Calendar Year 2016
Greenhouse Gas Emissions Inventory Report

Prepared for:

The U.S. Overseas Private Investment Corporation

Prepared by:

FINAL REPORT

May 2018

SC&A, Inc.
2200 Wilson Blvd., Suite 300
Arlington, VA 22201
(703) 893-6600
www.scainc.com

TABLE OF CONTENTS

TABLES

FIGURES

INTRODUCTION

SC&A, Inc. (SC&A) performed an independent assessment of greenhouse gas (GHG) emissions from projects supported by the U.S. Overseas Private Investment Corporation (OPIC). GHGs are atmospheric compounds that absorb and emit solar radiation in the thermal infrared range of the electromagnetic spectrum. An increase in the atmospheric concentration of GHGs, in particular carbon dioxide (CO_2), has been linked to changes in the global climate and adverse impacts on both human and natural systems. In response to the challenges posed by climate change, initiatives are being developed to assess and abate GHG emissions from anthropogenic sources.

This report, prepared by SC&A, presents the analysis undertaken to quantify calendar year (CY) 2016[1] GHG emissions from "active" OPIC-supported projects. "**Active**" projects are defined as all insurance contracts in force and all guaranty and direct loans with an outstanding principal balance at the end of OPIC's fiscal year (September 30, 2017 for this CY 2016 Report).

OPIC is required to undertake a project-specific GHG analysis of all projects that emit more than 25,000 short tons per year (STPY) of carbon dioxide equivalent (CO_2e). These projects are hereafter referred to as "**carbon-intensive projects**". To account for projects that emit less than 25,000 STPY of CO_2e, OPIC adds a "buffer" equal to 5% of the aggregate emissions from the carbon-intensive projects.

This is OPIC's tenth annual GHG report, and this is the fifth year that SC&A has prepared the report for OPIC. The first five annual GHG reports, including the CY 2007 Baseline Inventory, were prepared by Pace Global.

1 OPIC's fiscal year does not match the fiscal years of most of its clients (which are by calendar year). OPIC requests GHG data from its clients from the most recently completed calendar year. For this reason, OPIC's GHG reporting lags 1 year behind.

In order to assess the GHG emissions from OPIC's portfolio, a Baseline Inventory was completed in March 2009 for CY 2007 emissions. In the CY 2007 Baseline Inventory, "carbon-intensive projects" were defined as active[2] projects having a maximum Potential-to-Emit (PTE) of more than 100,000 STPY of CO_2e. Projects exceeding this threshold pertained to the energy, oil and gas, transportation, mining, manufacturing, and construction sectors.

The Baseline Inventory excluded direct biogenic emissions, accidental chemical releases, and project construction emissions. Also excluded were indirect emissions related to purchased electricity or heat supply (including steam). For that reason, projects in the finance, banking, insurance, and service sectors were excluded from the list of carbon-intensive projects, given that their carbon footprint is driven primarily by indirect energy purchases. Should direct emissions be generated from projects in the finance, banking, insurance, and service sectors, these would be captured in the "buffer", as described below.

To account for non-carbon-intensive projects in the Baseline Inventory (i.e., sources that emitted less than 100,000 short tons of CO_2e per year), OPIC added a "buffer" equal to 5% of the aggregate emissions from carbon-intensive projects.

The maximum PTE for each carbon-intensive project was estimated based on best available project information, which typically included a combination of fuel consumption data, the amount of electricity generated, generating capacity, relative project sizes, and an assumed operating capacity of 8,000 hours per year (unless otherwise noted). OPIC solicited feedback from the individual project sponsors on methods, assumptions, and operational data to corroborate the soundness of emission estimates.

The Baseline Inventory used project sponsor-provided information in cases where OPIC received responses to the requests for data. For projects where project sponsor feedback was not received, emission estimates were developed based on a project's maximum PTE.

REVISIONS TO THE BASELINE INVENTORY

Various Egypt Subsidiaries (Apache)

In the CY 2009 GHG inventory report, the original CY 2007 emissions baseline was revised up by 1,566,685 short tons CO_2e to account for the additional 51% share of the Various Egypt Subsidiaries (Apache) project, which mistakenly reported its emissions in relation to its equity share of the project (49%) for the baseline year. Since OPIC requires that 100% of emissions be accounted for, regardless of the project sponsor's equity share, the additional project emissions were added to the inventory. The discrepancy was

[2] For the CY 2007 baseline inventory, "active" projects were defined as all insurance contracts in force and all guaranty and direct loans with an outstanding principal balance as of June 30, 2008. For all subsequent inventories, the "active" date was September 30 of the subsequent year (to coincide with the end of OPIC's Fiscal Year). To match the EPA's GHG reporting requirements (40 CFR Part 98), OPIC lowered the minimum reporting threshold for "carbon-intensive projects" to 25,000 STPY of CO_2e starting with the CY 2009 GHG inventory.

rectified and reported in 2009 to ensure consistency with OPIC's GHG accounting methodology. The revised CY 2007 emission baseline was 51,949,178 short tons of CO_2e.

Latin America Power III Fund

The Latin American Power III Fund (LP III) is a "blind pool" fund, and the downstream investments had not been finalized when OPIC committed to the fund. Therefore, OPIC allocated 2,077,500 short tons of CO_2e to the LP III Fund in the CY 2007 Baseline Inventory (which was equal to the projected PTE from the thermal power projects in the LP III pipeline at that time), and subsequent GHG reports. However, in FY 2014, LP III became fully invested without having invested in any projects that had a PTE greater than 25,000 STPY of CO_2e. Because LP III did not have any projects in its portfolio that exceeded OPIC's GHG threshold for carbon-intensive projects, OPIC removed these allocated emissions from all previous GHG inventories. After accounting for the correction from the Apache Project (see above), and removing the LP III emissions from the Baseline Inventory, the revised CY 2007 emissions baseline was **49,767,803** short tons of CO_2e.

CY 2008 - CY 2012 INVENTORIES

For the CY 2008 GHG inventory, Pace Global followed the same process as during the Baseline Inventory development. The CY 2008 emission estimates were eventually revised up to account for a misallocation of Apache's GHG emissions, as discussed above. The revised CY 2008 GHG emissions total for projects active as of September 30, 2009, equaled **32,915,765** short tons of CO_2e. The large decrease in emissions was primarily the result of a large coal power generation project (Jorf Lastar Energy) becoming inactive (due to loan repayment). Removal of this project accounted for over 85% of the CO_2e reductions.

Starting with the CY 2009 GHG inventory, OPIC lowered the minimum threshold for "carbon-intensive projects" projects from 100,000 to 25,000 STPY of CO_2e to match the EPA's GHG reporting requirements (40 CFR Part 98). Because projects that were previously included in the buffer (i.e., projects between 25,000 and 100,000 STPY of CO_2e) were now being included as carbon-intensive projects, OPIC defined a new buffer to account for projects emitting less than 25,000 STPY of CO_2e (see page 4 for a detailed explanation). Total CY 2009 GHG emissions for projects active as of September 30, 2010, equaled **31,824,461** short tons of CO_2e.

Subsequent inventories followed the same inventory development process as for the CY 2009 GHG inventory. CY 2010 GHG emissions for projects active as of September 30, 2011, totaled **32,480,195**. CY 2011 GHG emissions for projects active as of September 30, 2012 amounted to **32,047,719** short tons of CO_2e, and CY 2012 GHG emissions for projects active as of September 30, 2013, totaled **7,970,993** short tons of CO_2e. Emissions decreased considerably in CY 2012 because a large number of carbon-intensive projects became inactive (due to loan repayment or contract cancellation), while only a few carbon-intensive projects became active.

CY 2013 INVENTORY

The CY 2013 GHG inventory followed the same inventory development process as in the previous year, with one important exemption; namely, the exclusion of estimated emissions for the Latin American Power III Fund (see page 3). Total CY 2013 emissions were **7,586,646** short tons of CO_2e.

CY 2014 INVENTORY

For the CY 2014 GHG inventory, SC&A reviewed OPIC financial reports to screen projects likely to meet the "carbon-intensive projects" threshold of 25,000 STPY of CO_2e. Additional scrutiny was given to projects previously identified as carbon-intensive, as well as new projects to OPIC's portfolio that were active as of September 30, 2015. The outcome of the screening analysis resulted in a short list of thirteen (13) projects having a maximum PTE value equal or greater than 25,000 STPY of CO_2e. To provide assurance of GHG estimates, OPIC and SC&A solicited additional supporting evidence from project sponsors to corroborate GHG assertions and assumptions made by individual project sponsors.

Change in Buffer Calculation

For the CY 2007 and CY 2008 inventories, the buffer for additional sources was calculated as 5% of the sum of emissions from projects over 100,000 STPY of CO_2e – the threshold for "carbon-intensive projects" at the time. After the threshold for a "carbon-intensive project" was lowered to 25,000 STPY CO_2e for the CY 2009 inventory (creating Tier C projects), the buffer for additional sources was defined each year such that the sum of Tier C emissions and the buffer would equal 5% of the sum of emissions from projects over 100,000 STPY of CO_2e. This maintained the proportion of emissions from projects above the old "carbon-intensive" threshold of 100,000 STPY of CO_2e (they were always 95% of the total).

Starting with the CY 2014 inventory, the buffer for additional sources has been calculated as 5% of the emissions from all carbon-intensive projects (i.e., Tier A, B and C emissions combined). In the CY 2014 report, OPIC applied this calculation retroactively to emissions reported in CY 2009 – CY 2013 to have a consistent picture of potential additional sources across all inventory years. This change does not have a significant impact on past reported emissions, and yields a more conservative estimate than the previous method.

Additional Corrections to the CY 2014 Inventory

The CY 2014 GHG inventory also corrected the CY 2013 estimates for CGLOB Astarta Zhadanivka Kyiv and Qalaa Holdings based on additional communication with the project sponsor. Table 5 (on page 14) presents the corrected CY 2013 estimates for these two projects, as well as the updated buffer for additional sources.

The estimated CY 2014 GHG emissions for projects active as of September 30, 2015 amounted to **7,772,851** short tons of CO_2e.

CY 2015 INVENTORY

The CY 2015 GHG inventory followed the same inventory development process as the previous year. Regarding emission methods, a revision was made to the fugitive and combustion emission factors for the West Africa Gas Pipeline (WAGP) project to increase traceability with cited method sources. These emission factors were applied retroactively and had the effect of revising down WAGP's maximum PTE as well as its CY 2009 and CY 2010 emission estimates. The estimated CY 2015 GHG emissions for projects active as of September 30, 2016 amounted to **7,689,416** short tons of CO_2e.

CY 2016 INVENTORY

The CY 2016 GHG inventory continued the inventory development process developed in previous years. The estimated CY 2015 GHG emissions for projects active as of September 30, 2017 amounted to **8,205,063** short tons of CO_2e.

INVENTORY BOUNDARY

The CY 2016 inventory boundary extends to direct emissions from fossil fuel combustion associated with "active" projects having a maximum PTE over 25,000 STPY of CO_2e. "Active" projects are defined as all insurance contracts in force and all guaranty and direct loans with an outstanding principal balance at the end of OPIC's last fiscal year (i.e., September 30, 2017). Excluded from the inventory boundary were direct biogenic emissions, refrigerant losses, process/chemical releases (e.g., methane from wastewater treatment plants), indirect emissions related to purchased electricity or heat supply (including steam), and temporary emissions from a project's construction.

In order to maintain the original GHG inventory program objectives while addressing changing characteristics of new project sponsors, two reporting requirements have been added to the inventory boundary. First, the reporting threshold of 25,000 STPY of CO_2e applies to those assets or investment platforms specified in the project clearance description as eligible for OPIC funding. Second, for project sponsors with assets located in various countries, the reporting threshold of 25,000 STPY of CO_2e is assessed for all assets sharing the same loan identification number.

INVENTORY STRUCTURE

The carbon-intensive projects included in the CY 2016 GHG inventory are organized into three tiers. *Tier A* projects are fossil fuel-fired, power generation projects that emit more than 100,000 STPY of CO_2e. *Tier B* projects are defined as projects in the oil and gas, mining, transportation, manufacturing, construction, or other sectors that have a PTE greater than 100,000 STPY of CO_2e. *Tier C* projects are those that emit between 25,000 and 100,000 STPY of CO_2e. Additionally, the CY 2016 GHG inventory includes an estimate of GHG emissions from projects determined to be below the threshold of 25,000 STPY of CO_2e denoted as *Buffer for Additional Sources* (see page 9).

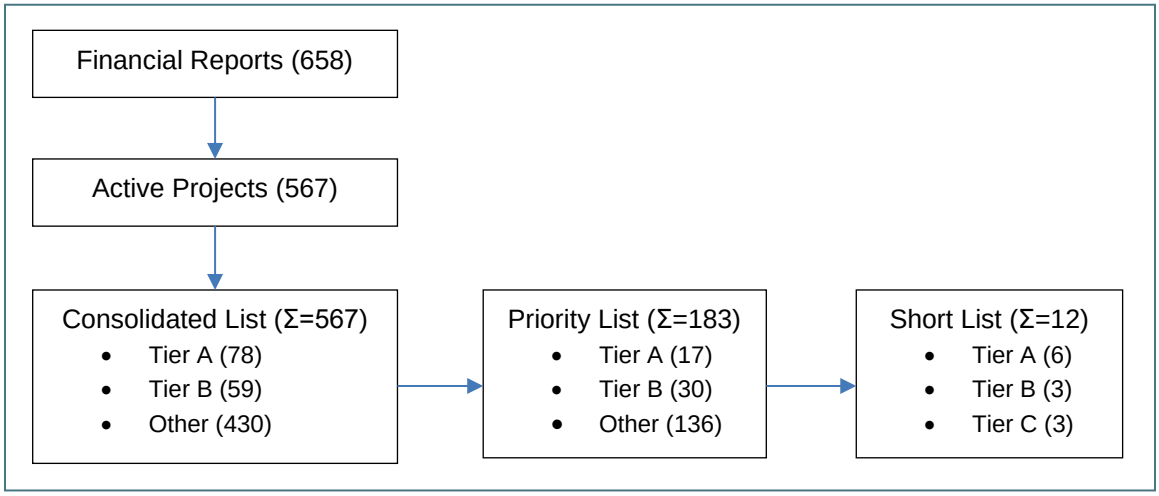
PROJECT SCREENING

SC&A evaluated financial and technical documentation provided by OPIC to identify the subset of projects meeting OPIC's reporting criteria. The review and analysis of this documentation was conducted in several steps, as shown in Figure 1.

The starting point for the CY 2016 GHG inventory was a set of financial reports that listed 658 projects receiving OPIC support in the form of direct investment and guarantees, insurance, frameworks, or funds. SC&A consolidated information from these financial reports and extracted the set of projects that exhibited a financial exposure and disbursement status greater than zero. This first step resulted in a set of 567 entries that reflects the pool of **active projects** for consideration in the current inventory cycle. Active CY 2016 projects are listed in Appendix A. The second step consisted of developing a **consolidated list** of active projects by grouping entries sharing a common loan identification number into Tier A, Tier B, or "Other" according to their economic sector. Entries classified as "Other" were projects in the agriculture, communications, finance, services, and tourism sectors. Third, SC&A developed a **priority list** of 183 projects by removing entries that were determined not to be carbon-intensive in the CY 2015 GHG Inventory, as well as excluding projects in the finance, banking, insurance, and service

sectors, because their emissions are the result of indirect energy purchases (e.g. purchased electricity or steam) – activities that fall outside of OPIC's inventory scope. Finally, SC&A performed project-specific GHG assessments to ascertain which projects emitted or had a maximum PTE of at least 25,000 STPY of CO_2e. The outcome of this final step was a **short list** of 12 entries, which is presented in Table 1 along with projects that were deemed to be carbon-intensive in past inventories, but are no longer active (i.e., no longer part of OPIC's portfolio) for this CY 2016 GHG inventory. Table 1 also indicates the calendar year when a project first triggered the reporting requirements.

Figure 1. CY 2016 Project Screening Process



NOTE: the values in parentheses indicate the number of projects assessed in each step of the process for a given category.

DEVELOPMENT OF EMISSION ESTIMATES

SC&A reviewed relevant project-level quantification methodologies adopted in previous OPIC reports and concluded that previous methodologies were consistent with OPIC's GHG reporting policy. Therefore, SC&A utilized emission quantification methodologies from prior GHG inventories for many projects listed in Table 1 as *Current Carbon-Intensive Projects* with a first year of reporting of CY 2011 or earlier. In other cases, SC&A conferred with OPIC on suitable emission methodologies that maintained continuity with past GHG assessments and could reasonably characterize a project's activities, scale, and complexity.

For all projects in the CY 2016 short list, SC&A developed project-specific requests for information detailing the activity data needed to assess annual GHG emissions.

Table 1. CY 2016 Running Project Short List

Tier	Project	Country	Sector	Reporting Year	
				First	Last
CY 2016 Carbon-Intensive Projects					
Tier A	AES Jordan	Jordan	Energy – Power	CY2007	CY2016
Tier A	AES Levant	Jordan	Energy – Power	CY2014	CY2016
Tier A	Contour Global – Cap Des Biches	Senegal	Energy – Power	CY2016	CY2016
Tier A	Contour Global – Togo	Togo	Energy – Power	CY2011	CY2016
Tier A	Gaza Private Generating PLC	Gaza	Energy – Power	CY2007	CY2016
Tier A	Power Finance Trust Ltd. (aka Isagen SA)	Colombia	Energy – Power	CY2007	CY2016
Tier B	Acu Petroleo S.A.	Brazil	Energy – Oil and Gas	CY2016	CY2016
Tier B	Various Egypt Subsidiaries (Apache)	Egypt	Energy – Oil and Gas	CY2007	CY2016
Tier B	West African Gas Pipeline	Ghana	Energy – Oil and Gas	CY2007	CY2016
Tier C	Aga Khan Hospital and Medical College	Pakistan	Health Care	CY2014	CY2016
Tier C	Negev Energy	Israel	Energy – Power	CY2016	CY2016
Tier C	Qalaa Holdings (aka Citadel)	Egypt	Manufacturing	CY2007	CY2016
Past Carbon-Intensive Projects					
Tier A	Adapazari Elektrik Uretim	Turkey	Energy – Power	CY2007	CY2012
Tier A	AES Nigeria	Nigeria	Energy – Power	CY2007	CY2012
Tier A	Grenada Electricity Services (WRB)	Grenada	Energy – Power	CY2007	CY2013
Tier A	Doga Enerji	Turkey	Energy – Power	CY2007	CY2010
Tier A	Gebze Elektrik Uretim	Turkey	Energy – Power	CY2007	CY2011
Tier A	Habibullah Coastal Power	Pakistan	Energy – Power	CY2007	CY2008
Tier A	Izmir Elektrik Uretim	Turkey	Energy – Power	CY2007	CY2011
Tier A	Jorf Lasfar Energy	Morocco	Energy – Power	CY2007	CY2007
Tier A	NEPC Consortium Power	Bangladesh	Energy – Power	CY2007	CY2011
Tier A	Paiton Energy	Indonesia	Energy – Power	CY2007	CY2011
Tier A	Pakistan Water & Power Dev. Authority	Pakistan	Energy – Power	CY2007	CY2010
Tier A	Termovalle SCA	Colombia	Energy – Power	CY2007	CY2012
Tier A	Trakya Elektrik Uretim ve Ticaret	Turkey	Energy – Power	CY2007	CY2007
Tier B	Accroven SRL	Venezuela	Energy – Oil and Gas	CY2007	CY2008
Tier B	Baku-Tblisi-Ceyhan Pipeline	Azerbaijan	Energy – Oil and Gas	CY2007	CY2012
Tier B	E.P. Interoil	Papua New Guinea	Energy – Oil and Gas	CY2007	CY2011
Tier B	Equate Petrochemical	Kuwait	Energy – Oil and Gas	CY2007	CY2008
Tier B	Foxtrot International	Cote d'Ivoire	Energy – Oil and Gas	CY2007	CY2011
Tier B	Lukoil RPK Vysotsk	Russia	Energy – Oil and Gas	CY2007	CY2014
Tier B	Natural Gas Liquids II	Nigeria	Energy – Oil and Gas	CY2007	CY2008
Tier B	Wilpro Energy Services (El Furrial)	Venezuela	Energy – Oil and Gas	CY2007	CY2008
Tier B	Wilpro Energy Services (Pigap)	Venezuela	Energy – Oil and Gas	CY2007	CY2008
Tier B	Pannonia Ethanol	Hungary	Manufacturing	CY2007	CY2015
Tier C	Dominica Electricity Services	Dominican Republic	Energy – Oil and Gas	CY2009	CY2011
Tier C	Jose Lindley	Peru	Manufacturing	CY2009	CY2010
Tier C	CGLOB Astarta Zhadanivka Kyiv LLC	Ukraine	Agro-processing	CY2007	CY2015
Tier C	Joshi Technologies	Colombia	Energy – Oil and Gas	CY2009	CY2015

Source: OPIC and SC&A, Inc.

Tier A – Power Generation Sources

SC&A and OPIC identified six (6) projects in the CY 2016 inventory as active Tier A. In general, the maximum PTE for Tier A projects is based on an operating capacity of 8,000 hours per year (unless otherwise noted), fuel consumption data (where available), the projects' power-generating capacity in megawatts (MW), and/or specific estimates of GHG emissions provided by the project sponsor (when available). The preferred method relied on emission estimates derived from fuel consumption data. Project-level activity data, as well as reference conversion and emission factors used in the assessments of annual GHG emissions, are detailed in Appendix B. CY 2016 Tier A emissions were 3,709,035 short tons of CO_2e.

Tier B – Oil & Gas and Other Large Sources

Tier B projects are projects in the oil and gas, mining, transportation, manufacturing, construction, or other sectors which have a PTE greater than 100,000 STPY of CO_2e. SC&A and OPIC identified three (3) projects on the CY 2016 short list as Tier B. Project emissions were estimated on the basis of production throughput, fuel consumption data, and/or GHG emissions data from similar facilities. All maximum PTE estimates assume an operating capacity of 8,000 hours per year, unless otherwise noted. Emission factors and other industry-relevant metrics were obtained from credible, published information sources. Activity data and calculation details are shown in Appendix B. CY 2016 Tier B emissions were 4,076,218 short tons of CO_2e.

Tier C – Smaller Sources

The initial screen for Tier C projects excluded projects already known to exceed 100,000 STPY of CO_2e and projects previously determined to be below the threshold of 25,000 STPY CO_2e. SC&A performed inventory calculations for shortlisted projects based on project descriptions and project sponsor-provided information, as well as published data and emissions factors. SC&A and OPIC identified three (3) Tier C projects on the CY 2016 short list. Activity data and calculation details are shown in Appendix B. CY 2016 Tier C emissions were 29,093 short tons of CO_2e.

Buffer for Additional Sources

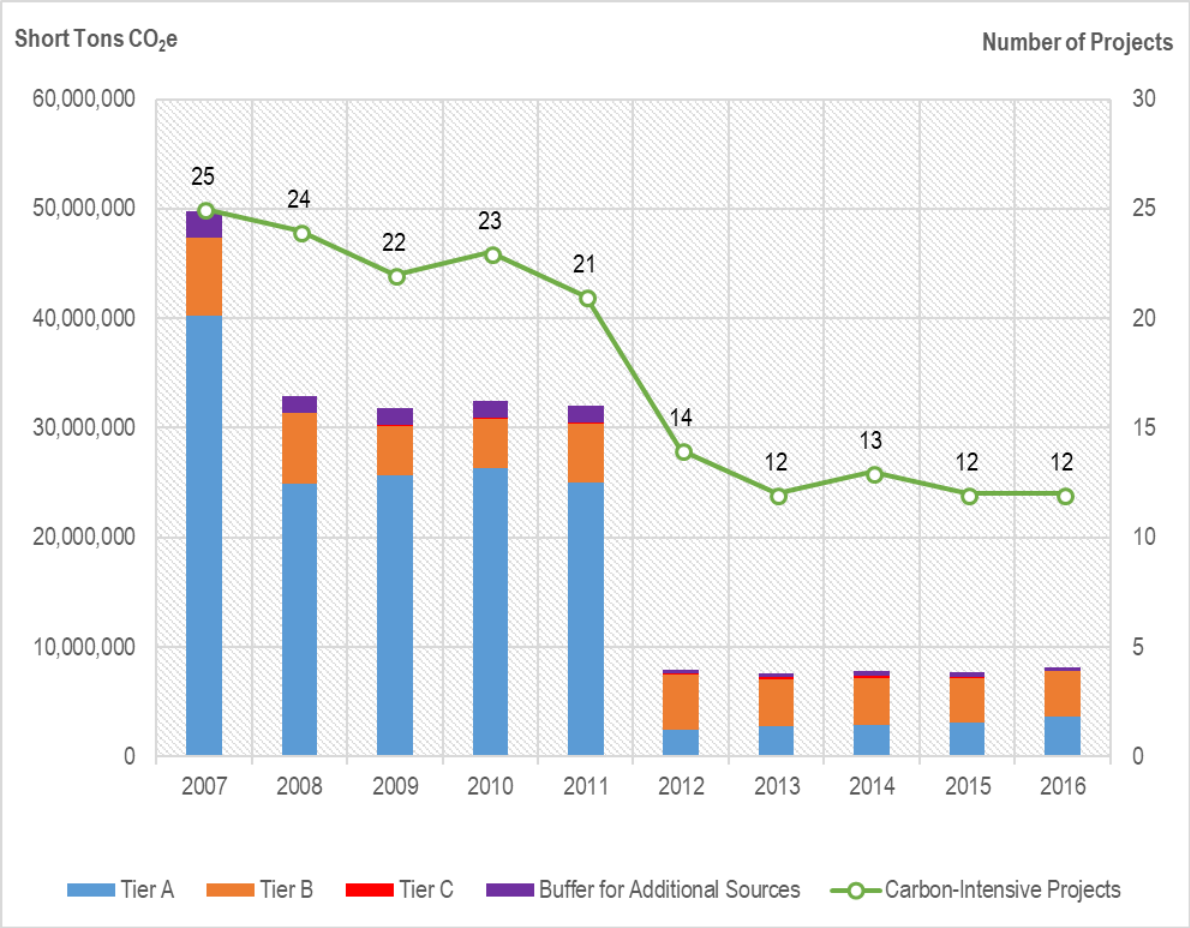
The OPIC GHG inventory directly assesses emissions from projects that exceed the threshold of 25,000 STPY of CO_2e. It is plausible that a number of projects do not exceed 25,000 STPY of CO_2e annually but may still have a sizeable contribution to OPIC's carbon footprint. To maintain a conservative estimate of emissions from non-carbon-intensive projects, OPIC applies a buffer that is scaled to the emissions from carbon-intensive projects in a given year. The CY 2016 Buffer for Additional Sources was 390,717 short tons of CO_2e.

RESULTS

OPIC's CY 2016 GHG inventory is an estimated **8,205,063** short tons of CO_2e. In CY 2016, three new carbon-intensive projects became operational and their emissions were assessed for this inventory: Cap Des Biches (Tier A), ACU Petroleo (Tier B), and Negev Energy (Tier C). In addition, three projects dropped out of OPIC's portfolio due to loan repayment: Pannonia Ethanol (Tier B), Joshi Technologies (Tier C), and CGLOB Astarta (Tier C). Total portfolio emissions increased by 8% or 592,434 short tons CO_2e relative to CY 2015.

Figure 2 presents the GHG emission and project count trend for OPIC's inventories from CY 2007 to CY 2016.

Figure 2. OPIC Active Portfolio GHG Emissions, CY 2007 – CY 2016



The technical profile of projects deemed carbon-intensive since the inception of OPIC's GHG inventory is represented in Table 2. Emission inventory details starting with the CY 2007 Baseline Inventory and culminating with the CY 2016 GHG inventory are presented in Tables 3 through 5, which present historical emissions from Tier A, Tier B, and Tier C projects respectively. Table 6 summarizes GHG emissions of OPIC's entire portfolio, including emissions associated with potentially unaccounted sources (i.e., Buffer for Additional Sources).

Table 2. Technical Profile of Carbon-Intensive Projects (CY 2007 – CY 2016)

Project Name	Description	Capacity / Throughput	Fuel Type
Accroven SRL	NGL Facility	800 mmscf/day	Natural Gas
Adapazari Elektrik Uretim	Combined Cycle	777 MW	Natural Gas
ACU Petroleo	Oil & Petroleum Terminal	300 MW	Natural Gas
AES Jordan	Combined Cycle	370 MW	Natural Gas & Diesel
AES Levant	Engine-Based Power Generation	240 MW	Heavy Fuel Oil & Natural Gas
AES Nigeria	Engine-Based Power Generation	270 MW	Natural Gas
Aga Khan Hospital & Medical College	Power Plant, Boilers	4.8 MW	Natural Gas
Baku-Tblisi-Ceyhan Pipeline	Crude Oil Pipeline	1.2 million barrels/day	Natural Gas & Diesel
CGLOB Astarta Zhadanivka Kyiv LLC	Agriculture	-	Natural Gas & Coal
Contour Global – Cap Des BIches	Power Plant	86 MW	Fuel Oil
Contour Global - Togo	Engine-Based Power Generation	100 MW	Fuel Oil & Natural Gas
Doga Enerji	Combined Cycle	180 MW	Natural Gas
Dominica Electric Services	Power Generation	-	Diesel
E.P. Interoil	Crude Oil Refinery	32,500 barrels/day	Crude Oil Refinery
Equate Petrochemical	Petrochemical Facility	1540 MMBtu/hour	Natural Gas
Foxtrot International	Gas Extraction & Pipeline	100 mmscf/day	Natural Gas
Gaza Private Generating PLC	Combined Cycle	136.4 MW	Natural Gas
Gebze Elektrik Uretim	Combined Cycle	1554 MW	Natural Gas
Grenada Electricity Services (WRB)	Engine-Based Power Generation	18 MW	Diesel
Habibullah Coastal Power	Combined Cycle	140 MW	Natural Gas
Izmir Elektrik Uretim	Combined Cycle	1554 MW	Natural Gas
Jorf Lasfar Energy	Steam Boiler	1356 MW	Coal
Jose Lindley	Manufacturing	-	Natural Gas
Joshi Technologies / Parko Services	Oil & Gas	-	Gas & Diesel
Lukoil RPK Vysotsk	Oil & Petroleum Export Terminal	6.8 million metric tons/year	Fuel Oil
Natural Gas Liquids II Financing	NGL Facility	19.5 mmscf/day	Natural Gas
Negev Energy	Solar Power Generation	110 MW	Solar & Natural Gas
NEPC Consortium Power	Engine-Based Power Generation	313,105 MMBtu	Natural Gas & Fuel Oil
Paiton Energy	Steam Boiler	1220 MW	Coal
Pakistan Water & Power Authority	Combined Cycle	150 MW	Natural Gas
Pannonia Ethanol	Ethanol Production	240 million liters	Natural Gas
Power Finance Trust (aka Isagen)	Combined Cycle	300 MW	Natural Gas
Qalaa Holdings (aka Citadel)	Manufacturing	-	Natural Gas
Termovalle SCA	Combined Cycle	205 MW	Natural Gas
Trakya Elektrik Uretim	Combined Cycle	478 MW	Natural Gas
Various Egypt Subsidiaries (Apache)	Oil & Gas Extraction & Processing	29,934,702 bbl/year 89,910 mmscf/year	Oil & Natural Gas
West Africa Gas Pipeline	Gas Compression & Transmission	190 mmscf/day	Natural Gas
Wilpro Energy Services (El Furrial)	Gas Compression	60 MW	Natural Gas
Wilpro Energy Services (Pigap)	Gas Compression	100 MW	Natural Gas

Table 3. Tier A Historical Project Emissions (Short Tons CO_2e)

Project Name	Location	Maximum PTE	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017
			CY2007 Baseline	CY2008 Emissions	CY2009 Emissions	CY2010 Emissions	CY2011 Emissions	CY2012 Emissions	CY2013 Emissions	CY2014 Emissions	CY2015 Emissions	CY2016 Emissions
Adapazari Elektrik Uretim	Turkey	2,706,499	2,106,754	2,106,754	2,441,657	2,426,053	2,309,241	R/C	R/C	R/C	R/C	R/C
AES Jordan [2]	Jordan	1,545,173	N/A	590,940	1,318,130	1,434,569	1,184,010	936,400	1,514,054	1,203,945	949,925	1,588,326
AES Levant	Jordan	1,409,533	N/A	N/A	N/A	N/A	N/A	N/A	N/A	467,262	685,110	228,994
AES Nigeria	Nigeria	1,603,307	1,166,398	1,341,157	988,271	949,754	949,754	949,754	R/C	R/C	R/C	R/C
Contour Global Cap Des Biches	Senegal	505,083	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	184,699
Contour Global - Togo	Togo	587,305	N/A	N/A	N/A	Below Threshold	46,561	126,192	161,830	55,467	210,901	496,564
Doga Enerji	Turkey	816,057	740,762	740,762	672,014	655,981	R/C	R/C	R/C	R/C	R/C	R/C
Gaza Private Generating PLC	Gaza	481,485	293,804	303,535	325,926	228,627	405,262	Below Threshold	161,215	193,406	253,808	246,460
Gebze Elektrik Uretim	Turkey	5,412,998	4,121,923	4,121,923	4,794,979	4,833,330	4,535,511	R/C	R/C	R/C	R/C	R/C
Grenada Electricity Services	Grenada	141,127 [1]	114,571	121,156	141,127	135,237	134,371	131,206	130,221	R/C	R/C	R/C
Habibullah Coastal Power	Pakistan	487,658	447,880	447,880	R/C	R/C	R/C	R/C	R/C	R/C	R/C	R/C
Izmir Elektrik Uretim	Turkey	5,412,998	4,694,380	4,694,380	4,300,376	4,739,787	4,824,511	R/C	R/C	R/C	R/C	R/C
Jorf Lasfar Energy	Morocco	14,268,496	14,268,496	R/C	R/C	R/C	R/C	R/C	R/C	R/C	R/C	R/C
NEPC Consortium Power	Bangladesh	383,159	245,795	343,581	255,734	297,068	297,068	R/C	R/C	R/C	R/C	R/C
Paiton Energy	Indonesia	10,045,869 [1]	9,553,044	9,553,044	9,624,125	9,854,076	10,045,869	R/C	R/C	R/C	R/C	R/C
Pakistan Water & Power Authority [3]	Pakistan	522,490	522,490	522,490	283,937	283,937	R/C	R/C	R/C	R/C	R/C	R/C
Power Finance Trust (aka Isagen)	Colombia	980,011 [1]	203,010	Below Threshold	300,706	305,181	305,181	305,181	775,357	980,011	963,992	963,992
Termovalle SCA [4]	Colombia	714,070	Below Threshold	Below Threshold	223,983	223,983	Below Threshold	R/C	R/C	R/C	R/C	R/C
Trakya Elektrik Uretim	Turkey	1,818,912	1,747,956	R/C	R/C	R/C	R/C	R/C	R/C	R/C	R/C	R/C

NOTE: "N/A" indicates that a project was not yet active in the OPIC Portfolio during that year, and "R/C" indicates that the project was either repayed (loan or guarantee) or cancelled (insurance) prior to the cutoff date for that year.

[1] Maximum PTE was calculated on the basis of a project's maximum operating capacity. When maximum operating capacity could not be properly determined, the maximum PTE was set equal to the highest annual emission level assessed in this or prior OPIC GHG inventories.

[2] Sharp emission increase due to ramped-up energy production from 10,103,603 MMBtu in CY 2007 to 22,536,748 MMBtu in CY 2008.

[3] CY 2009 emissions are significantly lower due to fewer reported operating hours.

[4] CY 2009 emissions are significantly higher due to increased reported operating hours.

Table 4. Tier B Historical Project Emissions (Short Tons CO_2e)

Project Name	Location	Maximum PTE	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017
			CY2007 Baseline	CY2008 Emissions	CY2009 Emissions	CY2010 Emissions	CY2011 Emissions	CY2012 Emissions	CY2013 Emissions	CY2014 Emissions	CY2015 Emissions	CY2016 Emissions
Accroven SRL	Venezuela	998,677	998,677	445,832	R/C	R/C	R/C	R/C	R/C	R/C	R/C	R/C
Acu Petroleo S.A.	Brazil	350,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Below Threshold
Baku-Tblisi-Ceyhan Pipeline	Azerbaijan	787,577 [1]	707,672	707,672	787,577	723,214	671,605	584,200	R/C	R/C	R/C	R/C
E.P. Interoil	Papua New Guinea	802,469	392,296	103,247	79,709	75,928	74,985	R/C	R/C	R/C	R/C	R/C
Equate Petrochemical	Kuwait	720,573	720,573	680,311	R/C	R/C	R/C	R/C	R/C	R/C	R/C	R/C
Foxtrot International [2]	Cote d'Ivoire	104,484 [1]	104,484	104,484	104,484	Below Threshold	27,746	R/C	R/C	R/C	R/C	R/C
Lukoil RPK Vysotsk [3]	Russia	107,184	70,767	70,767	76,339	97,117	91,143	92,696	95,070	99,423	R/C	R/C
Natural Gas Liquids II Financing	Nigeria	390,806	244,048	244,048	R/C	R/C	R/C	R/C	R/C	R/C	R/C	R/C
Pannonia Ethanol	Hungary	113,785 [1]	N/A	N/A	N/A	N/A	N/A	64,244	93,251	101,474	113,785	R/C
Various Egypt Subsidiaries (Apache) [4]	Egypt	4,438,554 [1]	3,071,932	3,244,189	3,294,654	3,465,842	4,438,554	4,178,447	4,056,437	4,012,346	3,891,093	4,007,937
West Africa Gas Pipeline	Ghana	189,800	N/A	N/A	189,800	70,925	86,617	86,617	86,617	86,617	68,281	68,281
Wilpro Energy Services (El Furrial)	Venezuela	289,106	289,106	289,106	R/C	R/C	R/C	R/C	R/C	R/C	R/C	R/C
Wilpro Energy Services (Pigap)	Venezuela	571,090 [1]	571,090	571,090	R/C	R/C	R/C	R/C	R/C	R/C	R/C	R/C

NOTE: "N/A" indicates that a project was not yet active in the OPIC Portfolio during that year, and "R/C" indicates that the project was either repayed (loan or guarantee) or cancelled (insurance) prior to the cutoff date for that year.

[1] Maximum PTE was calculated on the basis of a project's maximum operating capacity. When maximum operating capacity could not be properly determined, the maximum PTE was set equal to the highest annual emission level assessed in this or prior OPIC GHG inventories.

[2] Foxtrot maximum PTE corresponds to the peak emissions year when the project was active. In 2010, Foxtrot operated for a minimal period of time and thus had corresponding GHG emissions below the established threshold.

[3] Lukoil had the Potential-to-Emit over 100,000 tons CO_2 annually, although emissions were consistently reported below this level.

[4] In 2007 and 2008, Apache reported their emissions in relation to their equity share of the project (49%). OPIC accounts 100% of a project's emissions regardless of equity share. As a result, emissions data for 2007 and 2008 were revised up to conform to OPIC standards.

Table 5. Tier C Historical Project Emissions (Short Tons CO_2e)

Project Name	Location	Description	Maximum PTE	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2015	FY2017
				CY2009 Emissions	CY2010 Emissions	CY2011 Emissions	CY2012 Emissions	CY2013 Emissions	CY2014 Emissions	CY2014 Emissions	CY2016 Emissions
Aga Khan Hospital & Medical College	Pakistan	Health Care	72,965	N/A	N/A	N/A	N/A	N/A	25,064	28,653	29,093
CGLOB Astarta Zhadanivka Kyiv	Ukraine	Agriculture	38,404 [1]	N/A	N/A	Below Threshold	36,886	25,470	38,404	32,202	R/C
Dominica Electric Services	Dominican Republic	Power Generation	50,084 [1]	50,084	50,084	50,084	R/C	R/C	R/C	R/C	R/C
Jose Lindley	Peru	Manufacturing	25,000 [1]	25,000	25,000	R/C	R/C	R/C	R/C	R/C	R/C
Joshi Technologies / Parko Services	Colombia	Oil & Gas	91,861 [1]	30,398	57,826	43,564	52,894	73,685	91,861	91,224	R/C
Negev Energy	Israel	Power Generation	56,746	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Below Threshold
Qalaa Holdings (aka Citadel)	Egypt	Manufacturing	105,821	N/A	N/A	N/A	46,707	52,169	47,437	34,279	Below Threshold

NOTE: "N/A" indicates that a project was not yet active in the OPIC Portfolio during that year, and "R/C" indicates that the project was either repayed (loan or guarantee) or cancelled (insurance) prior to the cutoff date for that year.

[1] Maximum PTE was calculated on the basis of a project's maximum operating capacity. When maximum operating capacity could not be determined, the maximum PTE was set equal to the highest annual emission level assessed in this or prior OPIC GHG inventories.

Table 6. Summary of OPIC Historical Portfolio Emissions (Short Tons CO_2e)

Inventory Item	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017
	CY2007 Baseline	CY2008 Emissions	CY2009 Emissions	CY2010 Emissions	CY2011 Emissions	CY2012 Emissions	CY2013 Emissions	CY2014 Emissions	CY2015 Emissions	CY2016 Emissions
Tier A	40,227,263	24,887,602	25,670,965	26,367,582	25,037,339	2,453,314	2,742,677	2,900,090	3,063,735	3,709,035
Tier B	7,170,645	6,460,746	4,532,563	4,433,027	5,390,650	5,006,203	4,331,375	4,299,859	4,073,160	4,076,218
Tier C	NQ [3]	NQ [3]	105,482	132,910	93,648	136,486	151,325	202,766	186,358	29,093
Tier A, B, C Subtotal	47,397,908	31,348,348	30,309,010	30,933,519	30,521,637	7,596,003	7,225,377	7,402,715	7,323,253	7,814,346
Latin America Power III Fund [1]	0	0	0	0	0	0	0	0	0	0
5% Buffer for Additional Sources [2]	2,369,895	1,567,417	1,515,451	1,546,676	1,526,082	379,800	361,269	370,136	366,163	390,717
TOTAL:	**49,767,803**	**32,915,765**	**31,824,461**	**32,480,195**	**32,047,719**	**7,970,993**	**7,586,646**	**7,772,851**	**7,689,416**	**8,205,063**

[1] Per agreement between Latin American Power III and OPIC, the Fund agreed to "not make an investment in a Portfolio Company if, after such investment, the assets and operations of all Portfolio Companies then held by the Fund would emit (in the aggregate and on a calendar-year basis) in excess of 2,077,500 STPY CO_2e as calculated in accordance with the IPCC". In FY 2014, OPIC determined that the Fund would not invest in any power-generating projects; therefore, the allocation for the Latin American Power III Fund was not included in the FY 2014 inventory and subsequent inventories. To ensure the reported emissions are accurate, OPIC retroactively removed this allocation from the FY 2008-2013 inventories.

[2] For the CY 2007 Baseline and CY 2008 inventories, the buffer was calculated as 5% of all carbon-intensive projects (i.e., those projects that emitted more than 100,000 STPY of CO_2e). For the original CY 2010, CY 2011, CY 2012, and CY 2013 emissions, (i.e., after the threshold for a carbon-intensive project was reduced from 100,000 tpy to 25,000 tpy CO_2e), the buffer was calculated so that the buffer plus the Tier C projects that emitted between 25,000 and 100,000 STPY of CO_2e was equal to 5% of emissions from projects that emitted more than 100,000 STPY of CO_2e. Starting with the CY 2014 inventory, the buffer for additional sources was calculated as 5% of all carbon-intensive projects under the new threshold of 25,000 STPY CO_2e (i.e., Tier A, B and C emissions combined). OPIC applied this calculation retroactively to the buffer for CY 2009 – CY 2013, which resulted in an increase in the buffer, and a subsequent increase in reported emissions of between 0.3% and 2.3%.

[3] Not quantified during that year.

APPENDIX A – CY 2016 ACTIVE PROJECTS

This table lists projects active as of September 30, 2017 that were screened as part of the CY 2016 GHG inventory development process.

PROJECT NAME	COUNTRY	SECTOR
A B I GROUP LTD	Afghanistan	Manufacturing
A C D RESEARCH INC	Russia	Manufacturing
AAF SUB-FUND	AFRICA REGIONAL	Finance and Insurance
Abraaj Growth Markets Health Fund	AFRICA REGIONAL	Finance and Insurance
ACCESS AFRICA FUND	AFRICA REGIONAL	Finance and Insurance
ACCESSION MEZZANINE CAPITAL III, L.P.	EUROPE REGIONAL	Finance and Insurance
Ace American	Ghana	Utilities
ACE AMERICAN INSURANCE COMPANY	Ghana	Educational Services
Acleda Bank	CAMBODIA	Finance and Insurance
Acu Petroleo S.A.	BRAZIL	Transportation and Warehousing
ADRIATIC INVESTMENT MANAGEMENT L L C	Croatia	Information
Adwa? Ma?an Al Oula Lil Tak PSC	JORDAN	Utilities
AES Corporation	Jordan	Utilities
AES JORDAN PSC	JORDAN	Utilities
AES LEVANT PSC	JORDAN	Utilities
AFGHAN GROWTH FINANCE LLC	AFGHANISTAN	Finance and Insurance
AFGHAN GROWTH FINANCE LLC	AFGHANISTAN	Finance and Insurance
Africa Telecoms Media and Technology Fund	AFRICA REGIONAL	Finance and Insurance
African Banking Corporation of Botswana Limited	BOTSWANA	Finance and Insurance
African Banking Corporation of Zambia Limited	ZAMBIA	Finance and Insurance
African Leadership Academy	SOUTH AFRICA	Educational Services
Aga Khan Hospital and Medical College Founda	PAKISTAN	Health Care and Social Assistance
AKBANK T.A.S.	TURKEY	Finance and Insurance
Al Tamweel Al Saree LLC	IRAQ	Finance and Insurance
ALISTAIR JAMES COMPANY LIMITED	TANZANIA	Transportation and Warehousing
Alsis Mexico Opportunities Fund	MEXICO	Finance and Insurance
Alto Maipo SpA	CHILE	Utilities
Amandi Energy Limited	GHANA	Utilities
AMANECER SPA	CHILE	Utilities
AMERICAN EMBASSY SCHOOL OF LUSAKA FOUNDATION INC	ZAMBIA	Educational Services
AMERICAN INTERNATIONAL SCHOOL OF ABUJA FOUNDATION INC	NIGERIA	Educational Services
AMERICAN INTERNATIONAL SCHOOL OF MONROVIA IN	LIBERIA	Educational Services
AMERICAN INTERNATIONAL SCHOOL SYSTEMS, INC.	PAKISTAN	Educational Services
AMERICAN INTL SCHOOL OF BAMAKO	Mali	Educational Services
American Intl. School of Bamako	MALI	Educational Services
American Intl. School-Kingston	JAMAICA	Educational Services
AMERICAN UNIVERSITY IN BULGARIA	BULGARIA	Educational Services
AMERICAN UNIVERSITY OF BEIRUT	Lebanon	Educational Services
American University of Central Asia (Tranche	KYRGYZSTAN	Educational Services
American University of Central Asia (Tranche	KYRGYZSTAN	Educational Services
American Wool III	AFGHANISTAN	Agriculture, Forestry, Fishing and Hunting
AMETHIS AFRICA FINANCE LIMITED	AFRICA REGIONAL	Finance and Insurance
AMSTED RAIL COMPANY INC	Ukraine	Transportation and Warehousing
APACHE CORP	Egypt	Mining, Quarrying, and Oil and Gas Extraction
APACHE CORPORATION	Egypt	Mining, Quarrying, and Oil and Gas Extraction

PROJECT NAME	COUNTRY	SECTOR
Apollo Towers	BURMA/MYANMAR	Construction
ARGENTINA OLIVE RANCH	ARGENTINA	Agriculture, Forestry, Fishing and Hunting
ARMENIA HOTEL COMPLEX - 2	ARMENIA	Accommodation and Food Services
ASA International	ALL OPIC COUNTRIES	Finance and Insurance
ASIA DEVELOPMENT PARTNERS III, LP	INDIA	Finance and Insurance
ASIA FOUNDATION	Cambodia	Health Care and Social Assistance
ASIA FOUNDATION	Afghanistan	Health Care and Social Assistance
ASIA FOUNDATION	Philippines	Health Care and Social Assistance
ASIA FOUNDATION	Mongolia	Health Care and Social Assistance
ASIA FOUNDATION	Bangladesh	Health Care and Social Assistance
ASIA FOUNDATION	South Korea	Health Care and Social Assistance
ASIA FOUNDATION	Indonesia	Health Care and Social Assistance
ASIA FOUNDATION	Nepal	Health Care and Social Assistance
ASIA FOUNDATION	Pakistan	Health Care and Social Assistance
ASIA FOUNDATION	Thailand	Health Care and Social Assistance
ASIA FOUNDATION	East Timor	Health Care and Social Assistance
ASIA FOUNDATION	Sri Lanka	Health Care and Social Assistance
ASSURANT INC	Brazil	Finance and Insurance
AST Telecom Solar Private Limited	INDIA	Utilities
AUSTRALIS AQUACULTURE LLC	VIETNAM	Agriculture, Forestry, Fishing and Hunting
AUTO SERVICE CAUCASUS LTD	GEORGIA	Other Services (except Public Administration)
Avantel S.A.S.	COLOMBIA	Information
Azura-Edo Power Project- Junior Loan	NIGERIA	Utilities
Azura-Edo Power Project- Senior Loan	NIGERIA	Utilities
AZURE POWER (GUJARAT) PVT LTD - SUNEDISON	INDIA	Utilities
Azure Sunlight Private Limited	INDIA	Utilities
B M R ENERGY LLC	Jamaica	Utilities
BAC INTERNATIONAL BANK,INC. (TRANCHE A)	PANAMA	Finance and Insurance
BANCO BAC SAN JOSE, S.A. (TRANCHE A)	COSTA RICA	Finance and Insurance
BANCO DE AMERICA CENTRAL HONDURAS, S.A.(TR A	HONDURAS	Finance and Insurance
BANCO DE AMERICA CENTRAL, S.A. (TRANCHE A)	NICARAGUA	Finance and Insurance
BANCO DE CREDITO CENTROAMERICANO, S.A.	NICARAGUA	Finance and Insurance
BANCO DE CREDITO CENTROAMERICANO, S.A.	NICARAGUA	Finance and Insurance
BANCO LAFISE HONDURAS, S.A.	HONDURAS	Finance and Insurance
BANCO LAFISE HONDURAS, S.A.	HONDURAS	Finance and Insurance
BANCO LAFISE, S.A. (TRANCHE 2)	COSTA RICA	Finance and Insurance
BANCO LAFISE, S.A. (TRANCHE 3)	COSTA RICA	Finance and Insurance
Bayport Management Ltd	ALL OPIC COUNTRIES	Finance and Insurance
BELSTAR CAPITAL LIMITED	Ghana	Utilities
BELSTAR CAPITAL LIMITED	Ghana	Manufacturing
BELSTAR DEVELOPMENT L L C	Ghana	Wholesale Trade
BETSY, LLC	GEORGIA	Accommodation and Food Services
Beyond the Grid Solar Fund (SunFunder)	ALL OPIC COUNTRIES	Finance and Insurance
Bien Para Bien S.A., S.A.P.I. de C.V. SOFOM ENR	MEXICO	Finance and Insurance
Big Tree Farms Inc.	INDONESIA	Manufacturing
Blue Mountain Renewables Wind Power Project	JAMAICA	Utilities
BRAC AFRICA MICROFINANCE, LTD. (CLASS B)	TANZANIA	Finance and Insurance
BRAC International Loan Facility ("BILF")	AFRICA REGIONAL	Finance and Insurance
BRAVO ENERGY MEXICO SRL DE CV	MEXICO	Utilities
Bridge International Academy	KENYA	Educational Services
BROAD COVE ECOHOMES LIBERIA, INC	Liberia	Construction
BROAD COVE ECOHOMES LIBERIA, INC.	LIBERIA	Construction
BURN MANUFACTURING COMPANY	AFRICA REGIONAL	Manufacturing

PROJECT NAME	COUNTRY	SECTOR
Butama Hydro Electricity Company	UGANDA	Utilities
C21 BRASIL DESENVOLVIMENTO IMOBILAIRIO LTDA	BRAZIL	Real Estate and Rental and Leasing
CAIRO AMMAN BANK	JORDAN	Finance and Insurance
Calvert Foundation-Jain Sons Finlease ("Intellegro	INDIA	Finance and Insurance
Calvert Foundation-Thirumeni Finance ("Varthana")	INDIA	Finance and Insurance
Capital Alliance Property Investment Company, L.P.	NIGERIA	Finance and Insurance
Caspian Impact Investments	INDIA	Finance and Insurance
CENTRAL STORAGE SAFETY PROJECT TRUST	Ukraine	Utilities
Centro de Servi? Internacionais de Sa?de,	ANGOLA	Health Care and Social Assistance
CGLOB - CrediQ	LATIN AMERICA REGION	Finance and Insurance
CGLOB2 - Banco Atlas	PARAGUAY	Finance and Insurance
CGLOB-ATTIJARIWAFA BANK ("ATW")	MOROCCO	Finance and Insurance
CGLOB-BANCO DEL PAIS, S.A.	HONDURAS	Finance and Insurance
CGLOB-CAL Bank	GHANA	Finance and Insurance
CGLOB-Grupo Jaremar	HONDURAS	Manufacturing
CGLOB-PAKISTAN MOBIL COMMUNICATIONS LIMITED	PAKISTAN	Information
CGLOB-TSKB	TURKEY	Finance and Insurance
CHEMONICS INTERNATIONAL INC	South Africa	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Haiti	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Ethiopia	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Afghanistan	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	West Bank and Gaza	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Azerbaijan	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Peru	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Nicaragua	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Nigeria	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Moldova	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Vietnam	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Ghana	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Philippines	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Malawi	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Tanzania	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Georgia	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Zambia	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Ukraine	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Jordan	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Armenia	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Indonesia	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Mozambique	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Bolivia	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Kenya	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Lebanon	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Kazakhstan	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Niger	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Rwanda	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Botswana	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Pakistan	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Kosovo	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	DEM. REPUBLIC OF CONGO	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Albania	Professional, Scientific, and Technical Services
CHEMONICS INTERNATIONAL INC	Tajikistan	Professional, Scientific, and Technical Services
CHF LEBANON REPLACEMENT FACILITY	LEBANON	Finance and Insurance
CHF Lebanon Replacement Facility 2	LEBANON	Finance and Insurance

PROJECT NAME	COUNTRY	SECTOR
CHOUS2-BANCO ALIADO, S.A.	PANAMA	Finance and Insurance
CHOUS2-BANCO CONTINENTAL S.A.E.C.A.	PARAGUAY	Finance and Insurance
CHOUS2-BANCO FICOHSA	HONDURAS	Finance and Insurance
CHOUS2-BANCO REGIONAL S.A.E.C.A.	PARAGUAY	Finance and Insurance
CHOUS2-BANK POZITIF	TURKEY	Finance and Insurance
CHOUS2-GLOBAL BANK CORPORATION	PANAMA	Finance and Insurance
CHOUS-BANCO DE LA PRODUCCION S.A.	NICARAGUA	Finance and Insurance
CHOUS-BANCO FINANCIERA COMMERCIAL HONDURENA	HONDURAS	Finance and Insurance
CHOUS-BANCO PROMERICA	COSTA RICA	Finance and Insurance
CHOUS-BANCO REFORMADOR, S.A.	GUATEMALA	Finance and Insurance
CHOUS-BANRURAL S.A.	GUATEMALA	Finance and Insurance
CHOUS-CREDIQ, SA DE CV & CREDITZ INVERSIONES	COSTA RICA	Finance and Insurance
CHOUS-JOINT STOCK COMPANY TBC BANK	GEORGIA	Finance and Insurance
Cinepax Corp.	PAKISTAN	Information
CITADEL CAPITAL LOAN FACILITY	EGYPT	Finance and Insurance
CITIBANK, N. A.	Romania	Finance and Insurance
CITIBANK, N. A.	Ukraine	Finance and Insurance
CITIBANK, N. A.	Egypt	Finance and Insurance
CITIBANK, N. A.	Hungary	Finance and Insurance
CITIBANK, N. A.	Jordan	Finance and Insurance
CITIBANK, N. A.	Turkey	Finance and Insurance
CITIBANK, N. A.	Pakistan	Finance and Insurance
CLEARWATER CAPITAL PARTNERS IV, L.P.	ASIA REGIONAL	Finance and Insurance
CLEB2A-BANK AUDI SAL-AUDI SARADAR GROUP	LEBANON	Finance and Insurance
CLEB2A-BANKMED S.A.L.	LEBANON	Finance and Insurance
CLEB2A-BYBLOS BANK SAL	LEBANON	Finance and Insurance
CLEB2-BANK AUDI SAL-AUDI SARADAR GROUP	LEBANON	Finance and Insurance
CLEB-BANKMED S.A.L.	LEBANON	Finance and Insurance
CLEB-BANQUE LIBANO-FRANCAISE S.A.L.	LEBANON	Finance and Insurance
CLEB-BYBLOS BANK S.A.L.	LEBANON	Finance and Insurance
CMFI-2-Accion Microfinance Bank Nigeria	NIGERIA	Finance and Insurance
CMFI-2-Banco Pichincha	ECUADOR	Finance and Insurance
CMFI-2-Janalakshmi (round 2)	INDIA	Finance and Insurance
CMFI-2-Jordan Micro Credit Company (Tamweelcom)	JORDAN	Finance and Insurance
CMFI-2-LOLC Micro Credit	SRI LANKA	Finance and Insurance
CMFI-2-Microcred Senegal	SENEGAL	Finance and Insurance
CMFI-2-Microcred Senegal	SENEGAL	Finance and Insurance
CMFI-2-SKS	INDIA	Finance and Insurance
CMFI-2-SKS (Round 2)	INDIA	Finance and Insurance
CMFI-2-Ujjivan (Round 2)	INDIA	Finance and Insurance
CMFI-2-Ujjivan Financial Services Private Li	INDIA	Finance and Insurance
CMFI-OPPORTUNITY MICROCREDIT ROMANIA ("OMRO"	ROMANIA	Finance and Insurance
Compagnie des Bauxites de Guinee	GUINEA	Mining, Quarrying, and Oil and Gas Extraction
CONDOMINIOS RIVERSIDE ETAPA II, S.A.	COSTA RICA	Construction
Content Solar Limited	JAMAICA	Utilities
CONTINENTAL GRAIN CO	Haiti	Manufacturing
CONTOURGLOBAL	Senegal	Utilities
ContourGlobal Cap des Biches	SENEGAL	Utilities
ContourGlobal Cap des Biches Senegal	SENEGAL	Utilities
CONTOURGLOBAL SOLUTIONS HOLDINGS LIMITED	Nigeria	Utilities
CONTOURGLOBAL SOLUTIONS HOLDINGS LIMITED	Nigeria	Utilities
CONTOURGLOBAL TOGO L L C	Togo	Utilities
CONTOURGLOBAL TOGO S.A.	TOGO	Utilities

PROJECT NAME	COUNTRY	SECTOR
CORPORACION QUIPORT S.A.	ECUADOR	Transportation and Warehousing
CRECERA (LATIN AMERICA EXPORT FINANCE FUND)	LATIN AMERICA REGION	Finance and Insurance
CSA-BANCO REGIONAL, S.A.	PARAGUAY	Finance and Insurance
CSA-BBVA PARAGUAY S.A.	PARAGUAY	Finance and Insurance
CSA-INTERBANCO S.A.	PARAGUAY	Finance and Insurance
CSI LATINA FINANCIAL, INC/CSI LATINA ARRENDA	BRAZIL	Real Estate and Rental and Leasing
CSI LATINA FINANCIAL,INC/CSI LEASING DE CENT	LATIN AMERICA REGION	Real Estate and Rental and Leasing
CSI LEASING POLSKA SP.Z.O.O ET AL	EUROPE REGIONAL	Real Estate and Rental and Leasing
CSI Peru	PERU	Real Estate and Rental and Leasing
DARBY-PROBANCO HOLDINGS, L.P.	LATIN AMERICA REGION	Finance and Insurance
DATASPACE PARTNERS, LLC	RUSSIA	Information
DCO S.A.	ALL OPIC COUNTRIES	Finance and Insurance
Destino Desarrollos Inmobiliarios, Compania Limita	GUATEMALA	Construction
Dev Equity, LP	LATIN AMERICA REGION	Finance and Insurance
DEVELOPMENT ALTERNATIVES INC. (DAI)	Moldova	Professional, Scientific, and Technical Services
DEVELOPMENT ALTERNATIVES INC. (DAI)	Afghanistan	Professional, Scientific, and Technical Services
DEVELOPMENT ALTERNATIVES INC. (DAI)	Bangladesh	Professional, Scientific, and Technical Services
DIG-SOFIHDES	HAITI	Finance and Insurance
DISI WATER PSC	JORDAN	Utilities
Dragon Capital New Ukraine Fund, LP	UKRAINE	Finance and Insurance
ECP AFRICA FIII INVESTMENTS LLC	AFRICA REGIONAL	Finance and Insurance
ECP AFRICA FIII INVESTMENTS LLC	AFRICA REGIONAL	Finance and Insurance
ECP Africa Fund II Investments LLC	AFRICA REGIONAL	Finance and Insurance
EGYPT-AL WATANY BANK	EGYPT	Finance and Insurance
EGYPT-COMMERCIAL INTERNATIONAL BANK	EGYPT	Finance and Insurance
Endeavor Energy Holdings LLC	Guinea	Utilities
Envirofit	ALL OPIC COUNTRIES	Manufacturing
ERU Management Services LLC	Ukraine	Transportation and Warehousing
ESP Urja Private Limited	INDIA	Utilities
EURASIA FOUNDATION	Ukraine	Other Services (except Public Administration)
EURASIA FOUNDATION	Georgia	Other Services (except Public Administration)
EURASIA FOUNDATION	Armenia	Other Services (except Public Administration)
FAIRTRADE ACCESS FUND S.A., SICAV-SIF	ALL OPIC COUNTRIES	Finance and Insurance
FINANCIERA TFC, S.A.	PERU	Finance and Insurance
FINCA INTERNATIONAL	ALL OPIC COUNTRIES	Finance and Insurance
Firefly Investments 230 (Pty) Ltd.	SOUTH AFRICA	Utilities
First City Monument Bank	NIGERIA	Finance and Insurance
First Mortgage Company	ARMENIA	Finance and Insurance
First Mortgage Company II	ARMENIA	Finance and Insurance
FIXED RATE FUNDING & LIQUIDITY LTD (HWD SPA)	ALGERIA	Utilities
FORESTRY & AGRICULTURAL INVESTMENT MGMT USA	RWANDA	Agriculture, Forestry, Fishing and Hunting
Foursan Jordan Fund 2	JORDAN	Finance and Insurance
G H L U S A INVESTMENT PARTNERS	Ghana	Finance and Insurance
GAMMA KNIFE PERU	PERU	Health Care and Social Assistance
GARANTI DIVERSIFIED PAYMENT RIGHTS COMPANY	TURKEY	Finance and Insurance
GCMC II- JUNIOR NOTE TRANCHE	ALL OPIC COUNTRIES	Finance and Insurance
Generacion Solar SpA	CHILE	Utilities
GEORGIAN AMERICAN UNIVERSITY LLC	GEORGIA	Educational Services
GHANA HOME LOANS (FUND 1) LIMITED	GHANA	Finance and Insurance
GHANA HOME LOANS (FUND 1) LIMITED	GHANA	Finance and Insurance
GIFF-INCL-Isik Tarim D/B/A Isik Organik	TURKEY	Manufacturing
GIFF-MFI-Arohan Micro Finance Pvt. LTD	INDIA	Finance and Insurance
GIFF-MFI-Suryoday Micro Finance LTD	INDIA	Finance and Insurance

PROJECT NAME	COUNTRY	SECTOR
GLOBAL COMMERCIAL MICROFINANCE CONSORTIUM II	ALL OPIC COUNTRIES	Finance and Insurance
Global Partnerships Social Investment Fund 6.0	LATIN AMERICA REGION	Finance and Insurance
GLOBAL PARTNERSHIPS SOCIAL INVMT FUND 5.0	LATIN AMERICA REGION	Finance and Insurance
GMT HOTELS, LLC	GEORGIA	Accommodation and Food Services
GMT HOTELS, LLC	GEORGIA	Accommodation and Food Services
GMT MTATSMINDA, LLC	GEORGIA	Accommodation and Food Services
GN BEVERAGES	MONGOLIA	Manufacturing
Goldman Sachs	Ukraine	Transportation and Warehousing
GOOGLE INC	Kenya	Utilities
GRASSROOTS BUSINESS FUND	ALL OPIC COUNTRIES	Finance and Insurance
Greenlight Planet, Inc.	ALL OPIC COUNTRIES	Utilities
GTS MAJES S.A.C. AND GTS REPARTICION S.A.C.	PERU	Utilities
GTS MAJES S.A.C. AND GTS REPARTICION S.A.C.	PERU	Utilities
HAITI 360	HAITI	Manufacturing
Hawa Energy	PAKISTAN	Utilities
HEFF	LATIN AMERICA REGION	Finance and Insurance
HRVATSKE AUTOCESTE D.O.O.	CROATIA	Construction
Husk Power Services	INDIA	Utilities
IHS FUND II SA PVE	SOUTH AFRICA	Finance and Insurance
India 2020 II Investors, Limited	INDIA	Finance and Insurance
IndusInd Bank Limited	INDIA	Finance and Insurance
INDUSTRIAL DPR FUNDING LTD.	GUATEMALA	Finance and Insurance
Inter-Mac International, Inc.	HONDURAS	Construction
International Bank Liberia Limited	LIBERIA	Finance and Insurance
INTERNATIONAL COLLEGE	Lebanon	Educational Services
INTERNATIONAL RESCUE COMMITTEE	Rwanda	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Burundi	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Chad	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	DEM. REPUBLIC OF CONGO	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Thailand	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Sierra Leone	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Pakistan	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Afghanistan	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Zimbabwe	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Uganda	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Kenya	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Tanzania	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Russia	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Jordan	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Central African Republic	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Ethiopia	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Cote d'Ivoire	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Liberia	Health Care and Social Assistance
International Rescue Committee	Nigeria	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Somalia	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Lebanon	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	South Sudan	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Turkey	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Yemen	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Haiti	Health Care and Social Assistance
International Rescue Committee	Myanmar	Health Care and Social Assistance
INTERNATIONAL RESCUE COMMITTEE	Iraq	Health Care and Social Assistance
International School of Kenya Limited	KENYA	Educational Services

PROJECT NAME	COUNTRY	SECTOR
INTL CO FOR ENERGY TECHNOLOGY INDUSTRIES	JORDAN	Construction
IRAQ MIDDLE MARKET DEVELOPMENT FOUNDATION	IRAQ	Finance and Insurance
IRAQ MIDDLE MARKET DEVELOPMENT FOUNDATION	IRAQ	Finance and Insurance
ISRAEL ELECTRIC CORPORATION LTD.	ISRAEL	Transportation and Warehousing
Itau 2014	BRAZIL	Finance and Insurance
Izmir Bayrakli Hastane Yatirim ve Saglik Hizmetler	TURKEY	Health Care and Social Assistance
Jamaica Public Service Company Limited	JAMAICA	Utilities
Janalakshmi Financial Services Pvt. Ltd.	INDIA	Finance and Insurance
Jhimpir Power (Private) Limited	PAKISTAN	Utilities
JORDAN-ARAB BANK	JORDAN	Finance and Insurance
JORDAN-BANK AL ETIHAD	JORDAN	Finance and Insurance
JORDAN-BANK AL ETIHAD	JORDAN	Finance and Insurance
JORDAN-CAIRO AMMAN BANK	JORDAN	Finance and Insurance
JORDAN-Capital Bank 2	JORDAN	Finance and Insurance
JORDAN-CAPITAL BANK OF JORDAN	JORDAN	Finance and Insurance
JORDAN-HOUSING BANK FOR TRADE AND FINANCE	JORDAN	Finance and Insurance
JORDAN-JORDAN AHLI BANK	JORDAN	Finance and Insurance
JORDAN-JORDAN KUWAIT BANK	JORDAN	Finance and Insurance
JSC BANK OF GEORGIA	GEORGIA	Finance and Insurance
JSC D&B Georgia	GEORGIA	Accommodation and Food Services
JSC PROCREDIT BANK GEORGIA	GEORGIA	Finance and Insurance
JSC PROCREDIT BANK GEORGIA	GEORGIA	Finance and Insurance
KABUL GRAND RESIDENCES LLC	AFGHANISTAN	Construction
Kilombero Plantations Limited	TANZANIA	Agriculture, Forestry, Fishing and Hunting
Kiva	ALL OPIC COUNTRIES	Finance and Insurance
Kocaeli Hastane Yatirim ve Saglik Hizmetleri A.S.	TURKEY	Health Care and Social Assistance
KORET ISRAEL ECONOMIC DEVELOPMENT FUNDS	ISRAEL	Finance and Insurance
KWAPLAH INTERNATIONAL TRADING CO INC	Liberia	Wholesale Trade
LA FUTURA, S.A.	GUATEMALA	Agriculture, Forestry, Fishing and Hunting
La Hipotecaria El Salvador	EL SALVADOR	Finance and Insurance
La Hipotecaria El Salvadorian Mortgage Trust 2016-	EL SALVADOR	Finance and Insurance
LA HIPOTECARIA PANAMANIAN MORTGAGE TRUST 10	PANAMA	Finance and Insurance
La Hipotecaria Panamanian Mortgage Trust 201	PANAMA	Finance and Insurance
LAFISE GROUP PANAMA, INC.	PANAMA	Finance and Insurance
Latin Power III Investments, L.P. (Conduit)	LATIN AMERICA REGION	Finance and Insurance
LCF SPV	ALL OPIC COUNTRIES	Finance and Insurance
LIBERIAN ENTERPRISE DEVELOPMENT FINANCE CO.	LIBERIA	Finance and Insurance
Livelihood Impact Fund, L.P.	ASIA REGIONAL	Finance and Insurance
LLC "WINNER IMPORTS UKRAINE, LTD"	UKRAINE	Retail Trade
Los Santos Solar I, S.A.P.I. de C.V.	MEXICO	Utilities
Master Wind Energy Limited	PAKISTAN	Utilities
Materiales Vista Bahia	PANAMA	Construction
Mawingu Networks	KENYA	Information
MCE Social Capital Loan	ALL OPIC COUNTRIES	Finance and Insurance
MEII 3 - Bank of Jordan	WEST BANK	Finance and Insurance
MEII 3 - Bank of Palestine	WEST BANK	Finance and Insurance
MEII 3 - Cairo Amman Bank	WEST BANK	Finance and Insurance
MEII 3 - FATEN	WEST BANK	Finance and Insurance
MEII 3 - Jordan Ahli Bank	WEST BANK	Finance and Insurance
MEII 3 - Quds Bank	WEST BANK	Finance and Insurance
MEII-2-ARAB BANK	WEST BANK	Finance and Insurance
MEII-2-BANK OF PALESTINE (SME INCREASE)	WEST BANK	Finance and Insurance
MEII-2-PALESTINE COMMERCIAL BANK	WEST BANK	Finance and Insurance

PROJECT NAME	COUNTRY	SECTOR
MEII-2-QUDS BANK (SME)	WEST BANK	Finance and Insurance
MEII-CAIRO AMMAN BANK	WEST BANK	Finance and Insurance
MEII-HOUSING BANK FOR TRADE AND FINANCE	WEST BANK	Finance and Insurance
MEMC ELECTRONICS MATERIALS, INC.	India	Utilities
MEMC ELECTRONICS MATERIALS, INC.	India	Utilities
Meridiam Africa Investments	Senegal	Utilities
MFX Solutions II	ALL OPIC COUNTRIES	Finance and Insurance
MFX Solutions III	ALL OPIC COUNTRIES	Finance and Insurance
MFX SOLUTIONS, INC.	ALL OPIC COUNTRIES	Finance and Insurance
MicroBuild Fund	ALL OPIC COUNTRIES	Finance and Insurance
MICROBUILD I, LLC	ALL OPIC COUNTRIES	Finance and Insurance
MICROCREDIT ENTERPRISES	ALL OPIC COUNTRIES	Finance and Insurance
MICROVEST I, LP	ALL OPIC COUNTRIES	Finance and Insurance
MicroVest Short Duration Fund, LP	Georgia	Finance and Insurance
MicroVest+Plus, LP	ALL OPIC COUNTRIES	Finance and Insurance
Miranda Falcon Realty Ltd	WEST BANK	Construction
Moquegua FV S.A.C.	PERU	Utilities
MORGAN STANLEY INCORPORATED	Russia	Finance and Insurance
MORGANTI DEVELOPMENT L L C	West Bank and Gaza	Utilities
Mountain Enterprises International, Inc	Tajikistan	Manufacturing
MTANGA FARMS LIMITED	TANZANIA	Manufacturing
MULTILATERAL INVESTMENT GUARANTEE AGENCY	Nigeria	Utilities
NATIONAL UNION FIRE INSURANCE CO OF PITTSBURGH PA	Ecuador	Transportation and Warehousing
Negev Energy - Ashalim Thermo-Solar Ltd.	ISRAEL	Utilities
New York Pizza Co Ltd.	RUSSIA	Accommodation and Food Services
NOBLE ENERGY INC	Jordan	Mining, Quarrying, and Oil and Gas Extraction
NOBLE ENERGY INC	Israel	Mining, Quarrying, and Oil and Gas Extraction
NU STRATA LOGISTICS	LIBERIA	Transportation and Warehousing
Numotech	RUSSIA	Manufacturing
O & S CONSULTING	Uzbekistan	Accommodation and Food Services
O&S CONSULTING LLC	Uzbekistan	Accommodation and Food Services
Olympus Capital Asia Catalyst Fund, L.P.	ASIA REGIONAL	Finance and Insurance
One Acre Fund	AFRICA REGIONAL	Finance and Insurance
Orpower 4 Geothermal	KENYA	Utilities
PACIFIC COLLECTION COMPANY/TRIBAL LOOM	AFGHANISTAN	Manufacturing
PALADIN REALTY LATIN AMERICA INVESTORS III	LATIN AMERICA REGION	Finance and Insurance
Paladin Realty Latin America Investors IV-CI, LP	LATIN AMERICA REGION	Finance and Insurance
PAMIGA Finance S.A.	AFRICA REGIONAL	Finance and Insurance
Parque Solar Fotovoltaico Luz Del Norte, SpA	CHILE	Utilities
Peninsula III Levered - O LP	LATIN AMERICA REGION	Finance and Insurance
PJ WESTERN RETAIL INVESTMENTS LTD I	RUSSIA	Accommodation and Food Services
PJ WESTERN RETAIL INVESTMENTS LTD II	RUSSIA	Accommodation and Food Services
PLAZA LOGISTICA S.R.L.	ARGENTINA	Construction
PLAZA LOGISTICA S.R.L. II	ARGENTINA	Construction
Power Finance Trust Limited	COLOMBIA	Utilities
PROMOTORA DE INFRAESTRUCTURA REGISTRAL, S.A.	MEXICO	Finance and Insurance
PT UPC Sidrap Bayu Energi	INDONESIA	Utilities
PT. TUCAN PUMPCO SERVICES INDONESIA	INDONESIA	Mining, Quarrying, and Oil and Gas Extraction
PT. TUCAN PUMPCO SERVICES INDONESIA	INDONESIA	Mining, Quarrying, and Oil and Gas Extraction
PTSM HOLDINGS LIMITED/PTS EQUIPMENT LIMITED	NIGERIA	Real Estate and Rental and Leasing
PV Salvador	CHILE	Utilities
PYMM	MEXICO	Manufacturing
QuantumID Technologies (Philippines)	PHILIPPINES	Professional, Scientific, and Technical Services

PROJECT NAME	COUNTRY	SECTOR
R L J COMPANIES	Liberia	Accommodation and Food Services
RBL Bank-NeoGrowth	INDIA	Finance and Insurance
ReNew Wind Energy(TN 2) Private Limited - Telangan	INDIA	Utilities
RLJ LIBERIA, LLC	LIBERIA	Accommodation and Food Services
ROOT CAPITAL II	ALL OPIC COUNTRIES	Finance and Insurance
Root Capital, Inc.	ALL OPIC COUNTRIES	Finance and Insurance
RUSSIA PARTNERS II "O" SERIES, L.P.	NIS REGIONAL	Finance and Insurance
SA Taxi Impact Fund RF (Pty) Ltd.	SOUTH AFRICA	Real Estate and Rental and Leasing
SACEF-AF Holdings	ASIA REGIONAL	Finance and Insurance
Safi Apparel Corporation	AFGHANISTAN	Manufacturing
SAFI APPAREL CORPORATON	AFGHANISTAN	Manufacturing
SAN ANDRES SPA	CHILE	Utilities
Sapphire Wind Power	PAKISTAN	Utilities
SARONA FRONTIER MARKETS FUND II LP	ALL OPIC COUNTRIES	Finance and Insurance
SAWHF PVE (SA)	SOUTH AFRICA	Finance and Insurance
Sayali Ltd	GEORGIA	Health Care and Social Assistance
Schulze Global Finance Facility Mongolia	MONGOLIA	Finance and Insurance
SEABOARD OVERSEAS LTD	DEM. REPUBLIC OF CONGO	Manufacturing
SEAF -- Food Service Ltd.	GEORGIA	Wholesale Trade
SEAF-FBT AD (JIMMY'S)	BULGARIA	Accommodation and Food Services
SEKER MORTGAGE FINANSMAN A.S.	TURKEY	Finance and Insurance
SFC Finance Limited	AFRICA REGIONAL	Finance and Insurance
SHARED INTEREST, INC.	SOUTH AFRICA	Finance and Insurance
SigmaBleyzer Southeast European Fund IV, CV	UKRAINE	Finance and Insurance
SILVERLANDS FUND	AFRICA REGIONAL	Finance and Insurance
SILVERSTREET PRIVATE EQUITY STRATEGIES SOPARFI SARL	AFRICA REGIONAL	Finance and Insurance
SILVERSTREET PRIVATE EQUITY STRATEGIES SOPARFI SARL	Zambia	Finance and Insurance
SILVERSTREET PRIVATE EQUITY STRATEGIES SOPARFI SARL	Tanzania	Finance and Insurance
SILVERSTREET PRIVATE EQUITY STRATEGIES SOPARFI SARL	Zambia	Finance and Insurance
SIMPA Networks	INDIA	Wholesale Trade
SIRAJ PALESTINE FUND I	WEST BANK	Finance and Insurance
SOCIEDAD CONCESIONARIA VESPUCIO NORTE EXPRES	CHILE	Construction
Solar Azuero Venture, S.R.L.	PANAMA	Utilities
Solar Cocle Venture, S.R.L.	PANAMA	Utilities
Solar Panama Venture, S.R.L.	PANAMA	Utilities
South Asia Clean Energy Fund	ASIA REGIONAL	Finance and Insurance
SOUTHEAST EUROPE EQUITY FUND II, L.P.	EUROPE REGIONAL	Finance and Insurance
SOUTHERN ENERGY PARTNERS LLC	India	Utilities
SOUTHERN ENERGY PARTNERS LLC	India	Utilities
SOUTHERN ENERGY PARTNERS LLC	India	Utilities
Sovereign Risk Insurance Limited	Senegal	Utilities
St. Marche	BRAZIL	Retail Trade
STEADFAST INSURANCE CO	Benin	Transportation and Warehousing
STEADFAST INSURANCE CO	Togo	Utilities
STEADFAST INSURANCE CO	Ghana	Transportation and Warehousing
Stichting Medical Credit Fund	AFRICA REGIONAL	Finance and Insurance
SUMMIT HOTELS LIMITED/SUMMIT GLOBAL GROUP	IRAQ	Accommodation and Food Services
SUN EDISON INC	South Africa	Utilities
TACNA SOLAR S.A.C. AND PANAMERICANA SOLAR	PERU	Utilities
Talbot Underwriting Services (US) Ltd	Tanzania	Utilities
Tavan Bogd Foods LLC	MONGOLIA	Accommodation and Food Services

PROJECT NAME	COUNTRY	SECTOR
TAYL INVESTORS GROUP LIMITED	AFGHANISTAN	Accommodation and Food Services
TAYL INVESTORS GROUP-2	AFGHANISTAN	Accommodation and Food Services
TBC KREDIT NON-BANKING CREDIT ORGANIZATI LLC	AZERBAIJAN	Finance and Insurance
TEA IMPORTERS INC	Rwanda	Agriculture, Forestry, Fishing and Hunting
TELIANI VALLEY JSC	GEORGIA	Manufacturing
Tenaga Wind Power Project	PAKISTAN	Utilities
Texas Adriatic Group LLC	Hungary	Utilities
THANEAKEA PHUM CAMBODIA	CAMBODIA	Finance and Insurance
Thaneakea Phum Cambodia (2nd Tranche)	CAMBODIA	Finance and Insurance
THE ATLANTIC	IRAQ	Construction
The Standard Bank of South Africa Limited	SOUTH AFRICA	Finance and Insurance
THREE E KUMASI INVESTMENT CO L L C	Ghana	Educational Services
TIB Diversified Payment Rights Finance Compa	TURKEY	Finance and Insurance
TPL TRAKKER	PAKISTAN	Professional, Scientific, and Technical Services
TRANSNATIONAL RESOURCE L L C	Ukraine	Construction
Treetops Capital Agribusiness Facility LLC	ROMANIA	Finance and Insurance
Tres Mesas	MEXICO	Utilities
Tres Mesas - 2	MEXICO	Utilities
TUNISIA-Arab Tunisia Bank	TUNISIA	Finance and Insurance
TUNISIA-Attijari Bank	TUNISIA	Finance and Insurance
TURKIYE GARANTI BANKASI A.S.	TURKEY	Finance and Insurance
Txtlight Power Solutions Limited (Lumos)	NIGERIA	Utilities
U S BANK NATIONAL ASSOCIATION	Philippines	Utilities
University of Central Asia	TAJIKISTAN	Educational Services
UNIVERSITY OF GEORGIA	GEORGIA	Educational Services
VEHICULOS LIQUIDOS FINANCIEROS SAPI DE C.V.	MEXICO	Finance and Insurance
VERIDA CREDIT IFN S.A.	ROMANIA	Finance and Insurance
VERIDA CREDIT IFN S.A. II	ROMANIA	Finance and Insurance
VITAS INSTITUTIE FINANCIARA NEBANCARA S. A.	ROMANIA	Finance and Insurance
W R B ENTERPRISES INC	JAMAICA	Utilities
W3-BANCO FINANCIERA COMERCIAL HONDURENA, S.A	HONDURAS	Finance and Insurance
W3-CREDICORP BANK	PANAMA	Finance and Insurance
W3-MULTIBANK, INC.	PANAMA	Finance and Insurance
W4-Banco BAC San Jose, S.A.	COSTA RICA	Finance and Insurance
W4-Banco Davivienda (Costa Rica), S.A.	COSTA RICA	Finance and Insurance
W4-Credicorp Bank, S.A.	PANAMA	Finance and Insurance
WADE RAIN INC	Mexico	Manufacturing
WANANCHI GROUP HOLDINGS LTD	AFRICA REGIONAL	Information
Waterpoint Services Private Limited	INDIA	Utilities
WBC - Corporacion Financiera de Occidente	MEXICO	Finance and Insurance
WBC - Golomt Bank LLC	MONGOLIA	Finance and Insurance
WBC - LOLC Micro Credit Limited	SRI LANKA	Finance and Insurance
WBC - Madura Micro Finance Limited	INDIA	Finance and Insurance
WBC - Nurolbank (Senior)	TURKEY	Finance and Insurance
WBC -- Nurolbank (Subordinated)	TURKEY	Finance and Insurance
WBC - Satin Creditcare Network Limited (Seni	INDIA	Finance and Insurance
WBC - Satin Creditcare Network Limited (Subo	INDIA	Finance and Insurance
WBC - Sefia	MEXICO	Finance and Insurance
WBC -- Siempre Creciendo, S.A. de C.V., SOFOM, ENR	MEXICO	Finance and Insurance
WBC - Trans Oil Group	MOLDOVA	Transportation and Warehousing
WBC Arrendadora y Comercializadora Lingo SA	MEXICO	Finance and Insurance
WBC Financiera Desyfin S.A. II	COSTA RICA	Finance and Insurance

PROJECT NAME	COUNTRY	SECTOR
WBC -ICS Prime Capital SRL	MOLDOVA	Finance and Insurance
WBC- IM OMF Microinvest SRL	MOLDOVA	Finance and Insurance
WBC- Kineret SA	COSTA RICA	Finance and Insurance
WBC- Mercader Financial, S.A. de C.V., SOFOM, E.R.	MEXICO	Finance and Insurance
WBC -OPERADORA DE SERVICIOS MEGA, S.A. DE C.	MEXICO	Real Estate and Rental and Leasing
WBC-African Banking Corporation Zambia Ltd.	ZAMBIA	Finance and Insurance
WBC-ANALISTAS DE RECURSOS GLOBALES SAPI	MEXICO	Finance and Insurance
WBC-ATLANTIC GROUP LIMITED	UKRAINE	Professional, Scientific, and Technical Services
WBC-ATLANTIC GROUP LIMITED ("AGL")	UKRAINE	Professional, Scientific, and Technical Services
WBC-BANCO CATHAY DE COSTA RICA S.A.	COSTA RICA	Finance and Insurance
WBC-Banco Improsa	COSTA RICA	Finance and Insurance
WBC-BANCO IMPROSA S.A.	COSTA RICA	Real Estate and Rental and Leasing
WBC-COMERCIAL LAEISZ, S.A. DE C.V.	HONDURAS	Real Estate and Rental and Leasing
WBC-Degress Holding Limited	UKRAINE	Retail Trade
WBC-DOCUFORMAS S.A.P.I. DE C.V.	MEXICO	Real Estate and Rental and Leasing
WBC-Exitus Capital SAPI de CV SOFOM ENR	MEXICO	Finance and Insurance
WBC-Financiamiento Progresemos SA de CV SOFO	MEXICO	Finance and Insurance
WBC-FINANCIERA DESYFIN S.A.	COSTA RICA	Real Estate and Rental and Leasing
WBC-KELLEY GRAINS CORPORATION S.R.L.	MOLDOVA	Manufacturing
WBC-MUGANBANK OJSC	AZERBAIJAN	Finance and Insurance
WBC-MUGANBANK OJSC	AZERBAIJAN	Finance and Insurance
WBC-NUEVOS ALMACENES S.A. D/B/A/ CEMACO	GUATEMALA	Retail Trade
WBC-OJSC SDM-BANK (II)	RUSSIA	Finance and Insurance
WBC-PETERSBURG SOCIAL COMMERCIAL BANK OJSC	RUSSIA	Finance and Insurance
WBC-PJSC Megabank	UKRAINE	Finance and Insurance
WBC-PUBLIC JOINT STOCK COMPANY MEGABANK	UKRAINE	Finance and Insurance
WBC-TuranBank II	AZERBAIJAN	Finance and Insurance
WBC-TURANBANK OJSC	AZERBAIJAN	Finance and Insurance
WBC-VALLARTA VISION Y MISION A.C.	MEXICO	Educational Services
WBC-ZAO AIRES	RUSSIA	Arts, Entertainment, and Recreation
WBC-ZAO AIRES	RUSSIA	Arts, Entertainment, and Recreation
Wendy's Georgia	GEORGIA	Accommodation and Food Services
WESTERN RETAIL DEVELOPMENT L L C	Russia	Accommodation and Food Services
WESTROCK COFFEE HOLDINGS LLC	Tanzania	Agriculture, Forestry, Fishing and Hunting
WESTROCK COFFEE HOLDINGS LLC	Rwanda	Agriculture, Forestry, Fishing and Hunting
WESTROCK COFFEE HOLDINGS LLC	Kenya	Agriculture, Forestry, Fishing and Hunting
WESTROCK COFFEE HOLDINGS LLC	Uganda	Agriculture, Forestry, Fishing and Hunting
WFUSBF - Brasilieros Venture, LLC	BRAZIL	Manufacturing
WFUSBF - AIDS Healthcare Foundation	AFRICA REGIONAL	Health Care and Social Assistance
WFUSBF -- Andrew and Williamson Sales, Co.	MEXICO	Agriculture, Forestry, Fishing and Hunting
WRB Serra Partners Fund I	LATIN AMERICA REGION	Finance and Insurance
XacBank LLC	MONGOLIA	Finance and Insurance
YES Bank	INDIA	Finance and Insurance
Yes Bank II	INDIA	Finance and Insurance
ZAMORA, ROBERTO	Nicaragua	Finance and Insurance
ZAO NUMOTECH-SPEKTR	RUSSIA	Manufacturing
ZAO STAR NETWORKS	RUSSIA	Information
ZBE PARTNERS EAD	BULGARIA	Utilities

APPENDIX B – PROJECT EMISSIONS CALCULATIONS

This appendix contains the inputs, data sources, and calculations used to estimate the emissions for each of the projects in OPIC's CY 2016 GHG inventory. If project sponsor feedback was submitted in the years from 2007–2015, emissions estimates from those years are also presented.

TIER A PROJECTS

AES Jordan

Maximum Potential-to-Emit Estimate

AES Jordan's initial maximum PTE estimate of **1,545,173 STPY of CO_2e** was calculated using the information below. However, in 2016 the emissions exceeded the maximum PTE estimate. Therefore, in this inventory and subsequent inventories, the maximum PTE was set to the peak emissions year. For AES Jordan, emissions peaked at **1,588,326 short tons of CO_2e** in CY 2016.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	370 MW	Project Description
Emission Factor	390 g CO_2/kWh	IFC 2006
Load Adjustment Factor	85/70	Engineering adjustment to align maximum PTE with operational data supplied by project sponsor for inventory years 2009 through 2012.

Maximum Potential-to-Emit = 1,545,173 STPY of CO_2e =

$$370\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{85}{70} * \frac{390\text{ g } CO_2}{\text{kWh}} * \frac{0.0000011023\text{ short tons}}{\text{g}}$$

2007 Emissions Estimate

AES Jordan was under construction and not operational during 2007. Since emissions from construction would be below the 100,000 short ton threshold, this project was omitted from the 2007 inventory.

2008 Emissions Estimate

AES Jordan's emissions estimate of **590,940 short tons of CO_2e** for 2008 was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas	Project Sponsor
Net Energy Generated	10,103,603 MMBtu	Project Sponsor
Emission Factor	53.06 kg CO_2/MMBtu	TCR, Table 12.1

Emissions = 590,940 short tons of CO_2e =

10,103,603 MMBtu * $\frac{53.06 \text{ kg } CO_2}{\text{MMBtu}}$ * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$

2009 Emissions Estimate

AES Jordan's emissions estimate of **1,318,130 short tons of CO_2e** for 2009 was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas	Project Sponsor
Net Energy Generated	22,536,748 MMBtu	Project Sponsor
Emission Factor	53.06 kg CO_2/MMBtu	TCR, Table 12.1

Emissions = 1,318,130 short tons CO_2e =

22,536,748 MMBtu * $\frac{53.06 \text{ kg } CO_2}{\text{MMBtu}}$ * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$

2010 Emissions Estimate

AES Jordan's emissions estimate of **1,434,569 short tons of CO_2e** for 2010 was calculated using the following information:

Data	Value	Source
Unit 1 Emissions	678,706,541 kg CO_2	Project Sponsor
Unit 2 Emissions	622,726,311 kg CO_2	Project Sponsor

Emissions = 1,434,569 short tons of CO_2e =

(678,706,541 kg CO_2 + 622,726,311 kg CO_2) * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$

2011 Emissions Estimate

AES Jordan's emissions estimate of **1,184,010 short tons of CO_2e** for 2011 was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas & Diesel	Project Sponsor
Total Natural Gas Consumption	11,618,556 MMBtu	Project Sponsor
Total Diesel Consumption	6,256,271 MMBtu	Project Sponsor
Emission Factor Natural Gas	53.06 kg CO_2/MMBtu	TCR, Table 12.1
Emissions Factor Diesel	73.15 kg CO2/MMBtu	The Climate Registry, Table 12-1

Emissions = 1,184,010 short tons CO_2e =

11,618,556 MMBtu * $\frac{53.06 \text{ kg } CO_2}{\text{MMBtu}}$ * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$ +

6,256,271 MMBtu * $\frac{73.15 \text{ kg CO2}}{\text{MMBtu}}$ * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$

2012 Emissions Estimate

AES Jordan's emissions estimate of **936,400 short tons of CO_2e** for 2012 was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas & Diesel	Project Sponsor
Total Natural Gas Consumption	5,069,853 MMBtu	Project Sponsor
Total Diesel Consumption	7,851,448 MMBtu	Project Sponsor
Emission Factor Natural Gas	53.02 kg CO_2/MMBtu	TCR 2013
Emissions Factor Diesel	73.96 kg CO2/MMBtu	TCR 2013

Emissions = 936,400 short tons CO_2e =

5,069,853 MMBtu * $\frac{53.02 \text{ kg } CO_2}{\text{MMBtu}}$ * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$ +

7,851,448 MMBtu * $\frac{73.96 \text{ kg CO2}}{\text{MMBtu}}$ * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$

2013 Emissions Estimate

AES Jordan's emissions estimate of **1,514,054 short tons of CO_2e** for 2013 was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas & Diesel	Project Sponsor
Natural Gas Consumption (Lower Heating Value)	12,225,754.91 MMBtu	Project Sponsor
Diesel Consumption (Lower Heating Value)	8,284,455.54 MMBtu	Project Sponsor
Natural Gas - Conversion Factor to Higher Heating Value	1.10786	GREET
Diesel - Conversion Factor to Higher Heating Value	1.069685	GREET
Emission Factor Natural Gas	53.02 kg CO_2/MMBtu	TCR 2013
Emissions Factor Diesel	73.96 kg CO_2/MMBtu	TCR 2013

Emissions = 1,514,054 short tons CO_2e =

12,225,754.91 MMBtu * $\frac{53.02 \text{ kg } CO_2}{\text{MMBtu}}$ * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$ * 1.10786 +

8,284,455.54 MMBtu * 73.96 kg CO2 / MMBtu * 0.0011023 short tons / kg * 1.069685

2014 Emissions Estimate

AES Jordan's emissions estimate of **1,203,945 short tons of CO_2e** for 2014 was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas & Diesel	Project Sponsor
Natural Gas Consumption (Lower Heating Value)	4,415,255.552 MMBtu	Project Sponsor
Diesel Consumption (Lower Heating Value)	10,527,411.68 MMBtu	Project Sponsor
Natural Gas - Conversion Factor to Higher Heating Value	1.1079	GREET
Diesel - Conversion Factor to Higher Heating Value	1.069685	GREET
Emission Factor Natural Gas	53.02 kg CO_2/MMBtu	TCR 2014
Emissions Factor Diesel	73.96 kg CO_2/MMBtu	TCR 2014

Emissions = 1,203,945 short tons CO_2e =

4,415,255.552 MMBtu * 53.02 kg CO_2 / MMBtu * 0.0011023 short tons / kg * 1.1079 +

10,527,411.68 MMBtu * 73.96 kg CO2 / MMBtu * 0.0011023 short tons / kg * 1.069685

2015 Emissions Estimate Based

AES Jordan's emissions estimate of **949,925 short tons of CO_2e** for 2015 was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas & Diesel	Project Sponsor
Natural Gas Consumption (Lower Heating Value)	13,065,796 MMBtu	Project Sponsor
Diesel Consumption (Lower Heating Value)	1,184,608 MMBtu	Project Sponsor
Natural Gas - Conversion Factor to Higher Heating Value	1.10786	GREET
Diesel - Conversion Factor to Higher Heating Value	1.069685	GREET
Emission Factor Natural Gas	53.06 kg CO_2/MMBtu	TCR 2015
Emissions Factor Diesel	73.96 kg CO_2/MMBtu	TCR 2014

Emissions = 949,925 short tons CO_2e =

$$13{,}065{,}796 \text{ MMBtu} * \frac{53.06 \text{ kg } CO_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} * 1.10786 +$$

$$1{,}184{,}608 \text{ MMBtu} * \frac{73.96 \text{ kg CO2}}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} * 1.069685$$

2016 Emissions Estimate Based

AES Jordan's emissions estimate of **1,588,326 short tons of CO_2e** for 2016 was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas & Diesel	Project Sponsor
Natural Gas Consumption (Lower Heating Value)	24,509,059.97 MMBtu	Project Sponsor
Diesel Consumption (Lower Heating Value)	2,555.967 MMBtu	Project Sponsor
Natural Gas - Conversion Factor to Higher Heating Value	1.10786	GREET
Diesel - Conversion Factor to Higher Heating Value	1.069685	GREET
Emission Factor Natural Gas	53.06 kg CO_2/MMBtu	TCR 2017
Emissions Factor Diesel	73.96 kg CO_2/MMBtu	TCR 2017

Emissions = 1,588,326 short tons CO_2e =

$$24{,}509{,}059.97 \text{ MMBtu} * \frac{53.06 \text{ kg } CO_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} * 1.10786 +$$

2,555.967 MMBtu * $\frac{73.96 \text{ kg CO2}}{\text{MMBtu}}$ * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$ * 1.069685

AES Levant

Maximum Potential-to-Emit Estimate

AES Levant's maximum PTE estimate of **1,409,533 STPY of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Heavy Fuel Oil	Project Description
Capacity	240 MW	Project Description
Emission Factor	666 gCO_2/kWh	IFC 2012
Conversion Factor	1000 kWh/MWh	TCR, Appendix C
Conservative Operating Assumption	8000 hr/yr	EIA Form 923 data, 2007

Maximum Potential-to-Emit = 1,409,533 STPY of CO_2e =

240MW * $\frac{666 \text{ g } CO_2}{\text{kWh}}$ * $\frac{1000 \text{ kWh}}{\text{MWh}}$ * $\frac{8000 \text{ hr}}{\text{yr}}$ * $\frac{1.1023 \times 10^{-6} \text{ short tons}}{\text{g}}$

2014 Emissions Estimate

AES Levant's 2014 emissions estimate of **467,262 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Consumption Heavy Fuel Oil	5,600,812.08MMBtu	Project Sponsor
Residual Fuel Oil Emission Factor	75.1 kg CO_2/MMBtu	TCR 2014
Consumption Distillate Fuel	44,293.51 MMBtu	Project Sponsor
Distillate Fuel Oil Emission Factor	73.96 kg CO_2/MMBtu	TCR 2014
Conversion Factor	0.0011023 short tons/kg	TCR 2008

Emissions = 467,262 short tons of CO_2e =

5,600,812.08 MMBtu * $\frac{75.1 \text{ kg } CO_2}{\text{MMBtu}}$ * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$ +

44,293.51 MMBtu * $\frac{73.96 \text{ kg } CO_2}{\text{MMBtu}}$ * $\frac{0.0011023 \text{ short tons}}{\text{kg}}$

2015 Emissions Estimate

AES Levant's 2015 emissions estimate of **685,110 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Consumption Heavy Fuel Oil	7,738,256.34 MMBtu	Project Sponsor
Residual Fuel Oil Emission Factor	75.1 kg CO_2/MMBtu	TCR 2014
Consumption Distillate Fuel	48,223.72 MMBtu	Project Sponsor
Distillate Fuel Oil Emission Factor	73.96 kg CO_2/MMBtu	TCR 2014
Consumption Natural Gas	693,890 MMBtu	Project Sponsor
Natural Gas Emission Factor	53.06 kg CO_2/MMBtu	TCR 2015
Conversion Factor	0.0011023 short tons/kg	TCR 2008

Emissions = 685,110 short tons of CO_2e =

$$7{,}738{,}256.34 \text{ MMBtu} * \frac{75.1 \text{ kg } CO_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} +$$

$$48{,}223.72 \text{ MMBtu} * \frac{73.96 \text{ kg } CO_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} +$$

$$693{,}890 \text{ MMBtu} * \frac{53.06 \text{ kg } CO_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

2016 Emissions Estimate
AES Levant's 2016 emissions estimate of **228,994 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Consumption Heavy Fuel Oil	1,082.91 MMBtu	Project Sponsor
Residual Fuel Oil Emission Factor	75.1 kg CO_2/MMBtu	TCR 2017
Consumption Distillate Fuel	45,507.53 MMBtu	Project Sponsor
Distillate Fuel Oil Emission Factor	73.96 kg CO_2/MMBtu	TCR 2017
Consumption Natural Gas	3,850,261 MMBtu	Project Sponsor
Natural Gas Emission Factor	53.06 kg CO_2/MMBtu	TCR 2017
Conversion Factor	0.0011023 short tons/kg	TCR 2017

Emissions = 228,994 short tons of CO_2e =

$$1{,}082.91 \text{ MMBtu} * \frac{75.1 \text{ kg } CO_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} +$$

$$45{,}507.53 \text{ MMBtu} * \frac{73.96 \text{ kg } CO_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} +$$

$$3{,}850{,}261 \text{ MMBtu} * \frac{53.06 \text{ kg } CO_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

Contour Global – Togo

Maximum Potential-to-Emit Estimate
Contour Global Togo's maximum PTE estimate of **587,305 STPY of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Fuel Oil	Project Description
Capacity	100 MW	Project Description
Emission Factor for Electricity Generation from Fuel Oil Combustion	666 g CO_2/kWh	IFC 2012

Maximum Potential-to-Emit = 587,305 STPY of CO_2e =

$$100\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{666\ \text{g}CO_2}{\text{kWh}} * \frac{0.0000011023\ \text{short tons}}{\text{g}}$$

2011 Emissions Estimate

Contour Global Togo's 2011 emissions estimate of **46,561 short tons CO_2e** was calculated using the following information:

Data	Value	Source
2011 Emissions	42,239,975 kg	Project Sponsor
Conversion Factor	0.0011023 short ton/kg	TCR 2008

Emissions = 46,561 short tons of CO_2e =

$$42{,}239{,}975\ \text{kg} * \frac{0.0011023\ \text{short ton}}{\text{kg}}$$

2012 Emissions Estimate

Contour Global Togo's 2012 emissions estimate of **126,192 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	16,746,179 m^3	Project Sponsor
Conversion Factor	35.314 scf/m^3	
Natural Gas Calorific Value	1,028 MMBtu/mmscf	TCR 2013
Natural Gas Emission Factor	53.02 kg CO_2/MMBtu	TCR 2013
Heavy Fuel Oil (HFO) Consumption	25,417,990 kg	Project Sponsor
HFO Net Calorific Value	40.4 TJ/Gg	IPCC 2006. Vol. 2, Chap. 1
HFO Emission Factor	77,400 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Light Fuel Oil (LFO) Consumption	868,358 kg	Project Sponsor
LFO Net Calorific Value	43.0 TJ/Gg	IPCC 2006. Vol. 2, Chap. 1
LFO Emissions Factor	74,100 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Conversion Factor	0.0011023 short ton/kg	

Emissions = 126,192 short tons of CO_2e =

$$16{,}746{,}179\ m^3 * \frac{35.314\ ft^3}{m^3} * \frac{10^{-6}\ mmscf}{scf} * \frac{1{,}028\ MMBtu}{mmscf} * \frac{53.02\ kg\ CO_2}{MMBtu} * \frac{0.0011023\ short\ tons}{kg} +$$

$$25{,}417{,}990\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{40.4\ TJ}{Gg} * \frac{77{,}400\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg} +$$

$$868{,}358\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{43.0\ TJ}{Gg} * \frac{74{,}100\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg}$$

2013 Emissions Estimate

Contour Global Togo's 2013 emissions estimate of **161,830 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	16,370,416 m^3	Project Sponsor
Natural Gas Higher Heating Value	1,028 MMBtu/mmscf	TCR 2013
Natural Gas Emission Factor	53.02 kg CO_2/MMBtu	TCR 2013
Heavy Fuel Oil (HFO) Consumption	34,190,245 kg	Project Sponsor
HFO Gross Calorific Value	43 TJ/Gg	National Physical Laboratory, 2015
HFO Emission Factor	77,400 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Light Fuel Oil (LFO) Consumption	463,096 kg	Project Sponsor
LFO Gross Calorific Value	44 TJ/Gg	National Physical Laboratory, 2015
LFO Emissions Factor	74,100 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Conversion Factor	35.314 scf/m^3	
Conversion Factor	0.0011023 short ton/kg	

Emissions = 161,830 short tons of CO_2e =

$$16{,}370{,}416\ m^3 * \frac{35.314\ ft^3}{m^3} * \frac{10^{-6}\ mmscf}{scf} * \frac{1{,}028\ MMBtu}{mmscf} * \frac{53.02\ kg\ CO_2}{MMBtu} * \frac{0.0011023\ short\ tons}{kg} +$$

$$34{,}190{,}245\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{43\ TJ}{Gg} * \frac{77{,}400\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg} +$$

$$463{,}096\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{44\ TJ}{Gg} * \frac{74{,}100\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg}$$

2014 Emissions Estimate

Contour Global Togo's 2014 emissions estimate of **55,467 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	383,164 m^3	Project Sponsor
Natural Gas Higher Heating Value	1,028 MMBtu/mmscf	TCR 2014
Natural Gas Emission Factor	53.02 kg CO_2/MMBtu	TCR 2014
Heavy Fuel Oil (HFO) Consumption	14,827,389 kg	Project Sponsor
HFO Gross Calorific Value	43 TJ/Gg	National Physical Laboratory, 2015
HFO Emission Factor	77,400 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Light Fuel Oil (LFO) Consumption	71,442 kg	Project Sponsor
LFO Gross Calorific Value	44 TJ/Gg	National Physical Laboratory, 2015
LFO Emissions Factor	74,100 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Conversion Factor	0.0011023 short ton/kg	
Conversion Factor	35.314 scf/m^3	

Emissions = 55,467 short tons of CO_2e =

$$383{,}164\ m^3 * \frac{35.314\ ft^3}{m^3} * \frac{10^{-6}\ mmscf}{scf} * \frac{1{,}028\ MMBtu}{mmscf} * \frac{53.02\ kg\ CO_2}{MMBtu} * \frac{0.0011023\ short\ tons}{kg} +$$

$$14{,}827{,}389\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{43\ TJ}{Gg} * \frac{77{,}400\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg} +$$

$$71{,}442\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{44\ TJ}{Gg} * \frac{74{,}100\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg} +$$

2015 Emissions Estimate

Contour Global Togo's 2015 emissions estimate of **210,901 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	37,671,209 m^3	Project Sponsor
Natural Gas Higher Heating Value	1,028 MMBtu/mmscf	TCR 2014
Natural Gas Emission Factor	53.06 kg CO_2/MMBtu	TCR 2015
Heavy Fuel Oil (HFO) Consumption	34,704,085 kg	Project Sponsor
HFO Gross Calorific Value	43 TJ/Gg	National Physical Laboratory, 2015
HFO Emission Factor	77,400 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Light Fuel Oil (LFO) Consumption	1,000,688 kg	Project Sponsor
LFO Gross Calorific Value	44 TJ/Gg	National Physical Laboratory, 2015
LFO Emissions Factor	74,100 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Conversion Factor	0.0011023 short ton/kg	
Conversion Factor	35.314 scf/m^3	

Emissions = 210,901 short tons of CO_2e =

$$37{,}671{,}209\ m^3 * \frac{35.314\ ft^3}{m^3} * \frac{10^{-6}\ mmscf}{scf} * \frac{1{,}028\ MMBtu}{mmscf} * \frac{53.06\ kg\ CO_2}{MMBtu} * \frac{0.0011023\ short\ tons}{kg} +$$

$$34{,}704{,}085\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{43\ TJ}{Gg} * \frac{77{,}400\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg} +$$

$$1{,}000{,}688\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{44\ TJ}{Gg} * \frac{74{,}100\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg} +$$

2016 Emissions Estimate

Contour Global Togo's 2016 emissions estimate of **496,564 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	6,772,234 m^3	Project Sponsor
Natural Gas Higher Heating Value	1,028 MMBtu/mmscf	TCR 2017
Natural Gas Emission Factor	53.06 kg CO_2/MMBtu	TCR 2017
Heavy Fuel Oil (HFO) Consumption	130,571,129 kg	Project Sponsor
HFO Gross Calorific Value	43 TJ/Gg	National Physical Laboratory, 2015
HFO Emission Factor	77,400 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Light Fuel Oil (LFO) Consumption	879,764 kg	Project Sponsor
LFO Gross Calorific Value	44 TJ/Gg	National Physical Laboratory, 2015
LFO Emissions Factor	74,100 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Conversion Factor	0.0011023 short ton/kg	
Conversion Factor	35.314 scf/m^3	

Emissions = 496,564 short tons of CO_2e =

$$6{,}772{,}234\ m^3 * \frac{35.314\ ft^3}{m^3} * \frac{10^{-6}\ mmscf}{scf} * \frac{1{,}028\ MMBtu}{mmscf} * \frac{53.06\ kg\ CO_2}{MMBtu} * \frac{0.0011023\ short\ tons}{kg} +$$

$$130{,}571{,}129\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{43\ TJ}{Gg} * \frac{77{,}400\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg} +$$

$$879{,}764\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{44\ TJ}{Gg} * \frac{74{,}100\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg}$$

Contour Global – Cap Des Biches

Maximum Potential-to-Emit Estimate

Contour Global Cap Des Biches's maximum PTE estimate of **505,083 STPY of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Fuel Oil	Project Description
Capacity	86 MW	Project Description
Emission Factor for Electricity Generation from Fuel Oil Combustion	666 g CO_2/kWh	IFC 2012

Maximum Potential-to-Emit = 505,083 STPY of CO_2e =

$$86MW * \frac{1000kW}{MW} * \frac{8000hr}{yr} * \frac{666\ gCO_2}{kWh} * \frac{0.0000011023\ short\ tons}{g}$$

2016 Emissions Estimate

Contour Global Cap Des Biches's 2016 emissions estimate of **184,699 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Heavy Fuel Oil (HFO) Consumption	50,309,812 kg	Project Sponsor
HFO Gross Calorific Value	43 TJ/Gg	National Physical Laboratory, 2015
HFO Emission Factor	77,400 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Light Fuel Oil (LFO) Consumption	35,743 kg	Project Sponsor
LFO Gross Calorific Value	44 TJ/Gg	National Physical Laboratory, 2015
LFO Emissions Factor	74,100 kg CO_2/TJ	IPCC 2006. Vol. 2, Chap. 1
Conversion Factor	0.0011023 short ton/kg	

Emissions = 184,699 short tons of CO_2e =

$$50{,}309{,}812\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{43\ TJ}{Gg} * \frac{77{,}400\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg} +$$

$$35{,}743\ kg * \frac{10^{-6}\ Gg}{kg} * \frac{44\ TJ}{Gg} * \frac{74{,}100\ kg\ CO_2}{TJ} * \frac{0.0011023\ short\ ton}{kg}$$

Gaza Private Generating PLC

Maximum Potential-to-Emit Estimate

Gaza Private Generating PLC's maximum PTE estimate of **481,485 STPY of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	140 MW	Project Description
Emission Factor	390 g CO_2/kWh	IFC 2012

Maximum Potential-to-Emit = 481,485 STPY of CO_2e =

$$140MW * \frac{1000kW}{MW} * \frac{8000hr}{yr} * \frac{390\ g\ CO_2}{kWh} * \frac{0.0000011023\ short\ tons}{g}$$

2007 Emissions Estimate

Gaza Private Generating PLC's 2007 emissions estimate of **293,804 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	136.4 MW	Project Sponsor
2007 Emissions	266,539 metric tons	Project Sponsor

Emissions = 293,804 short tons of CO_2e =

$$266{,}539 \text{ metric tons} * \frac{\text{short ton}}{0.9072 \text{ metric tons}}$$

2008 Emissions Estimate

Gaza Private Generating PLC's 2008 emissions estimate of **303,535 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	136.4 MW	Project Sponsor
2008 Emissions	275,367 metric tons	Project Sponsor

Emissions = 303,535 short tons of CO_2e =

$$275{,}367 \text{ metric tons} * \frac{\text{short ton}}{0.9072 \text{ metric tons}}$$

2009 Emissions Estimate

Gaza Private Generating PLC's emissions estimate of **325,926 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	LFO No.2	Project Description
Capacity	80 MW (2009 Capacity)	Project Sponsor
2009 Emissions	295,680 metric tons	Project Sponsor

Emissions = 325,926 short tons of CO_2e =

$$295{,}680 \text{ metric tons} * \frac{\text{short ton}}{0.9072 \text{ metric tons}}$$

2010 Emissions Estimate

Gaza Private Generating PLC's emissions estimate of **228,627 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	LFO No.2	Project Description
Capacity	80 MW (2009 Capacity)	Project Sponsor
2010 Emissions	207,410 metric tons	Project Sponsor

Emissions = 228,627 short tons of CO_2e =

$$207{,}410 \text{ metric tons} * \frac{\text{short ton}}{0.9072 \text{ metric tons}}$$

2011 Emissions Estimate

Gaza Private Generating PLC's emissions estimate of **405,262 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	LFO No.2	Project Description
Capacity	80 MW (2009 Capacity)	Project Sponsor
2011 Emissions	367,654 metric tons	Project Sponsor

Emissions = 405,262 short tons of CO_2e =

$$367{,}654 \text{ metric tons} * \frac{\text{short tons}}{0.9072 \text{ metric tons}}$$

2012 Emissions Estimate

Gaza Private Generating PLC's emissions estimate of **192 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas	Project Sponsor
Natural Gas Consumption	99,093 m^3	Project Sponsor
Natural Gas Emission Factor	0.05 kg CO_2/sfc	TCR 2013
Unit Conversion	35.31 scf/ m^3	
Unit Conversion	0.001 metric tons/kg	
Unit Conversion	1.1 short ton/metric ton	

Emissions = 192 short tons of CO_2e =

$$99{,}093 \ m^3 * \frac{35.31 \text{ scf}}{m^3} * \frac{0.05 \text{ kg } CO_2}{\text{scf}} * \frac{0.001 \text{ metric tons}}{\text{kg}} * \frac{1.1 \text{ short ton}}{\text{metric ton}}$$

2013 Emissions Estimate

According to Amnesty International news, the Gaza power plant ran at a capacity of 60 MW approximately 12 hours per day up until November 1, 2013, at which point the plant completely shut down. The curtailment in operating days is reflected in the 2013 emissions estimate of **161,215 short tons of CO_2e** for Gaza Private Generating PLC.

Data	Value	Source
Fuel Type	Diesel	Project Sponsor
Capacity	60 MW	Project Sponsor
Hours of operation	12 hours/day	Amnesty International News, 2013
Days of year in operation	305	Amnesty International News, 2013
Emission Factor	666 kg CO_2/MWh	IFC 2012
Unit Conversion	0.0011023 short tons/kg	

Emissions = 161,215 short tons of CO_2e =

$$60\ MW * \frac{12\ hours}{day} * 305\ days * \frac{666\ kg\ CO_2}{MWh} * \frac{0.0011023\ short\ tons}{kg}$$

2014 Emissions Estimate

Gaza Private Generating PLC's 2014 emissions estimate of **193,406 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Diesel	Project Sponsor
Diesel Consumption	65,074 m^3	Project Sponsor
Conversion Factor	264.172 gallons/m^3	
Conversion Factor (Diesel)	0.138 MMBtu per gallon Diesel	
Emissions Factor (Diesel)	73.96 kg CO_2/MMBtu	TCR 2014

Emissions = 193,406 short tons of CO_2e =

$$65{,}074\ m^3 * \frac{264.172\ gallons}{m^3} * \frac{0.138\ MMBtu}{gallon} * \frac{73.96\ kg\ CO_2}{MMBtu} * \frac{0.0011023\ short\ tons}{kg}$$

2015 Emissions Estimate

Gaza Private Generating PLC's 2015 emissions estimate of **253,808 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Diesel	Project Sponsor
Diesel Consumption	85,397 m^3	Project Sponsor
Conversion Factor	264.172 gallons/m^3	
Conversion Factor (Diesel)	0.138 MMBtu per gallon Diesel	
Emissions Factor (Diesel)	73.96 kg CO_2/MMBtu	TCR 2014

Emissions = 253,808 short tons of CO_2e =

$$85{,}397\ m^3 * \frac{264.172\ gallons}{m^3} * \frac{0.138\ MMBtu}{gallon} * \frac{73.96\ kg\ CO_2}{MMBtu} * \frac{0.0011023\ short\ tons}{kg}$$

2016 Emissions Estimate

Gaza Private Generating PLC's 2016 emissions estimate of **246,460 short tons CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Diesel	Project Sponsor
Diesel Consumption	82,924.84 m^3	Project Sponsor
Conversion Factor	264.172 gallons/m^3	
Conversion Factor (Diesel)	0.138 MMBtu per gallon Diesel	
Emissions Factor (Diesel)	73.96 kg CO_2/MMBtu	TCR 2017

Emissions = 246,460 short tons of CO_2e =

$$82{,}924.84\ m^3 * \frac{264.172\ \text{gallons}}{m^3} * \frac{0.138\ \text{MMBtu}}{\text{gallon}} * \frac{73.96\ \text{kg } CO_2}{\text{MMBtu}} * \frac{0.0011023\ \text{short tons}}{\text{kg}}$$

Power Finance Trust Ltd. (formerly ISAGEN S.A.)

Maximum Potential-to-Emit Estimate

Power Finance Trust Ltd.'s initial maximum PTE estimate of 687,835 STPY of CO_2e was calculated using the information below. In subsequent inventories, the maximum PTE was set to the peak emissions year. For Power Finance Trust Ltd., emissions peaked at **980,011 short tons of CO_2e** in CY 2014.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	200 MW + 100 MW from steam turbine	Project Description
Natural Gas Emission Factor	390 g CO2/kWh	IFC 2012

Maximum Potential-to-Emit = 687,835 STPY of CO_2e =

$$200MW * \frac{1000kW}{MW} * \frac{8000hr}{yr} * \frac{390\ gCO_2}{kWh} * \frac{0.0000011023\ \text{short tons}}{g}$$

2007 Emissions Estimate

Power Finance Trust Ltd.'s 2007 emissions estimate of **203,010 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	300 MW	Project Description
2007 Emissions	184,171 metric tons	Project Sponsor

Emissions = 203,010 short tons of CO_2e =

$$184{,}171\ \text{metric tons} * \frac{\text{short tons}}{0.9072\ \text{metric tons}}$$

2008 Emissions Estimate
Per project sponsor feedback, emissions were below the 100,000 short tons CO_2e threshold and, thus, were not included in the 2008 inventory.

2009 Emissions Estimate
Power Finance Trust Ltd.'s 2009 emissions estimate of **300,706 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	300 MW	Project Description
2009 Emissions	272,800 metric tons	Project Sponsor

Emissions = 300,706 short tons of CO_2e =

$$272{,}800 \text{ metric tons} * \frac{\text{short tons}}{0.9072 \text{ metric tons}}$$

2010 Emissions Estimate
Power Finance Trust Ltd.'s 2010 emissions estimate of **305,181 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	300 MW	Project Description
2010 Emissions	276,860 metric tons	Project Sponsor

Emissions = 305,181 short tons of CO_2e =

$$276{,}860 \text{ metric tons} * \frac{\text{short tons}}{0.9072 \text{ metric tons}}$$

2011 Emissions Estimate
No additional data were available. The 2011 emissions estimate defaulted to the 2010 emissions estimate.

2012 Emissions Estimate
No additional data were available. The 2012 emissions estimate defaulted to the 2010 emissions estimate.

2013 Emissions Estimate
Power Finance Trust Ltd.'s 2013 emissions estimate of **775,357 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	13,179,287 MMBtu	Project Sponsor
Emissions Factor (Natural Gas)	53.02 kg CO2/MMBtu	TCR, 2013
Jet Fuel Consumption	267,083 Gallons	Project Sponsor
Conversion Factor (Jet Fuel)	0.135 MMBtu/gallon	Project Sponsor
Emissions Factor (Jet Fuel)	72.22 kg CO2/MMBtu	TCR, 2013
Diesel Consumption	198,811 Gallons	Project Sponsor
Conversion Factor (Diesel, low sulfur)	0.138 MMBtu/gallon	Project Sponsor
Emissions Factor (Diesel, low sulfur)	73.96 kg CO2/MMBtu	TCR, 2013

Emissions = 775,357 short tons CO_2e =

$$\left[13{,}179{,}289\ \text{MMBtu} * \frac{53.02\ \text{kg}\ CO_2}{\text{MMBtu}} + 267{,}083\ \text{gallons} * \frac{0.135\ \text{MMBtu}}{\text{gallon}} * \frac{72.22\ \text{kg}\ CO_2}{\text{MMBtu}} + 198{,}811\ \text{gallons} * \frac{0.138\ \text{MMBtu}}{\text{gallon}} * \frac{73.96\ \text{kg}\ CO_2}{\text{MMBtu}}\right] * \frac{0.0011023\ \text{short tons}}{\text{kg}}$$

2014 Emissions Estimate

Power Finance Trust Ltd.'s 2014 emissions estimate of **980,011 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	16,730,040 MMBtu	Project Sponsor
Emissions Factor (Natural Gas)	53.02 kg CO2/MMBtu	TCR, 2014
Jet Fuel Consumption	208,589 Gallons	Project Sponsor
Conversion Factor (Jet Fuel)	0.135 MMBtu/gallon	Project Sponsor
Emissions Factor (Jet Fuel)	72.22 kg CO2/MMBtu	TCR, 2014
Diesel Consumption	0 Gallons	Project Sponsor
Conversion Factor (Diesel, low sulfur)	0.138 MMBtu/gallon	Project Sponsor
Emissions Factor (Diesel, low sulfur)	73.96 kg CO2/MMBtu	TCR, 2014

Emissions = 980,011 short tons CO_2e =

$$\left[16{,}730{,}040\ \text{MMBtu} * \frac{53.02\ \text{kg}\ CO_2}{\text{MMBtu}} + 208{,}589\ \text{gallons} * \frac{0.135\ \text{MMBtu}}{\text{gallon}} * \frac{72.22\ \text{kg}\ CO_2}{\text{MMBtu}} + 0\ \text{gallons} * \frac{0.138\ \text{MMBtu}}{\text{gallon}} * \frac{73.96\ \text{kg}\ CO_2}{\text{MMBtu}}\right] * \frac{0.0011023\ \text{short tons}}{\text{kg}}$$

2015 Emissions Estimate

Power Finance Trust Ltd.'s 2015 emissions estimate of **963,992 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	16,357,113 MMBtu	Project Sponsor
Emissions Factor (Natural Gas)	53.06 kg CO2/MMBtu	TCR, 2015
Jet Fuel Consumption	85,374 Gallons	Project Sponsor
Conversion Factor (Jet Fuel)	0.135 MMBtu/gallon	Project Sponsor
Emissions Factor (Jet Fuel)	72.22 kg CO2/MMBtu	TCR, 2015
Diesel Consumption	566,967 Gallons	Project Sponsor
Conversion Factor (Diesel, low sulfur)	0.138 MMBtu/gallon	Project Sponsor
Emissions Factor (Diesel, low sulfur)	73.96 kg CO2/MMBtu	TCR, 2014

Emissions = 963,992 short tons CO_2e =

$$\left[16{,}357{,}113 \text{ MMBtu} * \frac{53.06 \text{ kg } CO_2}{\text{MMBtu}} + 85{,}374 \text{ gallons} * \frac{0.135 \text{ MMBtu}}{\text{gallon}} * \frac{72.22 \text{ kg } CO_2}{\text{MMBtu}} + 566{,}967 \text{ gallons} * \frac{0.138 \text{ MMBtu}}{\text{gallon}} * \frac{73.96 \text{ kg } CO_2}{\text{MMBtu}}\right] * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

2016 Emissions Estimate
No additional data was available for 2016; therefore, emissions estimate defaulted to the 2015 emissions estimate of **963,992 short tons of CO_2e**.

TIER B PROJECTS

ACU Petroleo S.A.

Maximum Potential-to-Emit Estimate
ACU Petroleo S.A.'s initial maximum PTE estimate of 350,000 STPY of CO_2e was estimated from information provided in the project description. The project is expected to emit up to 200,000 tons of CO_2e per year from vapor combustion during ship to ship operations. An additional 150,000 tons of CO_2e per year may occur from fuel combustion in dredging activities. Therefore, the maximum PTE is 200,000 + 150,000 = 350,000 short tons of CO_2e.

2016 Emissions Estimate
ACU Petroleo's 2016 emissions estimate of 378.6 **short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Diesel Consumption	125,641 Liters	Project Sponsor
Liter to Gallons Conversion	0.264	Conversion
Conversion Factor (Diesel, low sulfur)	0.14 MMBtu/gallon	TCR, 2017
Emissions Factor (Diesel, low sulfur)	73.96 kg CO2/MMBtu	TCR, 2017
Expected tCO2 per year from Vapor combustion	200,000 tCO2	Project Sponsor
Vapor Combustion Unit Utilization	0%	OPIC
Kg per Short Ton	0.0011023	Conversion Factor
Short Tons per Metric Ton	1.1023	Conversion Factor

Emissions = 378.6 short tons CO_2e = Stationary Combustion Emissions + Vapor Combustion Emissions

Stationary Combustion Emissions = 378.6 tons CO_2e =

$$\left[125{,}641 \text{ liters} * \frac{0.264 \text{ gallons}}{\text{Liter}} * \frac{0.14 \text{ MMBtu}}{\text{gallon}} * \frac{73.96 \text{ kg } CO_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}\right]$$

Vapor Combustion Emissions = 0 tons CO_2e =

$$\left[\frac{200{,}000 \text{ tCO2}}{\text{Year}} * \frac{0\%}{} * \frac{1.1023 \text{ short tons}}{\text{metric ton}}\right]$$

Various Egypt Subsidiaries (Apache)

Maximum Potential-to-Emit Estimate

Various Egypt Subsidiaries (Apache)'s initial maximum PTE estimate of 2,429,543 STPY of CO_2e was originally calculated for the CY 2007 GHG inventory using an example from API for a similar oil and gas extraction and processing facility. The API example produced 6,100 barrels of oil per day and 30 mmscf natural gas per day for annual emissions of 108,000 metric tons of CO_2, approximately one-tenth the amount of Apache's estimated footprint. In subsequent GHG inventories, it became evident that Apache's maximum potential-to-emit is commensurate to added production capacity, so the maximum PTE was set to the peak emissions year. Various Egypt Subsidiaries' emissions peaked at **4,438,554 short tons of CO_2e** in CY 2011.

Data	Value	Source
Fuel Type	Oil and Natural Gas	Project Description
Production Volumes	29,934,702 barrels oil per year 89,910 mmscf natural gas per year	Project Description
"Emissions Factors"	108,000 metric tons CO_2 per year for a facility that produces 6100 barrels oil per day and 30 mmscf natural gas per day	API 2004, Table 7-4
Multiplication Factor	10	Factor applied to account for approximate size discrepancy between Apache and example
Operating Capacity Adjustment	49%	Project Sponsor

Maximum Potential-to-Emit = 2,429,543 STPY of CO_2e =

$$\frac{108{,}000 \text{ metric tons } CO_2}{\text{yr}} * \frac{\text{short tons}}{0.9072 \text{ metric tons}} * 10 * \frac{1}{0.49}$$

2007 Emissions Estimate

Various Egypt Subsidiaries (Apache)'s 2007 emissions estimate of **3,071,932 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
2007 Emissions	1,365,560 metric tons	Project Sponsor
Operating Capacity Adjustment	49%	Project Sponsor

Emissions = 3,071,932 short tons of CO_2e =

$$1{,}365{,}560 \text{ metric tons} * \frac{\text{short ton}}{0.9072 \text{ metric tons}} * \frac{1}{0.49}$$

2008 Emissions Estimate

Various Egypt Subsidiaries (Apache)'s 2008 emissions estimate of **3,244,189 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Net Emissions	1,464,566 metric tons	Project Sponsor
Operating Capacity Adjustment	49%	Project Sponsor

Emissions = 3,244,189 short tons of CO_2e =

$$1{,}464{,}566 \text{ metric tons} * \frac{\text{short tons}}{0.9072 \text{ metric tons}} * \frac{1}{0.49}$$

2009 Emissions Estimate

Various Egypt Subsidiaries (Apache)'s 2009 operational emissions of **3,294,654 short tons of CO_2e** were calculated using the following information:

Data	Value	Source
Net Emissions	1,464,566 metric tons	Project Sponsor
Operating Capacity Adjustment	49%	Project Sponsor

Emissions = 3,294,654 short tons of CO_2e =

$$1{,}464{,}566 \text{ metric tons} * \frac{1 \text{ short ton}}{0.9072 \text{ metric ton}} * \frac{1}{0.49}$$

2010 Emissions Estimate

Various Egypt Subsidiaries (Apache)'s 2010 emissions estimate of **3,465,842 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Net Emissions	1,540,664 metric tons	Project Sponsor
Operating Capacity	49%	Project Sponsor

Emissions = 3,465,842 short tons of CO_2e =

$$1{,}540{,}664 \text{ metric tons} * \frac{1 \text{ short ton}}{0.9072 \text{ metric ton}} * \frac{1}{0.49}$$

2011 Emissions Estimate

Various Egypt Subsidiaries (Apache)'s 2011 gross emissions estimate of **4,438,554 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Gross Emissions	4,026,656 metric tons	Project Sponsor

Emissions = 4,438,554 short tons of CO_2e =

$$4{,}026{,}656 \text{ metric tons} * \frac{1 \text{ short ton}}{0.9072 \text{ metric ton}}$$

2012 Emissions Estimate

Various Egypt Subsidiaries (Apache)'s 2012 gross emissions estimate of **4,178,447 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Gross Emissions	3,790,687 metric tons	Project Sponsor

Emissions = 4,178,447 short tons of CO_2e =

$$3{,}790{,}687 \text{ metric tons} * \frac{1 \text{ short ton}}{0.9072 \text{ metric ton}}$$

2013 Emissions Estimate

Various Egypt Subsidiaries (Apache)'s 2013 gross emissions estimate of **4,056,437 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Gross Emissions	3,680,000 metric tons	Project Sponsor

Emissions = 4,056,437 short tons of CO_2e =

$$3{,}680{,}000 \text{ metric tons} * \frac{1 \text{ short ton}}{0.9072 \text{ metric ton}}$$

2014 Emissions Estimate

Various Egypt Subsidiaries (Apache)'s 2014 gross emissions estimate of **4,012,346 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Gross Emissions	3,640,000 metric tons	Project Sponsor

Emissions = 4,012,346 short tons of CO_2e =

$$3{,}640{,}000 \text{ metric tons} * \frac{1 \text{ short ton}}{0.9072 \text{ metric ton}}$$

2015 Emissions Estimate

Various Egypt Subsidiaries (Apache)'s 2015 gross emissions estimate of **3,891,093 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Gross Emissions	3,530,000 metric tons	Project Sponsor

Emissions = 3,891,093 short tons of CO_2e =

$$3{,}530{,}000 \text{ metric tons} * \frac{1 \text{ short ton}}{0.9072 \text{ metric ton}}$$

2016 Emissions Estimate

Various Egypt Subsidiaries (Apache)'s 2016 gross emissions estimate of **4,007,936.51 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Gross Emissions	3,636,000 metric tons	Project Sponsor

Emissions = 4,007,936.51 short tons of CO_2e =

$$3{,}636{,}000 \text{ metric tons} * \frac{1 \text{ short ton}}{0.9072 \text{ metric ton}}$$

Maximum Potential-to-Emit Estimate

The West African Gas Pipeline's maximum PTE calculation of **189,800 STPY of CO_2e** accounts for both combustion emissions from the compression and transmission of natural gas, as well as venting and fugitive emissions, using the following information:

Data	Value	Source
Pipeline Throughput	190 mmscf per day	Project Description
Operating Assumption	333 days per year	
Conversion Factor	0.02832 10^6 m^3 per mmscf	
Fugitive Emissions Factor (CH_4)	1.1x10^{-3} Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Fugitive Emissions Factor (CO_2)	2.0x10^{-6} Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Venting Emissions Factor (CH_4)	7.4x10^{-4} Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Venting Emissions Factor (CO_2)	7.3x10^{-6} Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Storage Emissions Factor (CH_4)	5.8x10^{-5} Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Storage Emissions Factor (CO_2)	2.6x10^{-7} Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
CH_4 Global Warming Potential	21	SAR
Fraction of pipeline throughput used to power the system	0.02925	EIA 2008
Natural Gas Combustion Factor	0.05444 kg CO_2 per scf	TCR 2015
Conversion Factor	0.0011023 short tons per kg	

Maximum Potential to Emit = 189,800 STPY of CO_2e = Maximum Fugitive Emissions + Maximum Combustion Emissions

Maximum Fugitive Emissions = 78,743 STPY of CO_2e =

$$190 \text{ mmscf} * \frac{333 \text{ days}}{\text{year}} * \frac{0.02832 * 10^6 \text{ m}^3}{\text{mmscf}} *$$

$$\left[\left(\frac{1.1*10^{-3} \text{ Gg } CH_4 * 21}{10^6 \text{ m}^3}\right) + \left(\frac{2.0*10^{-6} \text{ Gg } CO_2}{10^6 \text{ m}^3}\right) + \left(\frac{7.4*10^{-4} \text{ Gg } CH_4 * 21}{10^6 \text{ m}^3}\right) + \left(\frac{7.3 * 10^{-6} \text{ Gg } CO_2}{10^6 \text{ m}^3}\right) + \left(\frac{5.8x10^{-5} \text{ Gg } CH_4 * 21}{10^6 \text{ m}^3}\right) + \left(\frac{2.6x10^{-7} \text{ Gg } CO_2}{10^6 \text{ m}^3}\right)\right] *$$

$$\frac{10^6 \text{ kg}}{\text{Gg}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

Maximum Combustion Emissions = 111,057 STPY of CO_2e =

$$\frac{190 \text{ mmscf}}{\text{day}} * \frac{333 \text{ days}}{\text{year}} * \frac{10^6 \text{ scf}}{1 \text{ mmscf}} * 0.02925 * \frac{0.05444 \text{ kg } CO_2}{\text{scf}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

2007 Emissions Estimate

The West African Gas Pipeline was under construction and not operational during 2007. Since emissions from construction would have been below the 100,000 short ton threshold, this project was omitted from the 2007 inventory.

2008 Emissions Estimate

The West African Gas Pipeline was not operational during 2008. Since emissions would have been below the 100,000 short ton threshold, this project was omitted from the 2008 inventory.

2009 Emissions Estimate

No additional data were available. 2009 data defaulted to the maximum potential-to-emit.

2010 Emissions Estimate

West African Gas Pipeline's 2010 emissions estimate of **70,925 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Pipeline Throughput	71 mmscf per day	Project Description
Operating Assumption	333 days per year	
Conversion Factor	0.02832 10^6 m^3 per mmscf	
Fugitive Emissions Factor (CH_4)	$1.1x10^{-3}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Fugitive Emissions Factor (CO_2)	$2.0x10^{-6}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Venting Emissions Factor (CH_4)	$7.4x10^{-4}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Venting Emissions Factor (CO_2)	$7.3x10^{-6}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Storage Emissions Factor (CH_4)	$5.8x10^{-5}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Storage Emissions Factor (CO_2)	$2.6x10^{-7}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
CH_4 Global Warming Potential	21	SAR
Fraction of pipeline throughput used to power the system	0.02925	EIA 2008
Natural Gas Combustion Factor	0.05444 kg CO_2 per scf	TCR 2015
Conversion Factor	0.0011023 short tons per kg	

Total Emissions = 70,925 short tons of CO_2e = Fugitive Emissions + Combustion Emissions

Fugitive Emissions = 29,425 short tons of CO_2e =

$$71 \text{ mmscf} * \frac{333 \text{ days}}{\text{year}} * \frac{0.02832 * 10^6 \text{ m}^3}{\text{mmscf}} *$$

$$\left[\left(\frac{1.1*10^{-3} \text{ Gg } CH_4 * 21}{10^6 \text{ m}^3}\right) + \left(\frac{2.0*10^{-6} \text{ Gg } CO_2}{10^6 \text{ m}^3}\right) + \left(\frac{7.4*10^{-4} \text{ Gg } CH_4 * 21}{10^6 \text{ m}^3}\right) + \right.$$

$$\left. \left(\frac{7.3 * 10^{-6} \text{ Gg } CO_2}{10^6 \text{ m}^3}\right) + \left(\frac{5.8x10^{-5} \text{ Gg } CH_4 * 21}{10^6 \text{ m}^3}\right) + \left(\frac{2.6x10^{-7} \text{ Gg } CO_2}{10^6 \text{ m}^3}\right) \right] *$$

$\frac{10^6 \text{ kg}}{\text{Gg}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$

Combustion Emissions = 41,500 short tons of CO_2e =

$$\frac{71 \text{ mmscf}}{\text{day}} * \frac{333 \text{ days}}{\text{year}} * \frac{10^6 \text{ scf}}{1 \text{ mmscf}} * 0.02925 * \frac{0.05444 \text{ kg } CO_2}{\text{scf}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

2011 Emissions Estimate

West African Gas Pipeline's 2011 emissions estimate is **86,617 short tons of CO_2e**. According to project sponsor feedback, there were 38,505 short tons of CO_2e emissions associated with combustion emissions and 48,112 short tons of CO_2e emissions associated with fugitive emissions.

2012 Emissions Estimate

West African Gas Pipeline's 2012 emissions estimate is **86,617 short tons of CO_2e**. According to project sponsor feedback, there were 38,505 short tons of CO_2e emissions associated with combustion emissions and 48,112 short tons of CO_2e emissions associated with fugitive emissions, which represent the same emission levels asserted by the Project Sponsor for the 2011 GHG Inventory. The level of emissions claimed in 2012 represent 35% of the project's maximum potential-to-emit.

2013 Emissions Estimate

No additional data were available for 2013; therefore, emissions estimate defaulted to the 2012 emissions estimate of **86,617 short tons of CO_2e**.

2014 Emissions Estimate

No additional data was available for 2014; therefore, emissions estimate defaulted to the 2012 emissions estimate of **86,617 short tons of CO_2e**.

2015 Emissions Estimate

West African Gas Pipeline's 2015 emissions of **68,281 CO_2e** was calculated using the following information:

Data	Value	Source
2015 Pipeline Throughput	23,353,493.33 MMBtu	Project Sponsor
Natural Gas Heat Content	1026 MMBtu per mmscf	TCR 2015
Conversion Factor	0.02832 10^6 m^3 per mmscf	
Fugitive Emissions Factor (CH_4)	$1.1x10^{-3}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Fugitive Emissions Factor (CO_2)	$2.0x10^{-6}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Venting Emissions Factor (CH_4)	$7.4x10^{-4}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Venting Emissions Factor (CO_2)	$7.3x10^{-6}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Storage Emissions Factor (CH_4)	$5.8x10^{-5}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
Storage Emissions Factor (CO_2)	$2.6x10^{-7}$ Gg per 10^6 m^3	2006 IPCC. Vol. 2, Ch. 4
CH_4 Global Warming Potential	21	SAR
Fraction of pipeline throughput used to power the system	0.02925	EIA 2008

Data	Value	Source
Natural Gas Combustion Factor	0.05444 kg CO_2 per scf	TCR 2015
Conversion Factor	0.0011023 short tons per kg	

Total Emissions = 68,281 short tons of CO_2e = Fugitive Emissions + Combustion Emissions

Fugitive Emissions = 28,328 short tons of CO_2e =

$$23{,}353{,}493.33 \text{ MMBtu} * \frac{1 \text{ mmscf}}{1026 \text{ MMBtu}} * \frac{0.02832 * 10^6 \text{ m}^3}{\text{mmscf}} *$$

$$\left[\left(\frac{1.1*10^{-3} \text{ Gg } CH_4 * 21}{10^6 \text{ m}^3}\right) + \left(\frac{2.0*10^{-6} \text{ Gg } CO_2}{10^6 \text{ m}^3}\right) + \left(\frac{7.4*10^{-4} \text{ Gg } CH_4 * 21}{10^6 \text{ m}^3}\right) +\right.$$

$$\left.\left(\frac{7.3 * 10^{-6} \text{ Gg } CO_2}{10^6 \text{ m}^3}\right) + \left(\frac{5.8x10^{-5} \text{ Gg } CH_4 * 21}{10^6 \text{ m}^3}\right) + \left(\frac{2.6x10^{-7} \text{ Gg } CO_2}{10^6 \text{ m}^3}\right)\right] *$$

$$\frac{10^6 \text{ kg}}{\text{Gg}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

Combustion Emissions = 39,953 short tons of CO_2e =

$$23{,}353{,}493.33 \text{ MMBtu} * \frac{1 \text{ mmscf}}{1026 \text{ MMBtu}} * \frac{1{,}000{,}000 \text{ scf}}{1 \text{ mmscf}} * 0.02925 * \frac{0.05444 \text{ kg } CO_2}{\text{scf}} *$$

$$\frac{0.0011023 \text{ short tons}}{\text{kg}}$$

2016 Emissions Estimate
No additional data was available for 2016; therefore, the emissions estimate defaulted to the 2015 emissions estimate of **68,281 short tons of CO_2e**.

TIER C PROJECTS

Tier C projects were not included in the 2007 and 2008 inventories. Emissions calculations for these projects have been included in all inventories from 2009 to the present.

Aga Khan and Medical College Foundation

Maximum Potential-to-Emit Estimate
Aga Khan's maximum PTE estimate of **72,965 STPY of CO_2e** was calculated using the following information:

Data	Value	Source
Small Boiler Rating	1 ton of steam/hr	Project Description
Small Boiler Count	2	Project Description
Large Boiler Rating	10 tons of steam/hr	Project Description

Data	Value	Source
Large Boiler Count	4	Project Description
Conversion Factor	2,000 lbs/short tons	
Boiler Efficiency	0.80	Project Description
Steam Enthalpy at 212 ˚F and 0 psig	1,150 Btu/lbs	Saturated Steam Table
Conservative Operating Assumption	8,000 hr/yr	EIA Form 923 data, 2007
Conversion Factor	0.000001 MMBtu/Btu	
Electricity Generation Nameplate Capacity	4.8 MW	Project Description
Emission Factor: Generation w/ Natural Gas	390 g CO_2/kWh	IFC 2012
Emission Factor: Combustion of Natural Gas	53.02 kg CO_2/MMBtu	TCR 2014
Conversion Factor	1,000 kWh/MWh	TCR, Appendix C
Conversion Factor	0.000001 metric tons/g	
Conversion Factor	1.1023 short tons/metric ton	

Maximum Potential-to-Emit = 72,965 STPY of CO_2e =

$$\left[\frac{(1\text{ tons} * 2) + (10\text{ tons} * 4)}{\text{hr}} * \frac{1}{0.8} * \frac{8{,}000\text{ hr}}{\text{yr}} * \frac{1{,}150\text{ Btu}}{\text{lb}} * \frac{2{,}000\text{ lbs}}{\text{short ton}} * \frac{10^{-6}\text{ MMBtu}}{\text{Btu}}\right.$$

$$* \frac{53.02\text{ kg } CO_2}{\text{MMBtu}} * \frac{10^{-3}\text{ metric ton}}{\text{kg}} + 4.8\text{ MW} * \frac{8{,}000\text{ hr}}{\text{yr}} * \frac{1{,}000\text{ kWh}}{\text{MWh}} * \frac{390\text{ g } CO_2}{\text{kWh}}$$

$$\left. * \frac{10^{-6}\text{ metric ton}}{\text{g}}\right] * \frac{1.1023\text{ short tons}}{\text{metric ton}}$$

2014 Emissions Estimate

Aga Khan's 2014 emissions estimate of **25,064 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	12,879,049 m^3	Project Sponsor
Conversion Factor	35.31 scf/m^3	
Emission Factor Natural Gas	0.05 kg CO_2/scf	TCR 2014
Conversion Factor	0.001 metric tons/kg	
Conversion Factor	1.1023 short tons/metric ton	

Emissions = 25,064 short tons of CO_2e =

$$12{,}879{,}000\ m^3 * \frac{35.31\text{ scf}}{m^3} * \frac{0.05444\text{ kg } CO_2}{\text{scf}} * \frac{10^{-3}\text{ metric ton}}{\text{kg}} * \frac{1.1023\text{ short tons}}{\text{metric ton}}$$

2015 Emissions Estimate

Aga Khan's 2015 emissions estimate of **28,653 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	13,522,367 m^3	Project Sponsor
Conversion Factor	35.31 scf/m^3	
Emission Factor Natural Gas	0.05444 kg CO_2/scf	TCR 2015
Conversion Factor	0.001 metric tons/kg	
Conversion Factor	1.1023 short tons/metric ton	

Emissions = 28,653 short tons of CO_2e =

$$13{,}563{,}367\ m^3 * \frac{35.31\ scf}{m^3} * \frac{0.05444\ kg\ CO_2}{scf} * \frac{10^{-3}\ metric\ ton}{kg} * \frac{1.1023\ short\ tons}{metric\ ton}$$

2016 Emissions Estimate

Aga Khan's 2016 emissions estimate of **29,093 short tons of CO_2e** was calculated using the following information:

Data	Value	Source
Natural Gas Consumption	13,730,110 m^3	Project Sponsor
Conversion Factor	35.31 scf/m^3	
Emission Factor Natural Gas	0.05444 kg CO_2/scf	TCR 2017
Conversion Factor	0.001 metric tons/kg	
Conversion Factor	1.1023 short tons/metric ton	

Emissions = 29,093 short tons of CO_2e =

$$13{,}730{,}110\ m^3 * \frac{35.31\ scf}{m^3} * \frac{0.05444\ kg\ CO_2}{scf} * \frac{10^{-3}\ metric\ ton}{kg} * \frac{1.1023\ short\ tons}{metric\ ton}$$

Qalaa Holdings (formerly Citadel)

Maximum Potential-to-Emit Estimate

Qalaa Holdings' project description provided a range of expected emissions. The upper end of this range was used as the project's maximum potential-to-emit

Data	Value	Source
Direct Emissions	96,000 metric tons	Project Description
Conversion Factor	1.1023 short tons/metric ton	

Maximum Potential-to-Emit = 105,821 STPY of CO_2e =

96,000 metric tons * 1.1023 short tons/metric ton

2012 Emissions Estimate

Citadel is a private equity firm that invests in multiple platforms. In 2012, the Glenview Investment Holdings platform had an estimated carbon footprint estimate of **46,707 short tons of CO_2e** calculated using the following information:

Data	Value	Source
Natural Gas Consumption	24 million m^3	Project Description
Conversion Factor	1,000,000 m^3/ million m^3	
Conversion Factor	35.31 scf/ m^3	
Natural Gas Emission Factor	0.05 kg CO_2/ scf	TCR 2013
Conversion Factor	0.001 metric tons/ kg	
Conversion Factor	1.1023 short tons/ metric ton	

Total emissions estimate = 46,707 short tons of CO_2e =

$$24 \text{ million } m^3 * \frac{1{,}000{,}000 \ m^3}{\text{million } m^3} * \frac{35.31 \text{ scf}}{m^3} * \frac{0.05 \text{ kg } CO_2}{\text{scf}} * \frac{10^{-3} \text{ metric ton}}{\text{kg}} * \frac{1.1023 \text{ short ton}}{\text{metric ton}}$$

2013 Emissions Estimate

In 2013, Citadel changed its name to Qalaa Holdings, a private equity firm that invests in multiple platforms. In 2013, three platforms contributed to Qalaal Holdings' total emissions, including Glenview Investment Holdings, United Company for Foundries, ASEC Company for Mining, and Falcon for Agricultural Investments Ltd. The 2013 revised emissions estimate of **52,169 short tons of CO_2e** was calculated as follows.

Data	Value	Source
Natural Gas Consumption (Glenview Investment Holdings)	18 million m^3	Project Description
Natural Gas Consumption (other platforms)	8.807 million m^3	Project Sponsor
Conversion Factor	1,000,000 m^3/ million m^3	
Conversion Factor	35.31 scf/ m^3	
Natural Gas Emission Factor	0.05 kg CO_2/ scf	TCR 2013
Conversion Factor	0.001 metric tons/ kg	
Conversion Factor	1.1023 short tons/ metric ton	

Total emissions estimate = 52,169 short tons of CO_2e =

$$(18 + 8.807) \text{ million } m^3 * \frac{1{,}000{,}000\ m^3}{\text{million } m^3} * \frac{35.31 \text{ scf}}{m^3} * \frac{0.05 \text{ kg } CO_2}{\text{scf}} * \frac{10^{-3} \text{ metric ton}}{\text{kg}} *$$

$$\frac{1.1023 \text{ short ton}}{\text{metric ton}}$$

2014 Emissions Estimate

In 2014, four platforms contributed to Qalaal Holdings' total emissions, including Grandview Investment Holdings, United Company for Foundries, ASEC Company for Mining, and Falcon for Agricultural Investments Ltd. The 2014 emissions estimate of **47,437 short tons of CO_2e** was calculated as follows.

Data	Value	Source
Natural Gas Consumption (all platforms)	24.376 million m^3	Project Sponsor
Conversion Factor	1,000,000 m^3/ million m^3	
Conversion Factor	35.31 scf/ m^3	
Natural Gas Emission Factor	0.05 kg CO_2/ scf	TCR 2014
Conversion Factor	0.001 metric tons/ kg	
Conversion Factor	1.1023 short tons/ metric ton	

Total emissions estimate = 47,437 short tons of CO_2e =

$$24.376 \text{ million } m^3 * \frac{1{,}000{,}000\ m^3}{\text{million } m^3} * \frac{35.31 \text{ scf}}{m^3} * \frac{0.05 \text{ kg } CO_2}{\text{scf}} * \frac{10^{-3} \text{ metric ton}}{\text{kg}} *$$

$$\frac{1.1023 \text{ short ton}}{\text{metric ton}}$$

2015 Emissions Estimate

In 2015, two platforms contributed to Qalaal Holdings' total emissions, including Grandview Investment Holdings, United Company for Foundries, and ASEC Company for Mining. The 2015 emissions estimate of **34,279 short tons of CO_2e** was calculated as follows.

Data	Value	Source
Natural Gas Consumption (all platforms)	17.614 million m^3	Project Sponsor
Conversion Factor	1,000,000 m^3/ million m^3	
Conversion Factor	35.31 scf/ m^3	
Natural Gas Emission Factor	0.05 kg CO_2/ scf	TCR 2014
Conversion Factor	0.001 metric tons/ kg	
Conversion Factor	1.1023 short tons/ metric ton	

Total emissions estimate = 34,279 short tons of CO_2e =

$$17.614 \text{ million } m^3 * \frac{1{,}000{,}000\ m^3}{\text{million } m^3} * \frac{35.31 \text{ scf}}{m^3} * \frac{0.05 \text{ kg } CO_2}{\text{scf}} * \frac{10^{-3} \text{ metric ton}}{\text{kg}} *$$

$$\frac{1.1023 \text{ short ton}}{\text{metric ton}}$$

2016 Emissions Estimate

In 2015, emissions from Qalaal Holdings fell below the 25,000 CO_2 threshold. The 2016 emissions estimate of **7,194 short tons of CO_2e** was calculated as follows.

Data	Value	Source
Natural Gas Consumption (all platforms)	3.6966 million m^3	Project Sponsor
Conversion Factor	1,000,000 m^3/ million m^3	
Conversion Factor	35.31 scf/ m^3	
Natural Gas Emission Factor	0.05 kg CO_2/ scf	TCR 2014
Conversion Factor	0.001 metric tons/ kg	
Conversion Factor	1.1023 short tons/ metric ton	

Total emissions estimate = 7,194 short tons of CO_2e =

$$3.6966 \text{ million } m^3 * \frac{1{,}000{,}000\ m^3}{\text{million } m^3} * \frac{35.31 \text{ scf}}{m^3} * \frac{0.05 \text{ kg } CO_2}{\text{scf}} * \frac{10^{-3} \text{ metric ton}}{\text{kg}} *$$

$$\frac{1.1023 \text{ short ton}}{\text{metric ton}}$$

Negev Energy

Maximum Potential-to-Emit Estimate

Negev Energy's initial maximum PTE estimate of **56,746 STPY of CO_2e** was calculated using the information below.

Data	Value	Source
Fuel Type	Solar, with Natural Gas Backup Power	Project Description
Capacity	110 MW	Project Description
Conversion Factor	1000 kWh/MWh	
Conservative Operating Assumption	8000 hr/yr	EIA Form 923 data, 2007
Natural Gas Emission Factor	390 g CO2/kWh	IFC 2012
Conversion Factor	0.0000011023 short tons/g	
Maximum Percentage of Time Operating with Natural Gas	15% annually	Project Description

Maximum Potential-to-Emit = 56,746 STPY of CO_2e =

$$110\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{390\ g CO_2}{\text{kWh}} * \frac{0.0000011023\ \text{short tons}}{\text{g}} * 15\%\ \text{(time using NG)}$$

2016 Emissions Estimate

While the Negev Energy plant was operational in CY 2016, the natural gas powered unit was not yet commissioned and did not consume any fossil fuel. Therefore, reportable anthropogenic emissions for Negev Energy were null.

APPENDIX C – COMMON CONVERSIONS

Listed below are common emission and conversions factors used in the development of emission estimates.

UNIT CONVERSION		
Value	**Unit of Measure**	**Source**
8,000	Hours per Year	Conservative Operating Assumption – EIA Form 923, 2007
333	Days per Year	Calculated from Hours per Year
1,000,000	Btu per MMBtu	TCR 2008
0.001	metric tons per kg	TCR 2008
0.0011023	short tons per kg	TCR 2008
1,000,000	scf per Mcf	TCR 2008
0.02832	m3 per scf	TCR 2008
0.9072	metric tons per short ton	TCR 2008
0.000001	metric tons per g	TCR 2008
0.0000011023	short tons per g	TCR 2008
907.18	kg per short ton	TCR 2008
2.2046	lbs per kg	TCR 2008
2,204.62	lbs per metric tonne	TCR 2008
2,000	lbs per short ton	TCR 2008
42	gallons per barrel	TCR 2008

HEAT CONTENT		
Value	**Unit of Measure**	**Source**
43	TJ/Gg HFO Gross Calorific Value	National Physical Laboratory, 2015
44	TJ/Gg LFO Gross Calorific Value	National Physical Laboratory, 2015
5.796	MMBtu per barrel diesel (fuel oil #2)	TCR 2013, TCR 2014
17.25	MMBtu per short ton coal (sub-bituminous)	TCR 2008
5.80	MMBtu per barrel diesel (fuel oil #2)	TCR 2013, TCR 2014
5.80	MMBtu per barrel crude oil	TCR 2013, TCR 2014
1,028	Btu per scf natural gas (U.S. weighted average)	TCR 2013, TCR 2014
1,026	Btu per scf natural gas (U.S. weighted average)	TCR 2015

EMISSION FACTORS FOR ELECTRICITY GENERATION		
Value	**Unit of Measure**	**Source**
901	g CO_2 per kWh generated using coal	IFC 2012
666	g CO_2 per kWh generated using oil	IFC 2012
390	g CO_2 per kWh generated using natural gas	IFC 2012

EMISSION FACTORS FOR FUEL COMBUSTION		
Value	**Unit of Measure**	**Source**
53.02	kg CO_2 per MMBtu natural gas	TCR 2013, TCR 2014, TCR 2015
53.06	kg CO_2 per MMBtu natural gas	TCR 2015, TCR 2017
72.22	kg CO_2 per MMBtu kerosene type jet fuel	TCR 2017
52.91	kg CO_2 per MMBtu natural gas (Btu/scf 1,000-1,025)	TCR 2013, TCR 2014, TCR 2015
73.96	kg CO_2 per MMBtu diesel (fuel oil #2)	TCR 2013, TCR 2014, TCR 2015, TCR 2017
97.09	kg CO_2 per MMBtu coal (sub-bituminous)	TCR 2008
74.49	kg CO_2 per MMBtu crude oil	TCR 2013
0.0544	kg CO_2 per scf natural gas	TCR 2013, TCR 2014, TCR 2015, TCR 2017
75.1	kg CO_2 per MMBtu Residual Fuel Oil (#6)	TCR 2014, TCR 2015, TCR 2017
2098.89	kg CO_2 per short ton coal (mixed industrial sector)	TCR 2013, TCR 2014
2115.8745	kg CO_2 per short ton coal (mixed industrial sector)	TCR 2017
77,400	kg CO_2 per TJ Residual Oil – Heavy Fuel Oil	IPCC, 2006.
74,100	kg CO_2 per TJ Residual Oil – Light Fuel Oil	IPCC, 2006.

EMISSION FACTORS FOR INDUSTRIAL PROCESSES		
Value	**Unit of Measure**	**Source**
0.44	Short tons CO_2 per short ton limestone processed	IPCC 2006

Amnesty International 2013. "Amnesty International: News." *Israel/OPT: Gaza Power Crisis Has Compounded Blockade's Assault on Human Dignity*. 1 Dec. 2013. Accessed February 2015. <http://www.amnesty.org/en/news/israelopt-gaza-power-crisis-has-compounded-blockade-s-assault-human-dignity-2013-11-29>.

API 2004 (American Petroleum Institute). *Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry*. February 2004. Accessed January 2008. <http://www.api.org/ehs/climate/new/upload/2004_COMPENDIUM.pdf>

> Examples from API were used for those projects in Tier B [Accroven SRL, Various Egypt Subsidiaries (Apache), EP Interoil, RPK-Vysotsk (Lukoil II)] for which there were no consumption volumes or other data to base an emissions estimate on. The size of operations for these examples was compared to the size of the projects in Tier B, resulting in a multiplication factor which was applied to the API example's emissions estimate to arrive at an approximate estimate for the Tier B project. Additionally, a methane-fugitive emissions factor for compression, sourced from the API Compendium of Greenhouse Gas Emissions, Table 6-5, was used for the Wilpro Energy Services projects.

API 2009 (American Petroleum Institute). *Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry*. August 2009.

SAR. Second Assessment Report. Climate Change 1995, The Science of Climate Change: Summary for Policymakers and Technical Summary of the Working Group I Report, page 22.

EIA 2008. Energy Information Administration (EIA) *U.S. Natural Gas Consumption by End Use*. 2003-2007. Accessed January 2008. <http://tonto.eia.doe.gov/dnav/ng/ng_cons_sum_dcu_nus_a.htm>

> Emissions from natural pipeline transport are very segment specific, varying by pipeline infrastructure, compression energy source, and segment distance. In order to define the related emissions for representative pipeline hauls in the absence of system specifications, Pace Global assumed pipeline-fuel consumption and both combustion and non-combustion CO_{2e} emissions, based on EIA natural gas consumption data and data from the U.S. GHG Inventory released by EPA in 2008. This data yielded an average fugitive-emission-loss rate of 1.7% (per unit volume), and fugitive emissions factor of 4,297 lbs of CO_2 per mmscfd. The emissions associated with combustion required to move natural gas were calculated to be 3,439 lbs of CO_2 per MMscd.

EIA 2013. Voluntary Reporting of Greenhouse Gas Coefficients. Voluntary Reporting of Greenhouse Gases Program (Voluntary Reporting of Greenhouse Gases Program Fuel Carbon Dioxide Emission Coefficients). January 2013. Accessed January 2013.

EPA 1985. United States Environmental Protection Agency (EPA). *AP 42: Compilation of Air Pollutant Emission Factors, Volume 1 Stationary Point and Area Sources.* Appendix A: Miscellaneous Data & Conversion Factors. September 1985. Accessed January 2008. <http://www.epa.gov/ttn/chief/ap42/>

Conversion factors not provided by The Climate Registry were obtained from U.S. EPA's AP 42 document, specifically for the density of natural gas and crude oil and the conversion of kilometers to miles.

EPA 2008. United States Environmental Protection Agency (EPA). *Inventory of U.S. GHG Emissions and Sinks, 1990-2006*. Tables 3-34 and 3-36. Accessed January 2008. <http://www.epa.gov/climatechange/emissions/downloads/08_CR.pdf>

Emissions from natural-gas-pipeline transport are very segment specific, and vary according to pipeline infrastructure, compression-energy source, and segment distance. In order to define the related emissions for representative pipeline hauls in the absence of system specifications, Pace Global assumed pipeline-fuel consumption and both combustion and non-combustion CO_2e emissions based on EIA natural gas consumption data and data from the U.S. GHG Inventory, released by EPA in 2008. This data yielded an average fugitive emission loss rate of 1.7% (per unit volume), and fugitive emissions factor of 4,297 lbs of CO_2 per mmscfd. The emissions associated with combustion required to move natural gas was calculated to be 3,439 lbs of CO_2 per MMscd.

GREET. The Greenhouse Gases, Regulated Emissions, and Energy Use In Transportation Model, GREET 1.8d.1, developed by Argonne National Laboratory, Argonne, IL, released August 26, 2010.

Herrington, E.F.G. "Calorific Values of Solid, Liquid and Gaseous Fuels 3.11.4." *National Physical Laboratory*. 1 Jan. 2015. Web. 1 Feb. 2015. < http://www.kayelaby.npl.co.uk/chemistry/3_11/3_11_4.html

IEA 2008a. International Energy Agency. *Coal in Indonesia in 2006*, accessed January 2008. <http://www.iea.org/Textbase/stats/coaldata.asp?COUNTRY_CODE=ID>

The coal profile for Indonesia in 2006 specifies the type of coal consumed and what it was combusted for. The table provided by IEA describes the volume of coal used in electricity plants as being 100% sub-bituminous. This information was necessary to calculate the emissions for Paiton Energy as each coal type has a different emissions factor and heat-content value.

IEA 2008b. International Energy Agency. *Coal in Morocco in 2006*. Accessed January 2008. <http://www.iea.org/Textbase/stats/coaldata.asp?COUNTRY_CODE=MA>

The coal profile for Morocco in 2006 specifies the type of coal consumed and what it was combusted for. The table provided by IEA describes the volume of coal used in electricity plants as being 100% bituminous. This information was necessary to calculate the emissions for Jorf Lasfar Energy as each coal type has a different emissions factor and heat-content value.

IFC 2008. International Finance Corporation (IFC). *Guidance Note 3: Pollution Prevention and Abatement.* July 31, 2007. Accessed January 2008. <http://www.ifc.org/ifcext/sustainability.nsf/Content/GuidanceNotes>

This guidance note by the IFC provides suggested GHG emissions estimation methodologies for the energy and industrial sectors. The table in Annex A provides the capacity for electric-generating technologies (oil = 25MW, coal = 18MW, gas = 41MW) that would emit 100,000 metric tons of CO_2e per year. The table also provides the emissions factor that was applied to the electric generation projects for which no throughput or consumption volumes were available.

IFC 2012. International Finance Corporation (IFC). *Guidance Note 3: Resource Efficiency and Pollution Prevention.* January 1, 2012.

IPCC 2006. 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds). Published: IGES, Japan.

Nye Thermodynamics Corporation. *Gas Turbine Specifications by Manufacturer*. Nuovo Pignone turbine specifications. Accessed January 2008. <http://www.gas-turbines.com/specs/manuf.htm>

The project descriptions for Wilpro Energy Services (Pigap) and Wilpro Energy Services (El Furrial) indicate that the compression if driven by Nuovo Pignone Gas Turbines. Pace estimated energy requirements from compression levels depicted for each project and consulted specifications of the appropriately sized Nuovo Pignone gas turbines. Efficiency and other specifications of these turbines were collected from the Nye Thermodynamics Corporation website documenting gas turbine specifications by manufacturer.

OPIC 2007. Overseas Private Investment Corporation (OPIC). *2007 Greenhouse Gas Emissions Inventory Report*. March 2009. <http://www.opic.gov/doing-business-us/OPIC-policies/greenhouse-gas-accounting-reports>

OPIC 2008. Overseas Private Investment Corporation (OPIC). *2008 Greenhouse Gas Emissions Inventory Report*. May 2010. <http://www.opic.gov/doing-business-us/OPIC-policies/greenhouse-gas-accounting-reports>

OPIC 2009. Overseas Private Investment Corporation (OPIC). *2009 Greenhouse Gas Emissions Inventory Report*. May 2011. <http://www.opic.gov/doing-business-us/OPIC-policies/greenhouse-gas-accounting-reports>

OPIC 2010. Overseas Private Investment Corporation (OPIC). *2010 Greenhouse Gas Emissions Inventory Report*. April 2012.

<http://www.opic.gov/doing-business-us/OPIC-policies/greenhouse-gas-accounting-reports>

OPIC 2011. Overseas Private Investment Corporation (OPIC). *2011 Greenhouse Gas Emissions Inventory Report*. June 2013. <http://www.opic.gov/doing-business-us/OPIC-policies/greenhouse-gas-accounting-reports>

Oil and Gas Journal. "Special Report: Worldwide Ethylene Capacity Increases 2 Million TPY in 2007," Volume 106, July 28, 2008.

No information was provided in the project description for the Equate Petrochemical project indicating its size or energy consumption. The average size of petrochemical facilities in the Middle East, of ~850,000 tons per year, was sourced from the *Oil and Gas Journal*. Specific energy requirements and generation sources expected from a petrochemical facility of this size were sourced from the CEC report. This data enabled the qualified estimation of emissions from this project.

TAPSEIS. Trans-Alaska Pipeline System Environmental Impact Statement (TAPSEI).*Trans-Alaska Pipeline Environmental Impact Statement Document, Energy Requirements for Conservation Potential.* February 15, 2001. Accessed January 2008. <http://tapseis.anl.gov/documents/docs/Section_4_9_May2.pdf>

Energy-demand factors for crude-pipeline transport were sourced from documents associated with the Environmental Impact Statement for the Trans Alaska Gas pipeline in order to calculate GHG emissions for the Baku-Tblisi-Ceyhan Pipeline.

TCR 2008. The Climate Registry (TCR). *General Reporting Protocol Version 1.1.* May 2008. Accessed January 2008. <http://www.theclimateregistry.org/downloads/GRP.pdf>

The Climate Registry is the broadest-reaching registry in North America with participation from all Canadian provinces, six Mexican states, and 40 U.S. states. The Climate Registry's General Reporting Protocol is based on the WRI/WBCSD GHG Protocol, the "gold" standard in GHG Accounting and Reporting. Emission, heat content, and conversion factors from this document were used in the analysis (Table 12.1 and Appendix C).

TCR 2013. The Climate Registry (TCR). *2013 Climate Registry Default Emissions Factors.* January 2013. Accessed March 2014. <http://www.theclimateregistry.org/resources/protocols/general-reporting-protocol/>

TCR 2014. The Climate Registry (TCR). *2014 Climate Registry Default Emissions Factors.* April 2014. Accessed February 2015. <http://theclimateregistry.org/wp-content/uploads/2015/01/2014-Climate-Registry-Default-Emissions-Factors.pdf>

TCR 2015. The Climate Registry (TCR). *2015 Climate Registry Default Emissions Factors.* April 2015.

TCR 2017. The Climate Registry (TCR). *2015 Climate Registry Default Emissions Factors.* March 2017.