

THE DENHAM INTERNATIONAL  
POWER FUND  
IMPACT REPORT







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Forecasts and projections contained herein are based on internal information and/or outside sources believed to be reliable. There can be no assurance that any forecast or projection will be realized. Past performance is not an indication of future results. See "Notice to Recipients" for important additional information.





# 1 INTRODUCTION FROM SCOTT MACKIN

We are excited to be releasing our first Impact Report for the Denham International Power Fund, highlighting our approach to Environmental, Social and Governance (ESG) and reporting on the positive environmental and social impacts of our international power investment strategy.

Whilst ESG as a theme has gained huge popularity over the last couple of years, this is something which has always been important to us. We have seen first-hand how ESG can have a positive impact on investments - good ESG practices can help projects being delivered on time and at cost and add value to exits, while at the same time benefit communities and the environment. We view ESG and profitability as positively correlated.

It is also a great time to be reporting on the impact of our projects with the UN Sustainable Goals (SDGs) gaining traction from investors globally. One of the 17 goals focuses specifically on ensuring access to affordable, reliable, sustainable and modern energy for all by 2030 and it is widely recognized that energy underpins several of the other SDGs such as poverty reduction and climate change. We see our investment strategy as having 3 impact legs and these are directly aligned to many of the SDGs.



## 1 ENABLING A MIDDLE CLASS THROUGH THE PROVISION OF LOW COST AFFORDABLE POWER

The first leg of our strategy is providing power to countries where the electricity supply is poor and where blackouts are common. An estimated 1.1 billion people do not have access to electricity, of which more than half are Africans<sup>1</sup>. In Nigeria, there are more than 30 power outages every week<sup>2</sup> and in Bangladesh, power outages are estimated to lead to losses of about two to three percent of the country's gross domestic product<sup>3</sup>.

Energy is considered the first step in the ladder of development – without it there is little chance of an escape from poverty<sup>4</sup>. Low cost affordable power is critical to help build a sustainable middle class through the development of education, manufacturing, commerce, and healthcare.

We have estimated our pipeline to provide power to nearly **45 million people** on an annual basis through the provision of **3.2 GW of clean power projects**.



## 2 CLIMATE ACTION

The second leg is carbon savings. We have estimated that our pipeline of projects will result in an annual savings of **3.5 million tonnes of carbon savings**. This pipeline will provide significant carbon savings – this is important from both an ESG perspective and for an investor who is thinking of risk mitigation and decarbonizing their portfolio. To put this in more visual terms, 3.5 million tonnes of carbon savings is the equivalent of growing over **90 million tree seedlings for 10 years**<sup>5</sup>.



<sup>1</sup> International Energy Agency (2017) "Energy Access Outlook"

<sup>2</sup> World Bank Data

<sup>3</sup> World Bank (2016), "Bangladesh: Ensuring a Reliable and Quality Energy Supply"

<sup>4</sup> Financial Times (May 2018) "Access to Energy is an Essential Step in African Development"

<sup>5</sup> US EPA greenhouse gas equivalencies calculator

## 3 WORKING WITH COMMUNITIES

And, the final leg are the environmental and community initiatives that are implemented as part of the project. Our management teams are strong advocates in ensuring that local communities benefit. Initiatives include providing medical equipment in local hospitals, implementing projects to empower women and indigenous communities, clean water initiatives and educational projects. Our management teams also recognize that where possible, it is important to provide employment and training opportunities to local people.



There are two purposes of this report. The first is to share the ESG work which we do in the International Power Fund, our processes, the Standards we follow and how we integrate ESG in the investment cycle. The second is to provide some detail around our management teams, the projects which they are developing and the related community related projects. The positive impact of our projects is significant and we feel strongly that it should be reported.

Last year we looked at how we could strengthen our internal organizational capacity and appointed an ESG Manager who is working closely with both the deal team and management teams. We have also set-up an ESG LPAC sub-committee consisting of LPs, senior management and our ESG Manager. This committee convenes on a quarterly basis to discuss the project pipeline and ESG issues related to the pipeline. Over the next 12 months, as our projects start construction, our focus will be on ensuring that our projects comply with our Standards (see page 10) and look at how we can capture further meaningful impact metrics and report against the SDGs. We have set up an impact model to centralize data from our management teams and are working with a third-party to ensure the robustness of this data.

Finally, in case you missed it, we held our first ESG Webinar in April earlier this year. If you are interested in having a recording contact our Investor Relations team at [DenhamIR@denhamcapital.com](mailto:DenhamIR@denhamcapital.com). The Impact Report will be released on a yearly basis, and we look forward to updating you on the progress of our pipeline next year. In the interim, we welcome any comments and questions on this year's Impact Report.

**Scott Mackin**

Managing Partner and Co-President

# 2 ABOUT US

## THE DENHAM INTERNATIONAL POWER FUND

The Denham International Power Fund makes private equity investments in management teams and projects involving the generation of power in international markets. Our activities are mostly centered on the “Build It” theme of developing and building new clean energy assets through management teams primarily in Latin America, Africa and South East Asia where the potential exists to reduce the cost of power while having the protection of long-term power purchase agreements. On an opportunistic basis, we may acquire and improve existing assets following our “Buy It” theme. We have partnered with three management teams active in prior funds and have thus far brought on board one additional management team. Each of these four management teams cover different geographic zones - Themis Energy covers Africa, Rio Energy covers Brazil, Jenner Renewables covers Spanish-speaking Latin America, and Nexif Energy covers South East Asia. These management teams focus on renewables (solar, wind, hydro) and gas-fired projects. We believe that although gas-fired projects emit greenhouse gases, these type of projects are the cleanest and most efficient form of conventional power project and in many countries can result in carbon intensity savings as they are a cleaner alternative for baseload power compared to business as usual power generation.

One of the key criterion in selecting our management teams is ensuring that they place the same importance on ESG as we do. The senior management from each team are fully engaged in applying international ESG standards to their projects, and each has a dedicated ESG team whom we work closely with to continuously seek improvements. We are excited to be working with these management teams who have the same ESG beliefs as us.

## WHY ESG?

Since Denham Capital started the international clean energy-focused power strategy in 2010, ESG has been central to our investment strategy. We are firm believers that ESG can have a material, positive impact on our investments. There are an increasing number of empirical studies being conducted showing the link between good ESG management and value at exit<sup>6</sup>. Buyers will pay a premium for projects where there is good ESG management; conversely, if there has been poor ESG performance buyers will ask for a discount. In the context of infrastructure projects, poor ESG management can lead to unwarranted impacts on biodiversity, poor community relations, and weak governance. This in turn can lead to project delays, cost over-runs and reputational damage. Conversely, good ESG management can result in a project with reduced impacts on the environment, good occupational, health and safety records and positive relationships with communities. We have seen first-hand that good ESG management can contribute towards a strong exit in investments. Just by way of one example, our power team successfully exited the operating renewable energy projects in South Africa developed by BioTherm Energy, a Fund VI management team. Biotherm Energy not only developed their projects in accordance to international standards, but also implemented multiple environmental and community initiatives.

Our management teams develop projects according to international standards by using the IFC Performance Standards and World Bank Environmental, Health and Safety guidelines. This means that our management teams are delivering projects to standards beyond what is typically required to comply with local and national environmental and social regulations in the countries in which they operate. In addition, like Biotherm Energy, our management teams seek to contribute to wider development goals, such as the UN Sustainable Development Goals (see page 7).

In terms of governance, we have a zero tolerance to corruption and bribery. We control all the Boards of our management teams and provide anti-money laundering training to the teams as well as help them implement policies to comply with U.S. Foreign Corrupt Practices Act and U.K. Bribery Act, and relevant national anti-corruption laws.

Apart from the financial impact on investments, we believe good ESG practices are simply the right thing to do. As a responsible investor, we have a duty to ensure that our management teams are good stewards in the communities in which they operate. We use the UN Sustainable Development Goals (page 6) to identify needs of our communities to then implement community related projects.

<sup>6</sup> State Street Global Advisors commissioned a survey last year of 475 global institutional investors and found that a large majority, 68% said that integration of ESG had significantly improved returns and 69% reported that pursuing an ESG strategy has helped with managing volatility.

# 3 THE NEED FOR POWER IN OUR TARGET MARKETS

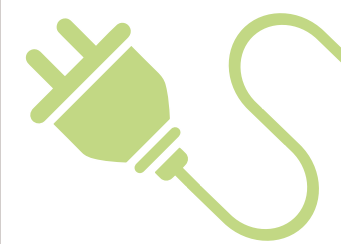
Access to competitively priced power is a major enabler of industrial and economic growth and improvement in living standards, in particular in economies currently experiencing or on the cusp of high growth. Low cost power is the first step in the development ladder. Without power, healthcare, education, manufacturing and commerce are compromised.

**60%** OF GIRLS, WITH ACCESS TO ELECTRICITY, FINISH PRIMARY SCHOOL BY 18

In Brazil, girls with access to electricity in rural areas are almost 60% more likely to finish primary school by the age of 18 than those without, and self-employed women with access to energy have incomes that are two-times higher than those without<sup>7</sup>

**60%** OF REFRIGERATORS IN HEALTH CLINICS HAVE UNRELIABLE ELECTRICITY

Nearly 60% of refrigerators used in health clinics in Africa have unreliable electricity, compromising the safe storage of vaccines and medicines; half of vaccines are ruined due to lack of refrigeration<sup>8</sup>



**FEMALE EMPLOYMENT IN ELECTRIFIED COMMUNITIES SAW A RISE OF**

**9.5%**

In South Africa, rural electrification raised female employment in electrified communities by 9.5%, likely because it released women from home production and enabled micro-enterprises<sup>9</sup>



An average of only

**34%** of hospitals

**28%** of health facilities

in sub-Saharan Africa have reliable **ELECTRICITY ACCESS**; about

**58%**

of health care facilities in sub-Saharan African countries have **NO ELECTRICITY AT ALL**<sup>8</sup>



Developing markets require an estimated \$280 billion of annual investment in power generation to address major supply and demand imbalances. Even when power is available in these economies, it may come at a relatively high cost, commonly a result of expensive fuels and the utilization of inefficient assets to generate the marginal power. In order to meet this growing power demand, an estimated \$8.6 trillion<sup>10</sup> of investment into power generation is required for non-OECD countries over the next 25 years alone.

<sup>7</sup> Women, energy, and economic empowerment (Kathleen O'Dell et al, 2014)

<sup>8</sup> Atlas of Africa Energy Resources (UNEP 2017)

<sup>9</sup> Taryn Dinkleman, "The effects of rural electrification on employment: New evidence from South Africa," American Economic Review 101, no. 7 (2011): pp. 3078–3108

<sup>10</sup> McKinsey Global Institute (2016) "Bridging Global Infrastructure Gaps"

# 3

## THE NEED FOR POWER IN OUR TARGET MARKETS *(Continued)*

### ELECTRIFICATION RATES AND POVERTY IN SOME OF OUR TARGET GEOGRAPHIES

Some of our target geographies	Population without electricity <sup>11</sup>	% of population living below poverty line <sup>11</sup>
Nigeria	95,000,000	70%
Ivory Coast	15,000,000	46.3%
Kenya	35,400,000	43.4%
Madagascar	19,500,000	70.7%
Ghana	7,300,000	24%
Vietnam	2,600,000	11.3%
Bangladesh	60,300,000	31.5%
Philippines	20,600,000	21.6%
Mexico	1,231,667	46.2%

### PER CAPITA ELECTRICITY CONSUMPTION (KWH)<sup>12</sup>

Nigeria	144
Ivory Coast	276
Kenya	167
Madagascar	48.53
Ghana	355
Vietnam	1,411
Bangladesh	310
Philippines	699
Mexico	2,090
USA (comparison)	12,987

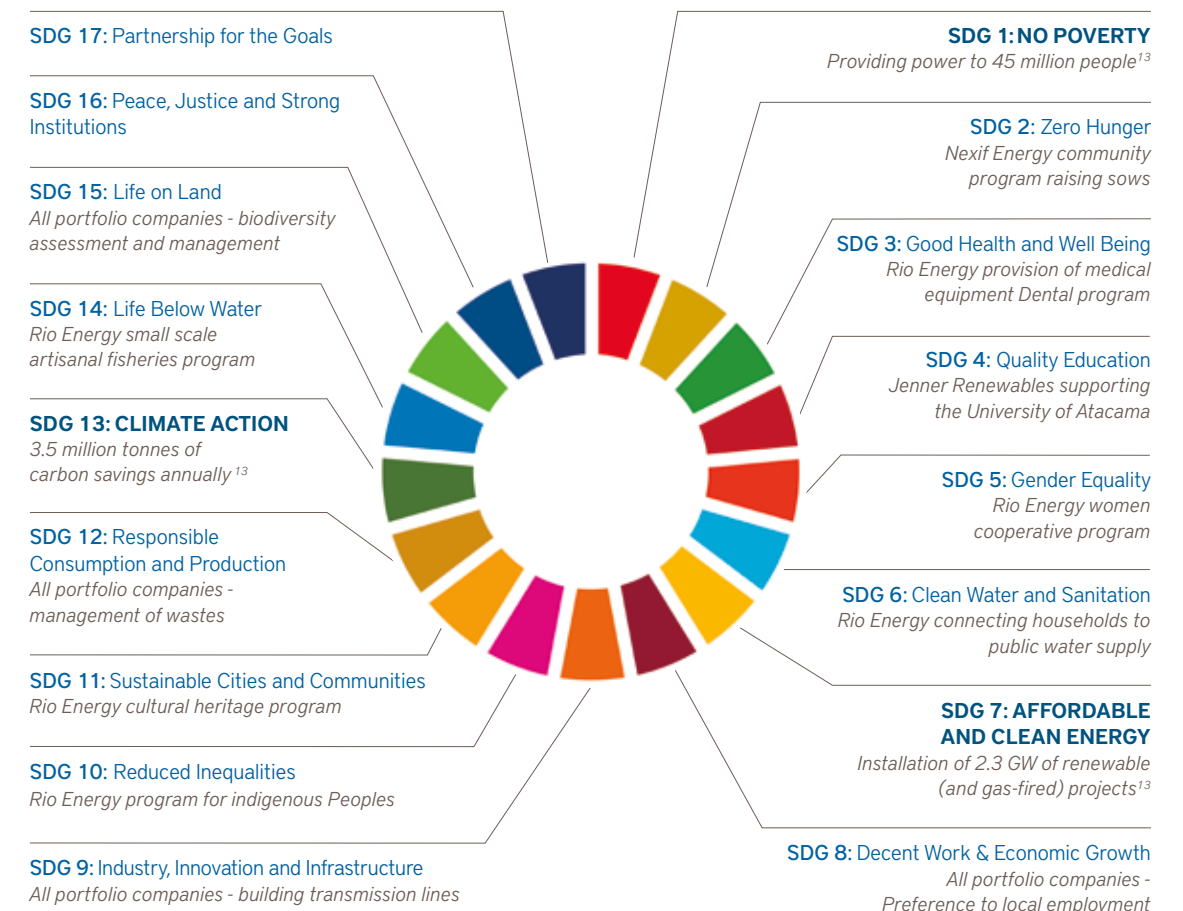
<sup>11</sup> CIA, the World Fact Book and World Bank Data  
<sup>12</sup> World Bank Data

### OUR APPROACH TO THE UN SUSTAINABLE DEVELOPMENT GOALS (SDGS)

The UN SDGs are 17 global goals set by the UN to cover the most pressing environmental and social challenges. They cover five broad, interlocking pillars – people, planet, prosperity, peace and partnership. These goals build on the Millennium Development Goals but include other items, such as climate action, as priorities. The SDGs were designed to set targets at a country level, consequently there is currently no standardized way to report against the SDGs for private equity investors. As part of the ESG Working Group of the Emerging Markets Private Equity Association (EMPEA), we have participated in the report “Private Equity’s Role in delivering the SDGs”, which provides guidance to private equity firms on how to report against the SDGs. Our case-study is also available on EMPEA’s website.

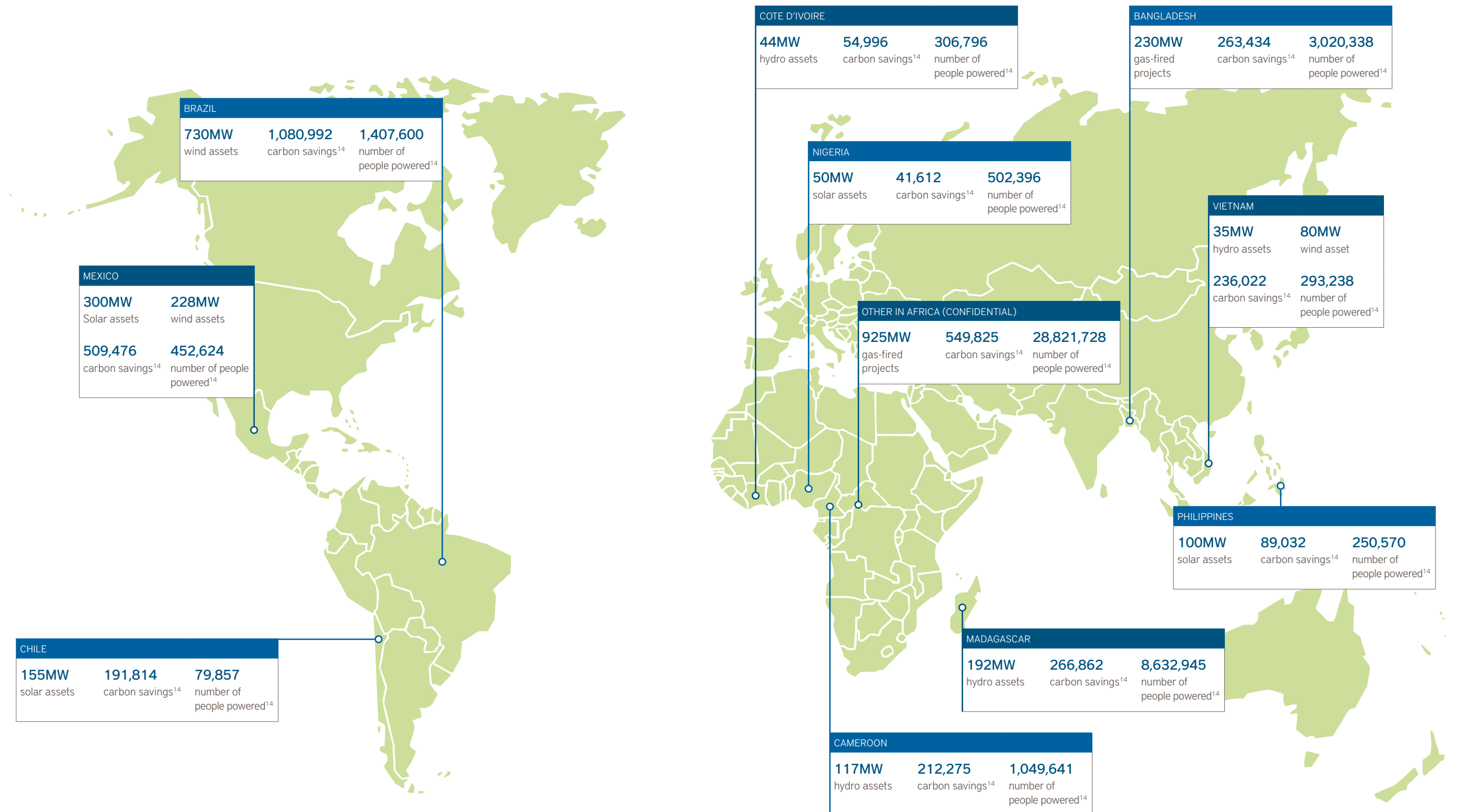
Whilst several SDGs have overlapping themes, we have decided to group the SDGs according to primary contributions (goals to which the development of power assets makes direct contributions) and secondary contributions (through community-related projects). The primary SDGs on which Denham will report are SDG 1 (No Poverty), SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action). We will report on SDGs applicable to the employment of workers during construction and operation SDG 8 (Decent Work and Economic Growth) and SDG 10 (Reduced Inequalities).

Community-related projects will contribute to several of the other SDGs, such as SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being) and SDG 6 (Clean Water and Sanitation). The SDGs will be used as part of the framework to identify the needs of a community and reporting will be based at a project specific level. We categorize these as our secondary SDG contributions. An example of how our management teams are contributing to the SDGs can be found in our SDG wheel.



<sup>13</sup> Potential CO2 savings and potential number of people powered. Projects include all development projects, some of which may not be realized.

# 4 IMPACT MAP OF PIPELINE PROJECTS



<sup>14</sup> As of 06/30/18 Denham internal estimate based on market research. Representative of Denham's percent ownership in project.



# 5 ESG INTEGRATION IN OUR INVESTMENT PROCESS

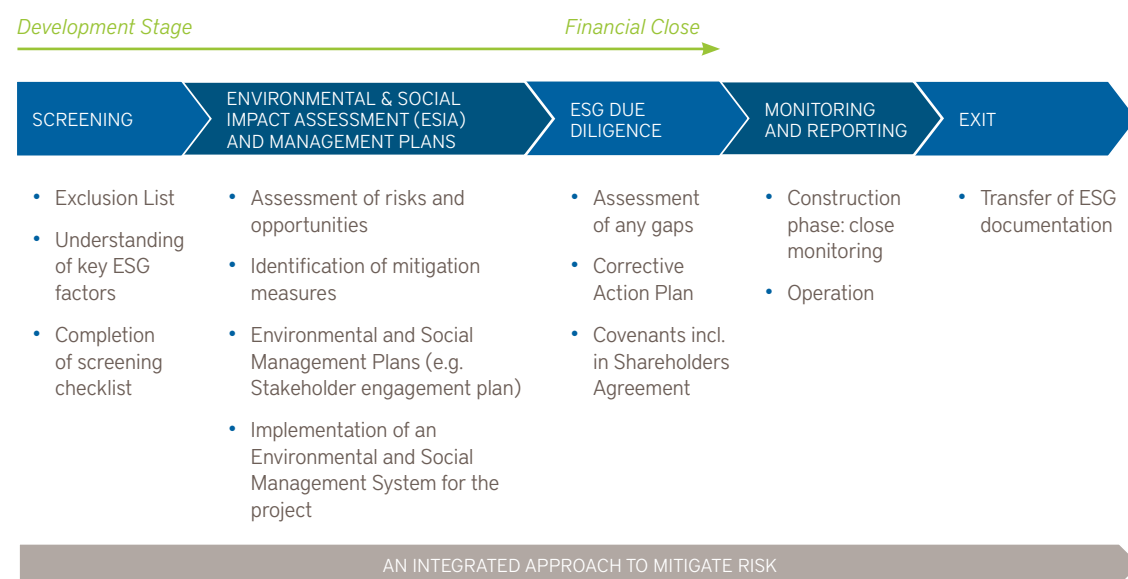
Denham Capital has put in place a framework to manage ESG risks and opportunities throughout the investment cycle. We use international best-practice standards, such as the IFC Performance Standards and World Bank Environmental Health and Safety guidelines as the benchmark standards and require all our management teams to comply to these standards as well. We believe that integrating ESG in the investment cycle is not a “tick the box” exercise – but an opportunity to continually seek improvement and enhance the value of an investment.

In selecting our management teams, one of the key criteria is to ensure that senior management share the same beliefs on the importance of ESG. As majority investors in these teams, we can ensure that each company commits to the same standards as us, and have the organizational capacity and competency to implement their environmental and social management systems. One of our key requirements is for each management team to have an experienced and dedicated ESG team.

We also have a system of checks and balances throughout the investment cycle - this for us is not just a risk mitigation exercise but also a tool to identify opportunities. For example, stakeholder engagement is an opportunity for members of a community to voice concerns over how a project may impact them, but it is also an opportunity to identify ways to reduce any impacts and assess what type of community related project could be of benefit to them.

In cases where gaps are identified between environmental and social requirements between national requirements and our Standards, a corrective action plan to comply with these Standards within a reasonably acceptable timeframe will be established for a project. The monitoring phase is especially important during the construction phase of a project and we ensure that a monitoring framework is put in place. At exit we will provide to the buyer ESG related information.

## ESG PROCESS IN THE INVESTMENT CYCLE



## EXCLUSION LIST

The Denham International Power Fund will not invest in any project or activities that are included in our Exclusion List. Excluded activities include:

- Destruction of critical habitats
- Commercial concessions over, and logging on tropical natural forests
- Conversion of natural forests to a plantation
- New palm oil plantations
- Activities that lead to clear cutting and/or degradation of tropical natural forests or high nature value forest
- Harmful or exploitative forms of forced labor or harmful child labor
- Gambling, casinos, tobacco

## OUR STANDARDS

We are committed to the following Standards:

- Applicable international, national and local laws on environment, health, safety and social issues and any standards established herein
- The IFC Performance Standards
- The World Bank Environmental, Health and Safety guidelines
- ILO Core Labor Standards and ILO Basic Terms and Conditions of Work
- International Bill of Human Rights in line with the UN Guiding Principles on Business and Human Rights
- U.S. Foreign Corrupt Practices Act and U.K. Bribery Act, as well as relevant national anti-corruption laws

## THE IFC PERFORMANCE STANDARDS

All of our projects are screened and assessed against the following eight IFC Performance Standards:

- |   |  |
|---|--|
| <b>PS1:</b> Assessment and management of environmental and social risks and impacts | <b>PS5:</b> Land acquisition and involuntary resettlement                                    |
| <b>PS2:</b> Labor and working conditions  | <b>PS6:</b> Biodiversity conservation and sustainable management of living natural resources |
| <b>PS3:</b> Resource efficiency and pollution prevention                            | <b>PS7:</b> Indigenous Peoples   |
| <b>PS4:</b> Community Health, Safety and Security                                   | <b>PS8:</b> Cultural Heritage  |

## GUIDELINES

Our projects follow international standard guidelines in developing projects, including:

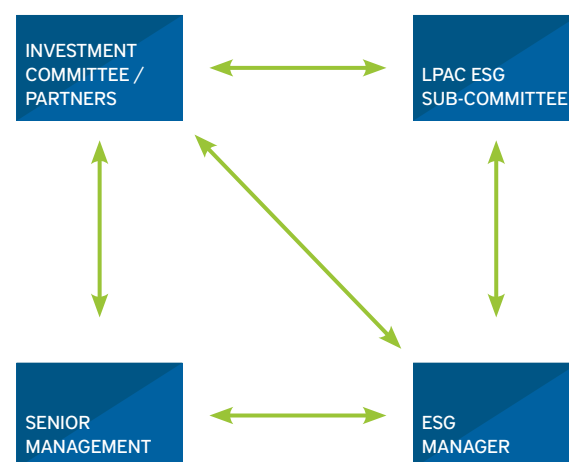
- The World Bank Environmental, Health and Safety guidelines
- The World Bank Environmental, Health and Safety guidelines for Power Transmission and Distribution
- The World Bank Environmental, Health and Safety guidelines for Wind Energy
- IFC's Good Practice Note on Managing Contractor's Environmental and Social Performance
- IFC's Good Practice Note on Environmental, Health and Safety Approaches for Hydropower
- IFC's Good Practice Handbook "Environmental Flows for Hydropower Projects"

# 5

## ESG INTEGRATION IN OUR INVESTMENT PROCESS *(Continued)*

### OUR ORGANIZATIONAL CAPACITY

ESG is managed within several layers at Denham. Each management team has an appointed ESG Manager who works closely with Denham's ESG Manager. The ESG Manager and deal team discuss ESG issues of each project and report back to the Investment Committee and Board Meetings. We encourage the dialogue with our investors and have formed an ESG sub-committee consisting of LPs interested in following our ESG work. We hold quarterly calls with the ESG sub-committee to update them on our projects and the ESG work which is being carried out.




We believe that it is important for all our management teams to receive ESG training and this year we held workshops to provide ESG training. The content included a deep dive on the IFC Performance Standards and the application of these standards in the context of the projects being developed by each management team. We have also worked hand in hand with our management teams to ensure that their environmental and social management systems are aligned to the requirements of the IFC Performance Standards. We are grateful to DEG, the development finance arm of KfW who have supported us in this work.



# 6

## PORTFOLIO COMPANY OVERVIEW


**THEMIS**

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HEADQUARTERS	Casablanca, Morocco
TARGET MARKETS	Select Countries in Africa
SECTOR	International Power





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HEADQUARTERS	Singapore
TARGET MARKETS	Southeast Asia
SECTOR	International Power
WEBSITE	<a href="http://www.nexifenergy.com">www.nexifenergy.com</a>



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HEADQUARTERS	Rio de Janeiro, Brazil
TARGET MARKETS	Brazil
SECTOR	International Power
WEBSITE	<a href="http://www.rioenergyllc.com">www.rioenergyllc.com</a>





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HEADQUARTERS	Madrid, Spain
TARGET MARKETS	Select Countries In Latin America
SECTOR	International Power
WEBSITE	<a href="http://www.jenner-renewables.com">www.jenner-renewables.com</a>



# THEMIS ENERGY



## ABOUT

Denham Capital announced the Themis Energy (Themis) platform in March 2018. The widely recognised Themis team has been responsible for developing and financing some of Africa’s most significant infrastructure and power projects over the last decade. The partnership with Themis will build on Denham Capital’s leading position as an investor and developer of clean power projects across Africa, dating back to 2008.

The Themis team comprises professionals with wide-ranging experience in power project development, equity investments, lending and arranging senior and sub debt facilities in limited recourse and corporate finance transactions across Africa, Asia, Europe, and the US. The Themis team is actively developing circa 400 MW across the African continent, including the 44 MW Singrobo hydro project in Côte d’Ivoire, and is targeting the development of over 1 GW of gas-fired and renewable power generation projects in the medium term. The team will be headquartered in Morocco through the incorporation of a new company, Neo Themis.

## TEAM

The company is led by Tas Anvaripour, Chief Executive Officer, an industry veteran with 27 years of experience, and who previously served as the head of the African Development Bank’s private infrastructure investments. Themis’ core investment team are predominantly African, currently comprising 12 professionals (50% of which are female) with project development, investment and financing backgrounds gained in both the public and private sector. Themis is working on setting up an ESG Expert Panel, to be made up of leading ESG experts who have worked on hydropower and other projects in Africa.

Themis’ ESG Manager, Awatef Fourati is a geologist engineer with 27 years of international experience in ESG experience in infrastructure and energy projects. Formerly, Ms. Fourati was the Principal Environmental Officer at the African Development Bank. At the project level, Themis employs a dedicated team to implement ESG activities on the ground.



## PROJECTS

In this Impact Report we will focus on three of Themis’ projects.

### SINGROBO AHOUATY PROJECT IN THE IVORY COAST

#### Country info





Côte d’Ivoire has emerged from a decade long political crisis as Africa’s fastest-growing economy in 2016 according to the International Monetary Fund, but that growth has strained power supplies<sup>15</sup>. With domestic consumption rising by about 10 percent a year, the government is under pressure to boost supply at home and aims to increase output to 4,000 MW by 2020 from the current 2,275 MW<sup>15</sup>. The World Bank estimates that nearly half of the population still lives in poverty.

#### Project info

Themis’ most advanced project is a 44 MW hydropower project (Singrobo-Ahouaty) in Côte d’Ivoire. The project has received a 3-year bridge loan from AFC, a pan-African multilateral, and the African Development Bank (AfDB) is a lead lender. Currently Themis and AfDB are talking to other development finance institutions to provide debt finance to the project.

An ESIA has been completed for this project. Although only two households will be physically displaced as a result of this project, economic displacement will occur, and Themis has engaged senior resettlement experts to develop and oversee implementation of the Resettlement Action Plan. Themis has also engaged a leading biodiversity organization which includes members of the International Union for Conservation of Nature (IUCN) commission to carry out the biodiversity assessment and design the biodiversity action plan. All these studies have been completed to ensure that the project meets the requirements of the IFC Performance Standards.

#### Projected Key Impact Metrics in Côte d’Ivoire<sup>16</sup>:

- **SDG 1**  
300,000 new people with electricity
- **SDG 7**  
Installation of 44 MW  
Generation of 85 GWh of renewable energy annually
- **SDG 13**  
CO2 savings 55,000 tonnes on an annual basis
- **SDG 8**  
480 jobs during construction (indirect impact)

We intend to report on the percentage of workers which are local and local taxes paid. We will also report on development impacts related to community related projects.

<sup>15</sup> <https://www.reuters.com/article/ivorycoast-electricity/ivory-coast-increases-electricity-output-with-new-hydro-plant-idUSL8N1N87F1>

<sup>16</sup> Denham internal estimate based on market research. Representative of Denham’s present ownership in project





### 50MW SOLAR PV PROJECT IN NIGERIA

#### Country info

Nigeria is the largest economy in sub-Saharan Africa, but limitation in the power sector constrain growth<sup>17</sup>. A government study found that Nigerians consume 126 kWh per capita – less than a 30th of the 3,900 kWh consumed on average by South Africans each year<sup>18</sup>. Nigeria is listed as one of the ten countries experiencing the most frequent power outages, with businesses experience more than 30 power outages every week<sup>19</sup>. Although Nigeria has an installed generation capacity of 13,400 MW on the grid, the average amount of power it provided over the past two years was less than 4000 MW<sup>18</sup>. The inadequate generation, transmission and distribution of electricity in Nigeria has been a major impediment to industrial and economic growth.

#### Project info

Themis is developing a 50 MW solar PV project in Nigeria which is projected to be operational in 2020. An ESIA has been completed by an international environmental consultancy and stakeholder consultation has been completed as part of this process. A gap analysis will be completed to ensure that the ESIA is in full compliance with the IFC Performance Standards.

The project will contribute to the development of sustainable and reliable electric power infrastructure in Nigeria and enable further development in the region by providing power to the local grid that feeds hospitals, schools and businesses. The project will not lead to any economic or physical resettlement.

#### Projected Key Impact Metrics in Nigeria<sup>20</sup>:



**SDG 1**  
500,000 new people with electricity



**SDG 7**  
Installation of 50MW  
Generation of 73 GWh of renewable energy annually



**SDG 13**  
CO2 savings of 500,000 tonnes on an annual basis



**SDG 8**  
120 jobs during construction  
12 jobs during operation (indirect impact)

We intend to report on the percentage of workers which are local and local taxes paid. We will also report on development impacts related to community related projects.

### 192 MW HYDRO POWER PROJECT IN MADAGASCAR

#### Country info

With an electrification rate of 15%<sup>21</sup>, Madagascar is one of the 10 countries with the lowest electrification rates in the world. 78%<sup>22</sup> of the population does not have access to electricity and per capita consumption is one of the lowest in the world, estimated at 48.53 kWh<sup>21</sup>, 88% lower than the sub-Saharan average. Highly dependent on oil imports, the country's electric tariff is 40% higher than the sub-Saharan average. Since the country's independence in 1960, Madagascar is the only non-conflict country to have become poorer, with annual income halving, to about \$400<sup>23</sup>.

#### Project info

Other projects in Themis' pipeline include a 192MW hydro power project in Madagascar. This project will respond to an urgent need to expand the installed generation capacity by 35% from, 568 MW to 768 MW, generating an estimated 1500 GWh of electricity on an annual basis. The project will also significantly reduce the power utility's production cost, helping the country balance its current deficit. Financial close is projected for Q1 2019.

The ESIA scoping study and a wet season biodiversity assessment has been completed. Next steps include a dry season biodiversity assessment, full ESIA and a Resettlement Action Plan. These studies are being completed by international consultants.

#### Projected Key Impact Metrics<sup>24</sup>:



**SDG 1**  
8.6 million new people with electricity



**SDG 7**  
Installation of 192MW  
Generation of 483 GWh of renewable energy annually



**SDG 13**  
CO2 savings 266,000 tonnes on an annual basis



**SDG 8**  
750 jobs (indirect impact)

We intend to report on the percentage of workers which are local and local taxes paid. We will also report on development impacts related to community related projects.

<sup>21</sup> USAID (2016) "Power Africa in Madagascar"

<sup>22</sup> World Bank Data "Access to Electricity"

<sup>23</sup> FT (June 2018) "Madagascar caught in spiral of decline after decades of neglect"

<sup>24</sup> Denham internal estimate based on market research. Representative of Denham's present ownership in project



<sup>17</sup> <https://www.usaid.gov/powerafrica/nigeria>

<sup>18</sup> <https://www.ft.com/content/13e73f98-a512-11e7-8d56-98a09be71849>

<sup>19</sup> Index mundi "power outages in firms in a typical month"

<sup>20</sup> Denham internal estimate based on market research. Representative of Denham's present ownership in project



# 6

## PORTFOLIO COMPANY OVERVIEW NEXIF ENERGY



### ABOUT

In August 2015, Nexif and Denham Capital partnered to form Nexif Energy, a South East Asian, Bangladesh and Australian focused independent power producer. Under Fund VI, Nexif owns 58% of the operational 30 MW Coc San hydro project in Vietnam. The project was accepted under the World Bank's Renewable Energy Development Program for Vietnam. Under Fund VI, the company has a 126 MW wind power project under construction in Australia and is developing a 108 MW combined cycle power project in Thailand.

### TEAM

Nexif was established by Surender Singh and Matthew Bartley, two experienced power development professionals who have developed, financed, constructed and exited more than 4 GW of projects in Asia, Australia and the Middle East. Nexif team members have held senior positions at AES, a global power company, Tata Power and Keppel Corp, as business heads or technical leaders. Nexif's team comprises 32 professionals including Srinivas Rao, the ESG Officer. Nexif is headquartered in Singapore and has offices across Asia.

This year, the company engaged Paterson Sustainability (led by a former IFC senior environmental and social officer) to help them develop their corporate environmental and social management system. The team received ESG training in June 2018.



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## PORTFOLIO COMPANY OVERVIEW NEXIF ENERGY (Continued)

### PROJECTS

#### 80 MW WIND AND 35 MW HYDRO IN VIETNAM

##### Country info

Vietnam has the third largest population in Southeast Asia and is one of the fastest growing economies in Southeast Asia, in 2016 it grew 6.2%, the fastest rate in ASEAN<sup>25</sup>. Much of the economic growth is fueled by coal and Vietnam's per capita carbon emissions quintupled from 1990 to 2013<sup>25</sup>. It is estimated that electricity use in Vietnam will grow 10-12% a year through 2020, twice the GDP growth rate<sup>25</sup>. Keeping up with electricity demand will require doubling of the current capacity of 35 MW<sup>26</sup>.

70% of the Vietnam's population is now classified as economically secure, and an average of 1.5 million Vietnamese has joined the global middle class each year since 2014, confirming that households continue to move out of poverty<sup>26</sup>. However, ethnic groups make up around 12 million of Vietnam's population of 90 million but account for over two-fifths of the poor<sup>27</sup>.

Vietnam has some of the best renewables resources in Southeast Asia. For example, Vietnam's coastal line of 3,400 kilometers has an average wind speed of 6 meters per second and solar intensity of 5kWh per m2 (on average)<sup>28</sup>.

##### Project info

Projects which the company is developing under the International Power Fund include an 80 MW wind power project located in Thanh Phy district, Ben Tre province in Vietnam. The project is to be developed in 3 phases, with financial close of phase one (30 MW) projected to have financial close in Q3 2019 and commence operations in 2020. A wind mast was commissioned in April 2018. Ben Tre is an extremely disadvantaged area, and the project is projected to bring in economic and social development to the local community, in addition to delivering clean energy.

Nexif is currently evaluating an acquisition opportunity for a 35 MW hydro project in Lao Cai Province in Northern Vietnam. An ESG screen has been completed for this project, the next stage will be a gap analysis of the ESIA.

#### Projected Key Impact Metrics in Vietnam<sup>29</sup>:



**SDG 1**  
293,000 new people with electricity



**SDG 7**  
Installation of 115 MW  
Generation of 422 GWh of renewable energy annually



**SDG 13**  
CO2 savings 236,000 tonnes on an annual basis

We intend to report on the percentage of workers which are local and local taxes paid. We will also report on development impacts related to community related projects.

<sup>25</sup> Forbes 2017 "Vietnam's Economy is on Fire, and fuelled by coal: How it can create a greener future"

<sup>26</sup> World Bank 2018 "Climbing the ladder: poverty reduction and shared prosperity in Vietnam"

<sup>27</sup> The Economist 2015 "Ethnic minorities in Vietnam: Out of Sight"

<sup>28</sup> Hogan Lovells 2018 "Renewable Energy in Vietnam"

<sup>29</sup> Denham internal estimate based on market research. Representative of Denham's present ownership in project



# 6

## PORTFOLIO COMPANY OVERVIEW NEXIF ENERGY (Continued)

### 230 MW CCGT PROJECT IN BANGLADESH

#### Country info

Only two-thirds of Bangladesh's population is connected to the electricity grid<sup>30</sup>, resulting in an untapped potential market of up to 60 million people connecting to the national grid in coming years. Installed capacity is at 13,179 MW and is expected to reach 34,000 MW by 2030<sup>30</sup>. Although Bangladesh has initiated a successful program of private power production, demand exceeds the supply or power at current prices and power outages are still common, leading to losses of about 2-3% of the country's gross domestic product.

#### Project info

Nexif is looking at developing a 230 MW combined cycle gas turbine project in Bangladesh. Gas is the cleanest of the fossil fuels and combined cycle gas turbine projects are the most efficient in terms of carbon intensity. This project complies with our requirement of gas fired projects having a carbon intensity below 550g CO<sub>2</sub>/ kWh. An ESIA will be completed in due course.

#### Projected Key Impact Metrics in Bangladesh<sup>31</sup>:



**SDG 1**  
3 million new people with electricity



**SDG 7**  
Installation of 230 MW  
Generation of 937 GWh of renewable energy annually



**SDG 13**  
CO<sub>2</sub> savings of 263,000 tonnes on an annual basis

We intend to report on the percentage of workers which are local and local taxes paid. We will also report on development impacts related to community related projects.

<sup>30</sup> Export.gov

<sup>31</sup> Denham internal estimate based on market research. Representative of Denham's present ownership in project



# 6

## PORTFOLIO COMPANY OVERVIEW RIO ENERGY



### ABOUT

Formed by Denham Capital in 2012, Rio Energy is a leading developer, owner and operator of renewable energy projects in Brazil. The Rio Energy management team seeks to create value in Brazil through its deep market knowledge, proprietary wind data and access to robust development projects. The company manages a 485 MW contracted wind portfolio in Fund VI, having brought 261 MW into operations since inception with another 223 MW scheduled for commercial operations by December 2018. The company has more than 1,500 MW of expansion and greenfield pipeline projects.

### TEAM

The team is led by Marcos Meireles, CEO and co-founder of Rio Energy. Over their careers, the management team has participated in the development, financing, construction or management of over 7,000 MW of power generation assets globally. The team of 45 includes an ESG team of 3 persons responsible for the environmental permitting process, and an environmental and a social expert.

### COUNTRY INFO

The prospects for long-term demand in the Brazilian renewable energy market remain favorable due to population growth and the creation of a new middle class. Whilst nearly 67% of total installed capacity comes from hydropower, the effect of water shortages have convinced successive governments to diversify the country's energy mix. Strong wind resources and a supportive regulatory framework have created an enabling environment for wind developers.





# 6

## PORTFOLIO COMPANY OVERVIEW RIO ENERGY *(Continued)*

### PROJECTS

Projects being developed under the International Power Fund, include 5 wind energy projects. All five projects have completed our ESG screen, and are currently undergoing the ESIA process to comply with both Brazilian regulatory purposes and the IFC Performance Standards. These projects are not expected to result in any physical or economic resettlement or impact on indigenous peoples.

### ESG AT RIO ENERGY:

ESG lies at the core of Rio Energy's operations, and the company is dedicated to being a good steward in the communities in which it operates. Apart from developing projects according to the IFC Performance Standards, the company implements a number of community related projects. Under projects developed in Fund VI, the following community development projects were implemented.

#### ITAREMA WIND COMPLEX

Rio Energy invested US\$ 180,000 towards medical equipment at a local hospital including beds, oxygen cylinders and other medical apparatus. Today, thanks to this contribution, local residents can be treated in Itarema instead of traveling 25-45km to the next closest hospital. A dental program was also set-up and 374 locals received dental treatment.

A number of households in the project's sphere of influence did not have access to clean water and Rio Energy invested over \$200,000 to connect 90 households to clean water. In another initiative, Rio Energy helped women from local communities to come together and set up a cooperative so that they could market and sell their artisanal products.

#### SIERRE DA BABILÔNIA WIND COMPLEX

Rio Energy together with researchers from the Federal University of Rio Grande do Norte, established a tree nursery in northern Brazil. The nursery is the first environmental management program of its kind in the region. The project registers local plant species, stores seeds, and produces saplings, which will be later used for reforestation. The project currently produces 50,000 saplings per year from 20 species, some of which are endangered. The nursery employs members of the local community, generating income and also doubles as an education center for sustainable agricultural techniques. Community members are trained to manage the nursery as a community cooperative, so that after the company's wind project is completed, the saplings can be sold to businesses that have environmental obligations related to reforestation. The nursery runs on solar energy and uses rainwater and filtered ground water for irrigation.

In addition to the tree nursery, Rio Energy implemented a program called Rede de Jovens (Youth Network). This program selected 9 youths in different communities in the project's area of influence and trained and paid them to carry out interviews in their local communities to assess community needs. One of the key findings was the lack of basic sanitation and plumbing, and Rio Energy together with the youth leaders is developing a program to install ecological toilets in households.

<sup>32</sup> Denham internal estimate based on market research. Representative of Denham's present ownership in project

### Projected Key Impact Metrics in Brazil<sup>32</sup>:



**SDG 1**  
1.4 million new people  
with electricity



**SDG 7**  
Installation of 730 MW  
  
Generation of 3,660 GWh  
of renewable energy  
annually



**SDG 13**  
CO2 savings 1 million  
tonnes annually



**SDG 8**  
1,250 jobs during  
construction of the  
4 projects (indirect  
impact)

We intend to report on the percentage of workers which are local and local taxes paid. We will also report on development impacts related to community related projects.

# 6

## PORTFOLIO COMPANY OVERVIEW JENNER RENEWABLES



### ABOUT

Jenner Renewables (Jenner) is a renewables developer focusing on target countries in Spanish-speaking Latin America. Denham initially invested with Jenner management in 2015 through Fund VI and will continue the partnership in the International Power Fund. Denham believes Jenner Renewables management team's comprehensive development and execution experience combined with deep relationships with regulators, equipment providers, lending banks, and local partners offer the company an edge.

Under Fund VI, Jenner reached financial close on a portfolio of 12 solar projects in Chile totaling 146 MW. Built in two phases, the portfolio's first phase totals 46 MW and is projected to reach commercial operations in Q3 2018 while its second phase, totaling 100 MW, is projected to reach commercial operations by Q1 2019. This project relieves stress on Chile's transmission line network by providing local renewable generation, closer to demand.

### TEAM

Jenner is led by Jorge Calvet, the former CEO of Gamesa, one of the largest wind power developers and manufacturers in the world. Jenner's senior team members bring a combined prior experience of more than 80 years across target markets. The team has developed, constructed and exited over 4 GW of projects with a combined enterprise value of over \$3.5 billion. The team of 26 based in Madrid including an ESG team.



## PROJECTS

## MEXICAN SOLAR AND WIND PROJECTS

## Country info

Mexico has historically relied on fuel oil for power generation, but this kept its industrial electricity prices about 77% higher in than in the US<sup>33</sup>. More recently, Mexico converted much of its power generation to gas to take advantage of the low gas prices resulting from shale exploration in Northern America. Renewables can be an important driver for diversifying Mexico's energy supply, and it has been estimated that by 2030, Mexico could generate up to 46% of its electricity each year from renewable sources, with wind and solar accounting for 60% of Mexico's renewable mix<sup>34</sup>. In 2015, Mexico introduced a major new clean energy policy – its Energy Transition Law, which includes a clean energy target of 25% of electricity generation by 2018, 30% by 2021 and 35% by 2024.

Electricity demand in Mexico has more than doubled over the last 20 years, and although more than 99% of the population has access to electricity, per-capita consumption is relatively low<sup>35</sup> (per capita consumption in Mexico is 2,090 kWh compared to US average of 12,987 kWh). According to the OECD, Mexico is amongst the 34 members of the organization with the highest electricity prices.

## Project info

Jenner is looking at developing a 200 + 100 MW solar PV project near the US border in the Sonora region of Mexico. This region has some of the best solar resources in the country. An ESIS is currently being completed for the project. The company is also reviewing a wind acquisition opportunity.

Projected Key Impact Metrics in Mexico<sup>36</sup>:

## SDG 1

450,000 million new people with electricity



## SDG 7

Installation of 530 MW  
Generation of 1,170 GWh of renewable energy annually



## SDG 13

CO2 savings 450,000 tonnes annually

We intend to report on employment figures, the percentage of workers which are local and local taxes paid. We will also report on development impacts related to community related projects.

## ESG AT JENNER RENEWABLES:

Jenner is committed to developing its projects to the highest environmental and social standards and to give back to local communities. For example, in the Chilean solar project, Jenner had committed to a minimum of 25% of employees coming from the local communities and during construction managed to surpass this commitment by having 73% of 289 employees being local. As part of its environmental management plan, Jenner oversaw the relocation of cactus and shrubs to minimize any impact on biodiversity. The company is also looking to provide support to the energy and water resources post-graduate program at the nearby University of Atacama.

<sup>33</sup> <https://www.ft.com/content/b1ca8dd2-2448-11e7-a34a-538b4cb30025>

<sup>34</sup> IRENA (2016), Renewable Energy Prospects: Mexico

<sup>35</sup> IEA (2016) World Energy Outlook: Mexico

<sup>36</sup> Denham internal estimate based on market research. Representative of Denham's present ownership in project

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