect receivables from the sector | Ministry of Energy  
Ministries of Finance / Budget  
Directorate General for Energy  
CI-Energies  
ANARE-CI  
Technical and Financial Partners | 2019-2020 |
| 2. Security of Natural Gas Supply | **Government / Development Partners**  
- Accelerate solutions for the transition from gas to electricity through FSRU, TA, feasibility studies.  
- Development of new gas infrastructure  
- Safety of gas installations  
- Diversification of supply sources  
  - Updating of gas supply scenarios based on the latest developments.  
  - Regional gas assessment (impact of the new regional gas supply on imports)  
  - Technical assistance consortium (Korea, AFDB, Italy, Power Africa) to support the government and Petroci with integrated expertise and support | **Government / Technical and financial partners**  
- Set up a Liquefied Natural Gas unit  
- Continue the development of gas infrastructure  
- Conduct studies on the security of natural gas supply  
- Establish a technical assistance consortium to support the government and Petroci | Ministry of Energy  
General Directorate of Hydrocarbons  
CI-Energies  
Technical and Financial Partners | 2019-2020 |
| 3. Tender procedures for concessions | **Government / Development Partners**  
- Plan for the systematic deployment of a competitive bidding process to reduce PPI costs  
- Set up technical assistance for the structuring of calls for tenders and negotiations  
- Make an inventory of the potential of Renewable Energies by source / feasibility | **Government / Technical and financial partners**  
- Carry out an evaluation mission to work on the design of the project in a way that is adapted to VIC conditions  
- Deploy a competitive bidding process  
- Set up technical assistance for the structuring of calls for tenders and negotiations | Ministry of Energy  
Directorate General for Energy  
CI-Energies | 2019-2020 |
<table>
<thead>
<tr>
<th>4. Project finance / Policy and regulatory adaptation (off-grid)</th>
<th><strong>Government / Development Partners</strong></th>
<th><strong>Government / Technical and financial partners</strong></th>
<th>Technical and Financial Partners</th>
</tr>
</thead>
</table>
|  | ● Adapted guarantee mechanisms for companies | ● Promote funding focused on low-income consumers | Ministry of Energy  
Directorate General for Energy  
CI-Energies  
Technical and Financial Partners |
|  | ● Concessional financing | ● Subsidize mini-grid infrastructure. |  |
|  | ● New implementing decrees for mini-network concessions | ● Encourage concessions that facilitate bank financing |  |
|  | ● Setting up a dedicated fund for Renewable Energies | ● Use of asset-backed guarantees |  |
|  | ● Energy Management Fund Application Texts | ● Develop additional regulations for the development of the Renewable Energy sector |  |
|  | ● Tax exemption measures for solar equipment | ● Create and operationalize a dedicated fund for Renewable Energies |  |
|  | | ● Reduce customs duties and taxes for Renewable Energies |  |
|  | | | 2019-2020 |