



**PACE**

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# **2008 Greenhouse Gas Emissions Inventory Report**

**Prepared for:**

**Overseas Private Investment Corporation**

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## INTRODUCTION

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### **Background:**

Pace Global Energy Services, LLC (“Pace”) performed an independent analysis to quantify the greenhouse gas (“GHG”) emissions directly attributable to projects to which the Overseas Private Investment Corporation (“OPIC”) is financially committed. GHGs are atmospheric compounds that trap the sun’s infrared radiation or heat. In excess quantities, GHGs are linked to numerous impacts to global climate and the environment as a whole. Further, regulations are being developed and implemented at regional and local levels to limit and / or reduce GHG emissions from human caused sources that have the potential to impart compliance cost implications to major sources of these emissions.

### **Objective & Scope:**

This analysis aims to assess the level of potential GHG emissions of projects determined to be significant sources of GHG emissions in terms of short tons of carbon dioxide (“CO<sub>2</sub>”) emissions. The estimate includes only those projects active in OPIC’s portfolio as of September 30, 2009 with annual emission levels exceeding 100,000 short tons of CO<sub>2</sub> (major sources) and was produced using data available from project sponsors as supplied by OPIC.

### **Baseline Development:**

To develop an initial baseline, Pace conducted a screen of OPIC supported projects for the 2007 calendar year and includes only those emissions from direct, on site emission sources from operations. It does not include indirect emissions associated with purchased electricity or steam, chemical releases, or the past construction of facilities. After further analysis of environmental data and project descriptions, Pace narrowed this list to a short list of projects that had the potential to exceed the threshold of 100,000 short tons CO<sub>2</sub> per annum from direct fossil fuel combustion. The maximum Potential to Emit (“PTE”) was then estimated for this short list of projects and is based on available project information, which varied by project, but included a combination of consumption data, throughput, generating capacity, relative project sizes, and an assumed operating capacity of 8,000 hours per year. In order to support the accuracy of the estimates and assumptions and to ascertain 2007 operational emissions data, OPIC solicited additional information from the individual sponsors. The 2007 inventory consisted of project sponsor provided information where responses were received and Pace’s estimates for the project’s maximum potential to emit for projects where sponsor feedback was not received as of the time of reporting for the 2007 year inventory report (March 2009).

### **2008 Emissions Inventory:**

Following the same process used to develop the baseline, Pace performed an initial screen of OPIC supported projects operational for the 2008 calendar year and active as of September 30, 2009, the close of the fiscal year. All projects active in 2007 and identified to be below the threshold for inclusion were excluded in the initial screen. The initial shortlist included 44 projects that were new to OPIC’s portfolio as of 2008 and had the potential to be major sources and projects that were considered major sources and were included in the 2007 inventory. Pace and narrowed this list 25 short-listed projects and one fund that exceeded the 100,000 short tons CO<sub>2</sub> per annum threshold. Information requests were sent to project sponsors to validate 2008 emission inventory estimates. Actual 2008 emissions estimates and operating



data received from project sponsors was used in the 2008 inventory if received. For projects where sponsor feedback and / or actual 2008 year operating data was unavailable, the 2007 baseline estimate was used to reflect 2008 emissions, in absence of updated actual operational data. The estimated total for OPIC's 2008 GHG Inventory is **33,508,710** short tons CO<sub>2</sub>.

This report presents the results of the 2008 year GHG emissions estimate for OPIC projects. Next year, Pace will review and update the emissions attributable to projects to which OPIC is financially committed for the 2009 calendar year and identify and report differences from the emissions estimates presented in the initial inventory report herein.

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## METHODOLOGY

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### **2008 INITIAL SCREEN**

For 2008, Pace screened all of OPIC's affiliated projects from the complete project list provided by OPIC. The scope of the analysis included emissions from the direct combustion of fossil fuels from projects that would result in over 100,000 short tons of CO<sub>2</sub> emitted per year. Emissions associated with electricity usage, industrial processes, and/or refrigerants were excluded. Based on the criteria below, Pace developed a 'short list' of projects that warranted more detailed analysis to determine whether or not they exceeded the threshold for inclusion and to calculate the PTE emissions. The initial screen relied on the following criteria for inclusion. (See, APPENDIX A, Table A-1: Active Project List for the complete list of projects analyzed).

- Projects that were active as of September 30, 2009;
- Projects that were determined to emit over 100,000 short tons of CO<sub>2</sub> per year through the analysis performed in 2007 for the baseline inventory; and
- New projects with which OPIC was affiliated as of 2008 in the energy, oil & gas, transportation, mining, manufacturing, and construction sectors as facilities in these sectors are of sufficient size to potentially directly emit over 100,000 short tons CO<sub>2</sub> per year.

Projects in the finance/banking, insurance, and service sectors were omitted from further analysis because the majority of emissions from these sectors are attributed to electricity usage which is outside the scope of this study.

A total of 44 projects were included in the initial 'short list.' (See APPENDIX A, Table A-2: Initial Short List for the initial 'short list'). After discussing and reviewing project details with OPIC for additional information regarding specific projects, this list was shortened to 26 projects that could potentially reach or surpass the emissions threshold for inclusion in the inventory. None of the new projects for 2008 were determined to have the potential to emit over the threshold for inclusion so this list consisted of projects included in the baseline. Pace vetted and finalized emission calculations for these projects and included them into the 2008 inventory.

### **TIER A (POWER GENERATION) FACILITY INVENTORY ESTIMATES**

Pace segregated fossil fuel fired power generation projects on the final 'short list,' of which a total of 16 projects were identified and were referred to as "Tier A projects". The maximum PTE for Tier A projects were based on an operating capacity of 8,000 hours per year, consumption data (if available), facilities' power generating capacity (MW), and/or specific estimates of GHG emissions provided by the project sponsor if available. The most accurate emissions profile is that based on actual fuel consumption; however, this information was not available for all of the Tier A projects. Therefore, when calculating emissions based on generation capacity alone, Pace generated estimates by calculating emissions based on capacity (MW) and used a conversion efficiency factor obtained from the International Finance Corporation's Guidance Note 3. Other standard assumptions required to perform inventory calculations were primarily sourced from The Climate Registry's General Reporting Protocol. A complete list of data sources relied upon for this analysis is included in the Annotated Bibliography in APPENDIX D.

All of the Tier A projects' emissions estimates were calculated using actual annual fuel consumption data provided by the project sponsors, either for 2008 or default to 2007 sponsor provided if responses for 2008 were not received. The data used in the calculations as well as the maximum PTE calculations are detailed in APPENDIX B.

### **TIER B FACILITY INVENTORY ESTIMATES**

Nine projects on the 'short list' were identified as Tier B facilities, defined as facilities in the oil & gas, mining, transportation, manufacturing, or construction sectors with annual GHG emissions estimated to be above the threshold defining a major source for this analysis. Oil & gas sector projects' emissions were based on throughput, consumption data, and/or emissions data from similar facilities. Emissions from manufacturing projects were based on the energy requirements from similar facilities and/or processed volumes. All maximum PTE estimates assume an operating capacity of 8,000 hours per year. When emissions data from similar facilities was necessary to perform the calculation, the data was obtained from credible, publically available information sources such as the American Petroleum Institute ("API"), Energy Information Administration ("EIA"), and U.S. Environmental Protection Agency ("EPA"). Other assumptions required to perform inventory calculations were primarily sourced from The Climate Registry's General Reporting Protocol. A complete list of data sources relied upon for this analysis is included in the Annotated Bibliography in APPENDIX D. The data used in the calculations as well as the estimate calculations are detailed in APPENDIX B.

### **ANNUAL REVIEW OF INVENTORY ESTIMATES**

Pace will review OPIC's portfolio annually and determine if projects should be removed or added to the inventory calculation and quantify the impacts of annual operational changes against the maximum PTE estimate. Pace will utilize the above methodology to screen these additional projects and estimate emissions going forward.

### **PROJECT SPONSOR FEEDBACK AND ESTIMATE REVISIONS**

To support the accuracy of the estimates, OPIC solicited additional information and verification of project specific assumptions from the individual sponsors. The project sponsors had 30 days to reply to the solicitation with additional project details and 2008 operational emissions estimates. This feedback reflects OPIC's 2008 emissions inventory which includes emissions from 22 of the 25 projects on the final short list. When sponsor feedback was unavailable, the 2007 estimate was used to reflect 2008 emissions.

Based on sponsor feedback, two projects were removed from the inventory. The West African Gas Pipeline project was again not operational in 2008 and while Termovalle SCA is expected to increase its emissions over time its 2008 was below the 100,000 short ton threshold. Additionally, Trakya Elektrik was omitted from the inventory since they were not active as of September 30, 2009.



## RESULTS

OPIC's 2008 GHG Inventory is **33,508,710** short tons CO<sub>2</sub>, based on sponsor feedback and maximum PTE when sponsor comments were unavailable.

**Exhibit 1: 2008 OPIC GHG Emissions Inventory Estimate by Project**

Project Name	Location	Description	Capacity / Throughput	Fuel Type	Maximum PTE (short tons CO <sub>2</sub> )	2007 Sponsor Reported Emissions Baseline (short tons CO <sub>2</sub> )	2007 Sponsor Feedback	FINAL 2008 Emissions (short tons CO <sub>2</sub> )	2008 Sponsor Feedback
<b>Tier A Projects</b>									
Adapazari Elektrik Uretim	Turkey	Combined Cycle	777 MW	Natural Gas	2,706,499	2,106,754	Yes	2,106,754	Yes
AES Jordan <sup>1</sup>	Jordan	Combined Cycle	10,103,603 MMBtu/yr	Natural Gas	1,288,809	0	Yes	590,940	Yes
AES Nigeria Barge	Nigeria	Engine-Based Power	270 MW	Natural Gas	1,603,307	1,166,398	Yes	1,341,157	Yes
Doga Enerji	Turkey	Combined Cycle	180 MW	Natural Gas	816,057	740,762	Yes	740,762	Yes
Gaza Private Generating PLC <sup>2</sup>	Gaza	Combined Cycle	136.4 MW	Natural Gas	487,658	293,804	Yes	303,535	Yes
Gebe Elektrik Uretim	Turkey	Combined Cycle	1554 MW	Natural Gas	5,412,998	4,121,923	Yes	4,121,923	Yes
Grenada Electricity Services (WRB) <sup>3</sup>	Grenada	Engine-Based Power	18 MW	Diesel (Fuel Oil)	104,604	114,571	Yes	121,156	Yes
Habibullah Coastal Power	Pakistan	Combined Cycle	140 MW	Natural Gas	487,658	447,880	Yes	447,880	Yes
Isagen SA <sup>4</sup>	Colombia	Combined Cycle	300 MW	Natural Gas	696,654	203,010	Yes	13,746	Yes
Izmir Elektrik Uretim	Turkey	Combined Cycle	1554 MW	Natural Gas	5,412,998	4,694,380	Yes	4,694,380	Yes
Jorf Lasfar Energy <sup>5</sup>	Morocco	Steam Boiler	1356 MW	Coal	14,268,496	14,268,496	No	-	Yes
NEPC Consortium Power	Bangladesh	Engine-Based Power	363,184 MMBtu/yr	Natural Gas	383,159	245,795	Yes	343,581	Yes

<sup>1</sup> AES Jordan: Commenced operation in June 2008 and therefore operated for less than 8,000 hours in 2008 (their emissions will be higher in the future years).

<sup>2</sup> Gaza Private Generating PLC: Operated less than 8000 hours in 2008.

<sup>3</sup> Grenada Electricity Services (WRB): This is an engine-based power plant.

<sup>4</sup> Isagen SA: Emissions for 2008 were 13,746 CO<sub>2</sub>e, as reported by the Sponsor. However, since they operated only a few days in 2008 their emissions were excluded from the 2008 Inventory.

<sup>5</sup> Jorf Lasfar Energy: Emissions for 2008 were 14,268,496 CO<sub>2</sub>e, as reported by the Sponsor. However, since this project was not active as of Sep 30, 2009 it is not included in the 2008



Project Name	Location	Description	Capacity / Throughput	Fuel Type	Maximum PTE (short tons CO2)	2007 Sponsor Reported Emissions Baseline (short tons CO2)	2007 Sponsor Feedback	FINAL 2008 Emissions (short tons CO2)	2008 Sponsor Feedback
Paiton Energy	Indonesia	Steam Boiler	1200 MW	Coal	7,938,380	9,553,044	Yes	9,553,044	Yes
Pakistan Water & Power Authority	Pakistan	Combined Cycle	150 MW	Natural Gas	522,490	522,490	Yes	522,490	Yes
Termovalle SCA <sup>6</sup>	Colombia	Combined Cycle	199 MW	Natural Gas	714,070	0	Yes	46,213	Yes
Trakya Elektrik Uretim ve Ticaret <sup>7</sup>	Turkey	Combined Cycle	478 MW	Natural Gas	1,818,912	1,747,956	Yes	-	Yes
<b>Tier B Projects<sup>8</sup></b>									
Accroven SRL <sup>9</sup>	Venezuela	NGL Facility	800 MMscfd	Natural Gas	998,677	998,677	Yes	445,832	Yes
Baku-Tbilisi-Ceyhan Pipeline	Azerbaijan	Crude Oil Pipeline	247 million bbl	Natural Gas & Diesel	699,034	707,672	Yes	707,672	Yes
E.P. Interoil	Papua New Guinea	Crude Oil Refinery	358,798 MMBtu/yr	Crude Oil	802,469	392,296	Yes	103,247	Yes
Equate Petrochemical <sup>10</sup>	Kuwait	Petrochemical Facility	1540 MMBtu/hr	Natural Gas	720,573	720,573	Yes	680,311	Yes
Foxtrot International	Cote d'Ivoire	Gas Extraction & Pipeline	1736 MMscf/yr	Natural Gas	270,804	104,484	Yes	104,484	Yes
Natural Gas Liquids II Financing	Nigeria	NGL Facility	19.5 MMscfd	Natural Gas	390,806	244,048	Yes	244,048	No
Various Egypt Subsidiaries (Apache)	Egypt	Oil/Gas Extraction & Processing	29,934,702 bbl/yr & 89,910 MMscf/yr	Oil & Natural Gas	1,190,476	1,505,247	Yes	1,589,653	Yes
Wilpro Energy Services (El Furrjal)	Venezuela	Gas Compression	60 MW	Natural Gas	289,106	289,106	Yes	289,106	No
Wilpro Energy Services (Pigap)	Venezuela	Gas Compression	100 MW	Natural Gas	507,923	571,090	Yes	571,090	No

<sup>6</sup> Termovalle SCA: Emissions for 2008 were 46,213 CO2e, as reported by the Sponsor. Emissions are less than 100k tons but an increase in operating hours in future years is expected.

<sup>7</sup> Trakya Elektrik Uretim Ve Ticaret: Emissions for 2008 were 1,484,377 CO2e, as reported by the Sponsor. However, since this project was not active as of Sep 30, 2009 it is not included in the 2008 inventory.

<sup>8</sup> West African Gas Pipeline: Not Operational as of 2008 (was included in baseline), per sponsor feedback in 2007. No emissions, therefore, were reported for 2007 or 2008.

<sup>9</sup> Accroven: Sponsor provided feedback for 2007 in form of report but did not include GHG information for 2008. The PTE was used, as a result, for 2007.

<sup>10</sup> Equate Petrochemical: Sponsor provided feedback for 2007 after the report was issued. Actual 2007 operating emissions were 680,311 short tons. Emissions were greater than PTE due to increased capacity.





<b>Totals</b>				
	Subtotal <sup>11</sup> :	50,532,617	45,760,455	29,623,044
	Latin American Power III Funds <sup>12</sup> :	2,290,013	2,290,013	2,290,013
	5% for Additional Sources <sup>13</sup> :	2,641,132	2,402,523	1,595,653
	<b>Total:</b>	<b>55,463,762</b>	<b>50,452,992</b>	<b>33,508,710</b>

<sup>11</sup> All projects not active as of Sep 30, 2009 were not included in the 2008 analysis

<sup>12</sup> Per agreement between Latin American Power II 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 2,290,013 short tons CO2 as calculated in accordance with the IPCC".

<sup>13</sup> TCR Simplified Estimation Method suggests 5% reasonable error for inventory

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## APPENDIX A

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Table A-1: Active Project List includes a list of all OPIC projects active as of September 30, 2009 that were screened for this analysis. Table A-2: Initial Short List presents the initial shortlist of projects screened that were determined to have the potential to emit over 100,000 short tons of CO<sub>2</sub>.

### **TABLE A-1: ACTIVE PROJECT LIST**

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b><i>FINANCE</i></b>		
AFGHAN GROWTH FINANCE LLC	AFGHANISTAN	FIN
ABI GROUP LTD.	AFGHANISTAN	MFR
PACIFIC COLLECTION COMPANY/TRIBAL LOOM	AFGHANISTAN	MFR
MOUNTAIN PASTURES HOLDINGS LLC	AFGHANISTAN	MFR
QWO JOINT STOCK COMPANY	AFGHANISTAN	MFR
QWO JOINT STOCK COMPANY	AFGHANISTAN	MFR
SAFI APPAREL CORPORATION	AFGHANISTAN	MFR
SUSTAINABLE ENERGY SERVICES AFGHANISTAN	AFGHANISTAN	POWER
AMERICAN WOOL-CASHMERE, INC.	AFGHANISTAN	SVC
IBS HOLDINGS, LLC	AFGHANISTAN	SVC
SUMMIT ASSOCIATES, LTD.	AFGHANISTAN	SVC
TAYL INVESTORS GROUP LIMITED	AFGHANISTAN	TOUR
FIXED RATE FUNDING & LIQUIDITY LTD (HWD SPA)	ALGERIA	SVC
AEGIS INVESTMENT COMPANY	ALL OPIC COUNTRIES	FIN
BLUEORCHARD MICROFINANCE SECURITIES I LLC	ALL OPIC COUNTRIES	FIN
CALVERT SOCIAL INVESTMENT FOUNDATION	ALL OPIC COUNTRIES	FIN
CONSERVATION INTERNATIONAL FOUNDATION	ALL OPIC COUNTRIES	FIN
EMERGENCY LIQUIDITY FACILITY, L.P.	ALL OPIC COUNTRIES	FIN
MFx SOLUTIONS, INC.	ALL OPIC COUNTRIES	FIN
MICROFINANCE SECURITIES XXEB SA JUNIOR	ALL OPIC COUNTRIES	FIN
MICROFINANCE SECURITIES XXEB SA MEZZANINE	ALL OPIC COUNTRIES	FIN
MICROFINANCE SECURITIES XXEB SA SENIOR	ALL OPIC COUNTRIES	FIN
MICROVEST I, LP	ALL OPIC COUNTRIES	FIN
PROCREDIT HOLDING A.G.	ALL OPIC COUNTRIES	FIN
E+CO., INC	ALL OPIC COUNTRIES	POWER
TIVANNAH GLOBAL LDA	ANGOLA	MFR
S&N PUMP AFRICA, LDA	ANGOLA	SVC
BRAVO ENERGY ARGENTINA SCA	ARGENTINA	OIL

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
COMPANIA GENERAL DE COMERCIO E INDUSTRIA SA	ARGENTINA	TOUR
DESARROLLOS DE LOS SUENOS, S.A.	ARGENTINA	TOUR
FIRST MORTGAGE COMPANY UCO, LLC	ARMENIA	FIN
WBC-ARDSHININVESTBANK CJSC	ARMENIA	FIN
ARMENIA HOTEL COMPLEX CLOSED JSC	ARMENIA	TOUR
DOMES INTERNATIONAL, INC.	ASIA REGIONAL	MFR
TBC KREDIT NON-BANKING CREDIT ORGANIZATI LLC	AZERBAIJAN	FIN
TBC KREDIT NON-BANKING CREDIT ORGANIZATI LLC	AZERBAIJAN	FIN
WBC-RABITABANK OJSC	AZERBAIJAN	FIN
WBC-TURANBANK OJSC	AZERBAIJAN	FIN
CASIA-PACIFIC BANGLADESH TELECOM LIMITED	BANGLADESH	COMM
CASIA-BRAC	BANGLADESH	FIN
NEPC CONSORTIUM POWER LTD.(HARIPUR)	BANGLADESH	POWER
VISTAS BELIZE LTD	BELIZE	CONS
RAPID MAIL COMPANY LIMITED	BELIZE	SVC
SERVICIO GRAFICOS QUIPUS	BOLIVIA	MFR
ROUMEL DEVELOPMENT CORPORATION	BOSNIA-HERZEGOVINA	CONS
ROUMEL DEVELOPMENT CORPORATION 2	BOSNIA-HERZEGOVINA	CONS
GOLDHAM PTY LTD.T/A KALAHARI GAS CORPORATION	BOTSWANA	OIL
RURALFONE, INC.	BRAZIL	COMM
AMEBRASIL CONSTRUCOES LIMITADA	BRAZIL	CONS
CSI LATINA FINANCIAL, INC/CSI LATINA ARRENDA	BRAZIL	FIN
NCB2-BANCO MERCANTIL DO BRASIL S.A.	BRAZIL	FIN
NCB3-BANCO PINE S.A.	BRAZIL	FIN
W3-BANCO FIBRA, S.A.	BRAZIL	FIN
W3-BANCO PINE, S.A.	BRAZIL	FIN
ACAI DO AMAPA AGROINDUSTRIAL LTDA.	BRAZIL	MFR
BRAZILIAN EMERALDS,INC.	BRAZIL	MINE
PRINCETON HEALTHCARE	BRAZIL	SVC
MORUMBY HOTEIS LTDA.	BRAZIL	TOUR
W2-FIRST INVESTMENT BANK BULGARIA	BULGARIA	FIN
CMFI-AGENCE DE CREDIT POUR L'ENTREPRISE PRIV	CAMEROON	FIN
NATURA BEVERAGE LLC	CAMEROON	MFR
NATURA BEVERAGE, LLC	CAMEROON	MFR
TB-DRISCOLL STRAWBERRY ASSOCIATES, INC.	CHILE	AGRI
SOCIEDAD CONCESIONARIA VESPUCIO NORTE EXPRES	CHILE	CONS

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
COMPANIA MINERA PIMENTON SA	CHILE	MINE
LEAWOOD INVESTMENTS INC/BARRIEFIELD LLC	COLOMBIA	AGRI
PRODUCTORA DE PAPELES SA (PROPAL)	COLOMBIA	MFR
PRODUCTORA DE PAPELES SA (SUBORDINATED DEBT)	COLOMBIA	MFR
JOSHI TECHNOLOGIES INTERNATIONAL INC	COLOMBIA	MINE
JOSHI TECHNOLOGIES INTERNATIONAL, INC.	COLOMBIA	MINE
PARKO SERVICES, S.A.	COLOMBIA	OIL
PARKO SERVICES, S.A..	COLOMBIA	OIL
CONDOMINIOS RIVERSIDE ETAPA II, S.A.	COSTA RICA	CONS
BANCO BAC SAN JOSE, S.A. (TRANCHE A)	COSTA RICA	FIN
BANCO BAC SAN JOSE, S.A. (TRANCHE B)	COSTA RICA	FIN
BANCO LAFISE S.A.	COSTA RICA	FIN
BANCO LAFISE, S.A. (TRANCHE 2)	COSTA RICA	FIN
BANCO LAFISE, S.A. (TRANCHE 3)	COSTA RICA	FIN
CCA2-BANCA PROMERICA, S.A.	COSTA RICA	FIN
CCA2-BANCO IMPROSA, S.A.	COSTA RICA	FIN
CCA2-GRUPO M HOLDING S.A.	COSTA RICA	FIN
WBC-IMPROMSA SERVICIOS INTERNACIONALES S.A.	COSTA RICA	FIN
WESTSTAR PRECISION, INC.	COSTA RICA	MFR
CSA-REY BANANO DEL PACIFICO C.A.	ECUADOR	AGRI
CSA-BANCO PROCREDIT ECUADOR	ECUADOR	FIN
CORPORACION QUIPORT S.A.	ECUADOR	TRAN
BANCO DE AMERICA CENTRAL, S.A. (TRANCHE A)	EL SALVADOR	FIN
BANCO DE AMERICA CENTRAL, S.A. (TRANCHE B)	EL SALVADOR	FIN
CMFI-APOYO INTEGRAL, S.A. DE C.V.	EL SALVADOR	FIN
GOLDEN SIERRA PARTNERS, LLC	ESTONIA	MFR
MEDPHARM, INC.	ETHIOPIA	SVC
CSI LEASING POLSKA SP.Z.O.O ET AL	EUROPE REGIONAL	FIN
INTERNET GABON, SA	GABON	SVC
MIDDLE EAST INVESTMENT INITIATIVE, INC.	GAZA	FIN
MIDDLE EAST INVESTMENT INITIATIVE, INC.	GAZA	FIN
JSC IBERIA REAL ESTATE	GEORGIA	CONS
JSC SB IBERIA	GEORGIA	CONS
CHOUS-JOINT STOCK COMPANY TBC BANK	GEORGIA	FIN
JSC BANK OF GEORGIA	GEORGIA	FIN
JSC BANK OF GEORGIA	GEORGIA	FIN

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
WBC-BANK OF GEORGIA	GEORGIA	FIN
WBC-GEORGIAN LEASING COMPANY, LLC	GEORGIA	FIN
SANTE GMT PRODUCTS LLC	GEORGIA	MFR
GMT MTATSMINDA, LLC	GEORGIA	SVC
GMT REAL ESTATE, LLC.	GEORGIA	SVC
JOINT STOCK COMPANY HOTEL TBILISI	GEORGIA	TOUR
AMERICAN MONOLITH LTD	GEORGIA	TRAN
PACIFIC INTERNATIONAL HOLDINGS, INC.	GEORGIA	TRAN
GHANA HOME LOANS (FUND 1) LIMITED	GHANA	FIN
AFRICAN-AMERICAN TRADING COMPANY, INC.	GHANA	MFR
CAMAS GHANA INC.	GHANA	MFR
SLID INDUSTRIES, LTD.	GHANA	MFR
LAGRAY CHEMICAL COMPANY LTD	GHANA	MFR
PHYTO-RIKER PHARMACEUTICALS LTD.	GHANA	MFR
INTERNATIONAL COMMUNITY SCHOOL LIMITED	GHANA	SVC
FLAMA DE ORO S.A.	GUATEMALA	AGRI
FLAMA DE ORO, S.A.	GUATEMALA	AGRI
LA FUTURA, S.A.	GUATEMALA	AGRI
BANCO DE AMERICA CENTRAL, S.A. (TRANCHE A)	GUATEMALA	FIN
BANCO DE AMERICA CENTRAL, S.A. (TRANCHE B)	GUATEMALA	FIN
CHOUS-BANRURAL S.A.	GUATEMALA	FIN
W3-BANCO REFORMADOR, S.A.	GUATEMALA	FIN
WBC-NUEVOS ALMACENES S.A. D/B/A/ CEMACO	GUATEMALA	SVC
ROTA INTERNATIONAL EXPORTING, LLC.	GUINEA-BISSAU	AGRI
CCA2-DIGICEL HONDURAS S.A. DE CV	HONDURAS	COMM
GHP(HONDURAS)LLC/GLOBAL HOUSING DEVELOPMENT	HONDURAS	CONS
BANCO DE AMERICA CENTRAL HONDURAS, S.A.(TR A	HONDURAS	FIN
BANCO DE AMERICA CENTRAL HONDURAS, S.A.(TR B	HONDURAS	FIN
BANCO LAFISE HONDURAS, S.A.	HONDURAS	FIN
BANCO LAFISE HONDURAS, S.A.	HONDURAS	FIN
CCA2-BANCO MERCANTIL, S.A.	HONDURAS	FIN
CHOUS-BANCO FINANCIERA COMMERCIAL HONDURENA	HONDURAS	FIN
INTER-MAC INTERNATIONAL, INC.	HONDURAS	FIN
W-BANCO FINANCIERA COMERCIAL HONDURENA	HONDURAS	FIN
W2-BANCO ATLANTIDA	HONDURAS	FIN
W2-BANCO DEL PAIS, S.A.	HONDURAS	FIN

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
E+CO, INC.	HONDURAS	POWER
WBC-COMERCIAL LAEISZ, S.A. DE C.V.	HONDURAS	SVC
CASIA-SKS MICROFINANCE PRIVATE LTD.	INDIA	FIN
CASIA-SPANDANA SPHOORTY FINANCIALS LTD	INDIA	FIN
CMFI-ASA GRAMA VIDİYAL TRUST	INDIA	FIN
CMFI-BHARTIYA SAMRUDDHI FINANCE LTD.	INDIA	FIN
CMFI-FRIENDS OF WOMEN'S WORLD BANKING	INDIA	FIN
CMFI-GRAMEEN FINANCIAL SERVICES PRIVATE LTD	INDIA	FIN
CMFI-SKS MICROFINANCE PVT LTD	INDIA	FIN
CMFI-SPANDANA SPHOORTY FINANCIAL LIMITED	INDIA	FIN
REPCO HOME FINANCE LIMITED	INDIA	FIN
CEMA ELECTRIC LIGHTING PRODUCTS INDIA PVT LT	INDIA	MFR
WBC-PREFERRED BRANDS INTERNATIONAL, LLC	INDIA	MFR
WBC-PREFERRED BRANDS INTERNATIONAL, LLC	INDIA	MFR
AZURE POWER PUNJAB PRIVATE LIMITED	INDIA	POWER
HUSK POWER SYSTEMS, INC.	INDIA	POWER
PT. PADI MURNI INDONESIA	INDONESIA	MFR
PT. TUCAN PUMPCO SERVICES INDONESIA	INDONESIA	OIL
PAITON ENERGY COMPANY	INDONESIA	POWER
PAITON ENERGY COMPANY	INDONESIA	POWER
INTERNATIONAL DEVELOPMENT TRUST IRAQ	IRAQ	CONS
SIGMA INTERNATIONAL CONSTRUCTION LLC.	IRAQ	CONS
IRAQ MIDDLE MARKET DEVELOPMENT FOUNDATION	IRAQ	FIN
IRAQ MIDDLE MARKET DEVELOPMENT FOUNDATION	IRAQ	FIN
IRAQ MIDDLE MARKET DEVELOPMENT FOUNDATION	IRAQ	FIN
IRAQ MIDDLE MARKET DEVELOPMENT FOUNDATION	IRAQ	FIN
TRADE BANK OF IRAQ	IRAQ	FIN
SUMMIT HOTELS LIMITED/SUMMIT GLOBAL GROUP	IRAQ	TOUR
EPISCOPAL CHURCH OF JERUSALEM & THE MIDDLE E	ISRAEL	CONS
AMERICAN INTERNATIONAL SCHOOL OF KINGSTON	JAMAICA	SVC
ARAB BANK PLC	JORDAN	FIN
CAIRO AMMAN BANK	JORDAN	FIN
CMFI-TAMWEELCOM	JORDAN	FIN
HOUSING BANK FOR TRADE & FINANCE	JORDAN	FIN
CAFR-MIDDLE EAST COMPLEX FOR ENGINEERING	JORDAN	MFR
AES JORDAN PSC	JORDAN	POWER

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
DISI WATER PSC	JORDAN	SVC
CHOUS2-JSC BANK CENTERCREDIT	KAZAKHSTAN	FIN
CHOUS2-JSC HALYK SAVINGS BANK	KAZAKHSTAN	FIN
CNIS-JSC HALYK BANK	KAZAKHSTAN	FIN
NCB2 -BANK TURAN ALEM	KAZAKHSTAN	FIN
NCB2 -BANK TURAN ALEM	KAZAKHSTAN	FIN
NCB3-ALLIANCE BANK JSC	KAZAKHSTAN	FIN
NCB3-ATF BANK JSC	KAZAKHSTAN	FIN
NCB3-BANK CENTER CREDIT JSC	KAZAKHSTAN	FIN
W2-ALLIANCE BANK	KAZAKHSTAN	FIN
W2-JSC BANK TURAN ALEM	KAZAKHSTAN	FIN
JOPA VILLAS, LLC	KENYA	CONS
CMFI-FAULU KENYA	KENYA	FIN
CMFI-K-REP BANK	KENYA	FIN
CMFI-KENYA WOMEN FINANCE TRUST LTD ("KWFT")	KENYA	FIN
CMFI-KENYA WOMEN FINANCE TRUST LTD ("KWFT2")	KENYA	FIN
GEOSURVEY INTERNATIONAL LLC	KENYA	SVC
LIVING WATER INTERNATIONAL	KENYA	SVC
MAJESTIC GROUP KOREA, LTD.	KOREA (SOUTH)	SVC
INTERNATIONAL VILLAGE SH.P.K.	KOSOVO	CONS
WBC-FORESTRADE, INC	LATIN AMERICA REGIONAL	AGRI
CSI LATINA FINANCIAL,INC/CSI LEASING DE CENT	LATIN AMERICA REGIONAL	FIN
EMERGENCY LIQUIDITY FACILITY, L.P.	LATIN AMERICA REGIONAL	FIN
GLOBAL PARTNERSHIPS MICROFINANCE FUND2006LLC	LATIN AMERICA REGIONAL	FIN
GLOBAL PARTNERSHIPS MICROFINANCE FUND2008LLC	LATIN AMERICA REGIONAL	FIN
GLOBAL PARTNERSHIPS MICROFINANCE FUND2008LLC	LATIN AMERICA REGIONAL	FIN
CHF LEBANON-FRANSABANK S.A.L.	LEBANON	FIN
CHF/L-CREDIT LEBANAIS BANK	LEBANON	FIN
CHF/L-FRANSABANK S.A.L.	LEBANON	FIN
CHF/L-JAMAL TRUST BANK S.A.L.	LEBANON	FIN
CHF/L-LEBANESE CANADIAN BANK	LEBANON	FIN
CLEB-BANKMED S.A.L.	LEBANON	FIN
CLEB-BANQUE LIBANO-FRANCAISE S.A.L.	LEBANON	FIN
CLEB-BYBLOS BANK S.A.L.	LEBANON	FIN
CLEB2-BANK AUDI SAL-AUDI SARADAR GROUP	LEBANON	FIN
CLEB2A-BANK AUDI SAL-AUDI SARADAR GROUP	LEBANON	FIN

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
CLEB2A-BYBLOS BANK SAL	LEBANON	FIN
THE COOPERATIVE HOUSING FOUNDATION LEBANON	LEBANON	FIN
SABLE-CELLCOM TELECOMMUNICATIONS INC	LIBERIA	COMM
SABLE-CELLCOM TELECOMMUNICATIONS INC	LIBERIA	COMM
RLJ LIBERIA, LLC	LIBERIA	CONS
LIBERIAN ENTERPRISE DEVELOPMENT FINANCE CO.	LIBERIA	FIN
BUCHANAN RENEWABLES FUEL INC.	LIBERIA	MFR
BUCHANAN RENEWABLES (MONROVIA) POWER INC.	LIBERIA	POWER
AMERICAN INTERNATIONAL SCHOOL OF MONROVIA IN ADOBERIA SAHEL, S.A.	LIBERIA	SVC
AMERICAN INTERNATIONAL SCHOOL OF BAMAKO	MALI	MFR
AMERICAN INTERNATIONAL SCHOOL OF BAMAKO	MALI	SVC
CASAMAR MAURITIUS, LTD./CASAMAR INDIAN OCEAN	MAURITIUS	MFR
TB-ANDREW & WILLIAMSON FRESH PRODUCE	MEXICO	AGRI
WBC-MARICULTURA DEL NORTE, S.DE R.L. DE C.V.	MEXICO	AGRI
WBC-SOUTHERN VALLEY FRUIT & VEGETABLE, INC.	MEXICO	AGRI
WBC-MONOLITHIC HOUSING S.A.	MEXICO	CONS
BAN-CREDITO INMOBILIARIO S.A. DE C.V.	MEXICO	FIN
CMFI-FUNDACION INTEGRAL COMUNITARIA (FINCA)	MEXICO	FIN
CSI LATINA FINANCIAL, INC./CSI LEASING MEXIC	MEXICO	FIN
PROMOTORA DE INFRAESTRUCTURA REGISTRAL, S.A.	MEXICO	FIN
REFORMA BLN-BACKED I	MEXICO	FIN
SALVATIERRA DESARROLLOS URBANOS, S.A. DE C.V	MEXICO	FIN
VEHICULOS LIQUIDOS FINANCIEROS SAPI DE C.V.	MEXICO	FIN
WBC-DOCUFORMAS S.A.P.I. DE C.V.	MEXICO	FIN
PREFABRICADOS Y MODULARES DE MONTERREY(PYMM)	MEXICO	MFR
WBC-CORPORATIVO PAPELERO Y DE SUMINISTROS BA	MEXICO	MFR
BRAVO ENERGY MEXICO SRL DE CV	MEXICO	OIL
DEXTER SAFETY & INDUSTRIAL PRODUCTS, INC.	MEXICO	SVC
UMBRALCAPITAL, S.A.P.I. DE C.V.	MEXICO	SVC
WBC-VALLARTA VISION Y MISION A.C.	MEXICO	SVC
RED CARRETERAS DE OCCIDENTE, S. DE RL DE CV	MEXICO	TRAN
BANCA DE FINANTE SI COMERT S.A.	MOLDOVA	FIN
WBC-ICS PRIME CAPITAL SRL	MOLDOVA	FIN
WBC-KELLEY GRAINS CORPORATION S.R.L.	MOLDOVA	MFR
IKH TOKHOIROL XXK	MONGOLIA	MINE
MONGOLIAN RESORTS XXK	MONGOLIA	TOUR



<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
GAMETRACKERS MANAGEMENT LTD (NYATI LODGE)	MOZAMBIQUE	TOUR
MERCURY INVESTMENTS LIMITADA	MOZAMBIQUE	TOUR
NAMGEM TRADING BVI LIMITED	NAMIBIA	MFR
BANCO DE AMERICA CENTRAL, S.A. (TRANCHE A)	NICARAGUA	FIN
BANCO DE AMERICA CENTRAL, S.A. (TRANCHE B)	NICARAGUA	FIN
BANCO DE CREDITO CENTROAMERICANO, S.A.	NICARAGUA	FIN
BANCO DE CREDITO CENTROAMERICANO, S.A.	NICARAGUA	FIN
BANCO DE CREDITO CENTROAMERICANO, S.A.	NICARAGUA	FIN
CHOUS-BANCO DE LA PRODUCCION S.A.	NICARAGUA	FIN
GILBERTO J.M.GONZALEZ/DBA/FERRETERIA MORALES	NICARAGUA	SVC
INSTITUTO CULINARIO SANTA LUCIA,S.A.	NICARAGUA	SVC
NGL FUNDING LIMITED	NIGERIA	OIL
AMERICAN INTERNATIONAL SCHOOL OF ABUJA	NIGERIA	SVC
CAFR-AMERICAN INTERNATIONAL SCHOOL LAGOS	NIGERIA	SVC
CITIBANK, N.A.(RUSSIA/CIS LENDING FACILITY)	NIS REGIONAL	FIN
CPAK-PAKISTAN MOBILE COMMUNICATION(PMCL)	PAKISTAN	COMM
CITIBANK, N.A.(PAKISTAN ON LENDING FACILITY)	PAKISTAN	FIN
CPAK2-KASHF FOUNDATION	PAKISTAN	FIN
EMERGING MARKETS CONSULTING (PRIVATE) LTD.	PAKISTAN	FIN
TAMEER MICROFINANCE BANK LIMITED	PAKISTAN	FIN
CPAK2-ENGRO VOPAK TERMINAL LTD	PAKISTAN	MFR
SWEETWATER PAKISTAN (PRIVATE) LIMITED	PAKISTAN	MFR
AMERICAN INTERNATIONAL SCHOOL SYSTEMS, INC.	PAKISTAN	SVC
CSA-DIGICEL PANAMA S.A.	PANAMA	COMM
BAC INTERNATIONAL BANK,INC. (TRANCHE A)	PANAMA	FIN
BAC INTERNATIONAL BANK,INC. (TRANCHE B)	PANAMA	FIN
W3-CREDICORP BANK, S.A.	PANAMA	FIN
DESARROLLO DE RIO PACORA SA	PANAMA	MFR
DESARROLLO DE RIO PACORA SA	PANAMA	MFR
GLOBAL DESIGN, S.A.	PANAMA	SVC
E.P. INTEROIL, LTD.	PAPUA NEW GUINEA	MFR
CSA-BANCO REGIONAL, S.A.	PARAGUAY	FIN
CSA-BBVA PARAGUAY S.A.	PARAGUAY	FIN
CSA-INTERBANCO S.A.	PARAGUAY	FIN
GLOBOKAS PERU, S.A.C.	PERU	FIN
W3-BANCO FINANCIERO DEL PERU, S.A.	PERU	FIN

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
W3-BANCO INTERAMERICANO DE FINANZAS, S.A.	PERU	FIN
CSA-CORPORACION JOSE R. LINDLEY, S.A.	PERU	MFR
CSA-CORPORACION JOSE R. LINDLEY, SA-2	PERU	MFR
NORTH AMERICAN FLOAT PLANE SERVICE SAC	PERU	TRAN
CMFI-CENTER FOR AGRICULTURE & RURAL DEVELOP	PHILIPPINES	FIN
COUNTERPART INTERNATIONAL, INC.	PHILIPPINES	FIN
GOLDEN CYPRESS WATER CO. LTD.	PHILIPPINES	MFR
AMTECH SP.ZO.O	POLAND	CONS
PALCO SP.ZO.O.	POLAND	MFR
LODOM SP.ZO.O-FACILITY B	POLAND	TRAN
CAPA FINANCE SA	ROMANIA	FIN
CMFI-OPPORTUNITY MICROCREDIT ROMANIA ("OMRO"	ROMANIA	FIN
EXPRESS FINANCE-INSTITUTIE FINANCIARA NEBAN	ROMANIA	FIN
THE COOPERATIVE HOUSING FOUNDATION	ROMANIA	FIN
THE COOPERATIVE HOUSING FOUNDATION	ROMANIA	FIN
VERIDA CREDIT IFN S.A.	ROMANIA	FIN
DMITROV DAIRY FARMS, CJSC	RUSSIA	AGRI
ZAO STAR NETWORKS	RUSSIA	COMM
ZAO STAR NETWORKS	RUSSIA	COMM
CLOSED JOINT STOCK COMPANY DELTALEASING	RUSSIA	FIN
CMFI-CJSC FORUS BANK	RUSSIA	FIN
GREENWICH FINANCIAL SERVICES, L.L.C.	RUSSIA	FIN
NCB-NBD BANK, JOINT-STOCK COMPANY	RUSSIA	FIN
NCB-OJSC SIBACADEMBANK	RUSSIA	FIN
NCB2-JSC PROMSVYAZBANK	RUSSIA	FIN
NCB3-CENTER-INVEST BANK JSC	RUSSIA	FIN
NCB3-LOCKO BANK	RUSSIA	FIN
NCB3-ROSEUROBANK	RUSSIA	FIN
NCB3-TRANSCAPITAL BANK JSC	RUSSIA	FIN
RKU FRANCHISING LIMITED	RUSSIA	FIN
W2-PROBUSINESSBANK	RUSSIA	FIN
WBC-INDEPENDENT LEASING, LLC	RUSSIA	FIN
WBC-NBD BANK	RUSSIA	FIN
WBC-OJSC COMMERCIAL BANK "SDM-BANK"	RUSSIA	FIN
WBC-SOTSYALNIY GORODSKOY BANK (SOTSGORBANK)	RUSSIA	FIN
WBC-ZAO DELTALEASING	RUSSIA	FIN

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
ZAO COMMERCIAL BANK DELTACREDIT	RUSSIA	FIN
ZAO EUROPLAN	RUSSIA	FIN
ZAO EUROPLAN	RUSSIA	FIN
NUMOTECH, INC.	RUSSIA	MFR
V G ENTERPRISES, INC.	RUSSIA	MFR
WBC-JSC POLIGRAF LAND	RUSSIA	MFR
ZAO NUMOTECH-SPEKTR	RUSSIA	MFR
ZAO SOLNTSE MEXICO	RUSSIA	MFR
RPK-VYSOTSK "LUKOIL-II"	RUSSIA	OIL
ABAMEDIA, L.P.(TRANCHE A)	RUSSIA	SVC
NEW YORK PIZZA CO. LTD.	RUSSIA	SVC
PJ DEVELOPMENT LLC	RUSSIA	SVC
SUBWAY RUSSIA, LLC	RUSSIA	SVC
WBC-ZAO AIRES	RUSSIA	SVC
WBC-ZAO AIRES	RUSSIA	SVC
HERMITAGE HOSPITALITY FRANCHISING LIMITED	RUSSIA	TOUR
SOUTH AFRICA FINANCING ENTERPRISE	SOUTH AFRICA	CONS
BLUE FINANCIAL SERVICES LIMITED	SOUTH AFRICA	FIN
HOUSING FOR HIV, INC.	SOUTH AFRICA	FIN
WBC-BLUE FINANCIAL SERVICES LIMITED	SOUTH AFRICA	FIN
PURPLE RHINO IMPORTS, INC.	SOUTH AFRICA	MFR
CASIA-LANKA ORIX LEASING COMPANY LTD.	SRI LANKA	FIN
CAFR-MIC TANZANIA LIMITED (TZS)	TANZANIA	COMM
CAFR-MIC TANZANIA LIMITED (USD)	TANZANIA	COMM
BRAC AFRICA MICROFINANCE, LTD. (CLASS A)	TANZANIA	FIN
BRAC AFRICA MICROFINANCE, LTD. (CLASS B)	TANZANIA	FIN
TANRUSS INVESTMENT LTD	TANZANIA	TOUR
TANRUSS INVESTMENT LTD	TANZANIA	TOUR
PACIFIC SUBSEA SAIPAN 2	THAILAND	TRAN
PACIFIC SUBSEA SAIPAN 3	THAILAND	TRAN
PACIFIC SUBSEA SAIPAN, INC.	THAILAND	TRAN
CONTOURGLOBAL TOGO S.A.	TOGO	POWER
RB-AMERICAN COOPERATIVE SCHOOL OF TUNIS	TUNISIA	SVC
NCB2 -OYAK BANK A.S.	TURKEY	FIN
NCB2-ASYA KATILIM BANKASI A.S.	TURKEY	FIN
NCB2-TURK EKONOMI BANKASI A.S. PURPOSE B	TURKEY	FIN

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
NCB2-TURK EKONOMI BANKASI A.S.(T.E.B.)	TURKEY	FIN
TURKIYE GARANTI BANKASI A.S.	TURKEY	FIN
W-OYAK BANK	TURKEY	FIN
W2-AKBANK T.A.S.	TURKEY	FIN
W2-ANADOLUBANK	TURKEY	FIN
W2-ASYA KATILIM BANKASI A.S.	TURKEY	FIN
W2-FINANSBANK A.S.	TURKEY	FIN
W2-OYAK BANK A.S.	TURKEY	FIN
W2-TURK EKONOMI BANK	TURKEY	FIN
W3-BANKPOZITIF KREDIT VE KALKINAM BANKASI	TURKEY	FIN
W3-SEKERBANK A.S.	TURKEY	FIN
W3-TURKIYE GARANTI BANKASI AS	TURKEY	FIN
DT METAL GERI KAZANIM TEKNOLOJILERI SANAYI	TURKEY	MFR
WBC-FERSAN FERMANTASYON URUN SAN. VE TIC.A.S	TURKEY	MFR
WBC-DELTA PLASTIK ENDUSTRISI A.S.	TURKEY	MFR
WBC-KAYNAK SULARI VE TURIZM A.S.	TURKEY	MFR
WBC-INTERFARMA TIBBI MALZEMELER SANAYI VE TI	TURKEY	MFR
WBC-SFC ENTEGRE ORMAN URUNLERI SANAYI VE TIC	TURKEY	MFR
ADAPAZARI ELEKTRIK URETIM LTD. SIRKETI	TURKEY	POWER
DOGA ENERJİ	TURKEY	POWER
GEBZE ELEKTRIK URETİM LTD SİRKETİ	TURKEY	POWER
İZMİR ELEKTRİK ÜRETİM LTD SİRKETİ	TURKEY	POWER
İSTANBUL INTERNATIONAL COMMUNITY SCHOOL (B)	TURKEY	SVC
İSTANBUL INTERNATIONAL COMMUNITY SCHOOL,INC.	TURKEY	SVC
M/N BUTLER MİMARLAR ARASTIRMA TASARI LTD.	TURKEY	TOUR
SOM OTELCİLİK VE TURİZM TİCARET A.S.	TURKEY	TOUR
SOM OTELCİLİK VE TURİZM TİCARET A.S.	TURKEY	TOUR
CMFI-PRIDE UGANDA	UGANDA	FIN
CMFI-UGANDA FINANCE TRUST	UGANDA	FIN
MAPSWITCH UGANDA LTD	UGANDA	FIN
INTERNATIONAL MORTGAGE BANK	UKRAINE	FIN
PROCREDIT BANK	UKRAINE	FIN
PROCREDIT BANK (TRANCHE 2)	UKRAINE	FIN
WBC-ATLANTIC GROUP LIMITED	UKRAINE	SVC
WINNER GROUP UKRAINE, INC.	UKRAINE	SVC
O&S CONSULTING, L.L.C.	UZBEKISTAN	CONS

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FINANCE</b>		
MALIKA HOTEL BUKHARA, LLC	UZBEKISTAN	TOUR
RAYMOND DE VENEZUELA, C.A.	VENEZUELA	MFR
RAYMOND DE VENEZUELA, C.A.	VENEZUELA	MFR
ACCROVEN SRL	VENEZUELA	OIL
WILPRO ENERGY SERVICES (EL FURRIAL) LIMITED	VENEZUELA	OIL
WILPRO ENERGY SERVICES (PIGAP II) LTD.	VENEZUELA	OIL
AUSTRALIS AQUACULTURE LLC	VIETNAM	AGRI
MEII-BANK OF PALESTINE (WATANIYA)	WEST BANK	COMM
MEII-QUDS BANK (WATANIYA)	WEST BANK	COMM
AMAL-BANK OF PALESTINE (BOP) MORTGAGE CORP I	WEST BANK	FIN
AMAL-BANK OF PALESTINE MORTGAGE CORP II	WEST BANK	FIN
AMAL-CAIRO AMMAN BANK (CAB)MORTGAGE CORP I	WEST BANK	FIN
AMAL-CAIRO AMMAN BANK MORTGAGE CORP II	WEST BANK	FIN
MEII-AL RAFAH BANK	WEST BANK	FIN
MEII-AL-QUDS BANK FOR DEVELOPMENT & INVEST	WEST BANK	FIN
MEII-BANK OF JORDAN	WEST BANK	FIN
MEII-BANK OF PALESTINE	WEST BANK	FIN
MEII-CAIRO AMMAN BANK	WEST BANK	FIN
MEII-HOUSING BANK FOR TRADE AND FINANCE	WEST BANK	FIN
MEII-JORDAN AHLI BANK	WEST BANK	FIN
MEII-PALESTINE COMMERCIAL BANK	WEST BANK	FIN
CASIA-DIGICEL (SAMOA) LIMITED	WESTERN SAMOA	COMM
HFA ZAMBIA LIMITED	ZAMBIA	FIN
AMERICAN EMBASSY SCHOOL OF LUSAKA	ZAMBIA	SVC

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b><i>Insurance</i></b>		
INTERNATIONAL FOUNDATION OF HOPE	AFGHANISTAN	AGRICULTURE
INTERNATIONAL FOUNDATION OF HOPE	AFGHANISTAN	AGRICULTURE
ARC CONSTRUCTION COMPANY, LLC	AFGHANISTAN	CONSTRUCTION
ABI GROUP LTD.	AFGHANISTAN	MANUFACTURING
AFGHANISTAN BEVERAGE INDUSTRIES (ABI GROUP, LIMITED)	AFGHANISTAN	MANUFACTURING
AFGHANISTAN BEVERAGE INDUSTRIES (ABI GROUP, LIMITED)	AFGHANISTAN	MANUFACTURING
AFGHANISTAN NATURAL BEVERAGES	AFGHANISTAN	MANUFACTURING
NOT APPLICABLE	AFGHANISTAN	MANUFACTURING
ASIA FOUNDATION	AFGHANISTAN	SERVICES
ASIA FOUNDATION	AFGHANISTAN	SERVICES
INTERNATIONAL RESCUE COMMITTEE, INC.	AFGHANISTAN	SERVICES
INTERNATIONAL RESCUE COMMITTEE, INC.	AFGHANISTAN	SERVICES
N/A	AFGHANISTAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	AFGHANISTAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	AFGHANISTAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	AFGHANISTAN	SERVICES
KWABA - SOCIEDADE INDUSTRIAL E COMERCIAL, S.A.R.L.	ANGOLA	MANUFACTURING
N/A	ANGOLA	SERVICES
S&N PUMP AFRICA LDA	ANGOLA	SERVICES
FINCA LA CRUZ	ARGENTINA	AGRICULTURE
N/A	ARMENIA	SERVICES
THE BAKU-TBILISI-CEYHAN PIPELINE COMPANY	AZERBAIJAN	ENERGY - OIL AND GAS
CREDAGRO	AZERBAIJAN	FINANCIAL SERVICES
INKISHAF UNCHUN MALIYYE ("FINDEV")	AZERBAIJAN	FINANCIAL SERVICES
NORWEGIAN MICROCREDIT LLC ("NORMICRO")	AZERBAIJAN	FINANCIAL SERVICES
INTERNATIONAL RESCUE COMMITTEE, INC.	AZERBAIJAN	SERVICES
N/A	AZERBAIJAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	AZERBAIJAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	AZERBAIJAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	AZERBAIJAN	SERVICES
N/A	BANGLADESH	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	BANGLADESH	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	BANGLADESH	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	BANGLADESH	SERVICES

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>Insurance</b>		
THE ASIA FOUNDATION	BANGLADESH	SERVICES
THE ASIA FOUNDATION	BANGLADESH	SERVICES
WEST AFRICAN GAS PIPELINE COMPANY LIMITED	BENIN	ENERGY - OIL AND GAS
AXS BOLIVIA S.A.	BOLIVIA	COMMUNICATION
FUNDACIÓN BOLIVIANA PARA EL DESARROLLO DE LA MUJER	BOLIVIA	FINANCIAL SERVICES
FUNDACIÓN BOLIVIANA PARA EL DESARROLLO DE LA MUJER	BOLIVIA	FINANCIAL SERVICES
EMPRESA MINERA MANQUIRI S.A.	BOLIVIA	MINING
MIKROKREDITNA ORGANIZACIJA MI-BOSPO	BOSNIA-HERZEGOVINA	FINANCIAL SERVICES
INTERNATIONAL RESCUE COMMITTEE, INC.	BOSNIA-HERZEGOVINA	SERVICES
N/A	BOSNIA-HERZEGOVINA	SERVICES
BRASIL TELECOM, S.A.	BRAZIL	COMMUNICATION
RURALFONE DO BRASIL, LTDA.	BRAZIL	COMMUNICATION
RURALFONE DO BRASIL, LTDA.	BRAZIL	COMMUNICATION
RURALFONE DO BRASIL, LTDA.	BRAZIL	COMMUNICATION
RURALFONE DO BRASIL, LTDA.	BRAZIL	COMMUNICATION
RURALFONE DO BRASIL, LTDA.	BRAZIL	COMMUNICATION
RURALFONE DO BRASIL, LTDA.	BRAZIL	COMMUNICATION
RURALFONE DO BRASIL, LTDA.	BRAZIL	COMMUNICATION
BANCO PINE	BRAZIL	FINANCIAL SERVICES
ACAI DO AMAPA AGROINDUSTRIAL LTDA.	BRAZIL	MANUFACTURING
INTERNATIONAL RESCUE COMMITTEE	BURUNDI	SERVICES
THE ASIA FOUNDATION	CAMBODIA	SERVICES
THE ASIA FOUNDATION	CAMBODIA	SERVICES
NATURA BEVERAGE SARL	CAMEROON	MANUFACTURING
INTERNATIONAL RESCUE COMMITTEE, INC. BRANCH OFFICES	CENTRAL AFRICAN REPUBLIC	SERVICES
TERMOVALLE S.C.A. .E.S.P.	COLOMBIA	ENERGY - POWER
TERMOVALLE S.C.A. E.S.P.	COLOMBIA	ENERGY - POWER
SECTOR RESOURCES, LTD. BRANCH	COLOMBIA	MINING
SECTOR RESOURCES, LTD. BRANCH	COLOMBIA	MINING
INTERNATIONAL RESCUE COMMITTEE	COLOMBIA	SERVICES
MINOTERIE DU CONGO, S.A.	CONGO	MANUFACTURING
MINOTERIE DU CONGO, S.A.	CONGO	MANUFACTURING
INTERNATIONAL RESCUE COMMITTEE, INC.	CONGO	SERVICES
INTERNATIONAL RESCUE COMMITTEE, INC. BRANCH OFFICES	CONGO	SERVICES

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b><i>Insurance</i></b>		
MINOTERIE DE MATADI, S.A.R.L.	CONGO, DEM. REPUBLIC OF	MANUFACTURING
MINOTERIE DE MATADI, S.A.R.L.	CONGO, DEM. REPUBLIC OF	MANUFACTURING
MINOTERIE DE MATADI, S.A.R.L.	CONGO, DEM. REPUBLIC OF	MANUFACTURING
INTERNATIONAL RESCUE COMMITTEE, INC. BRANCH OFFICES	CONGO, DEM. REPUBLIC OF	SERVICES
COLITE COSTA RICA, S.A.	COSTA RICA	SERVICES
FOXTROT INTERNATIONAL LDC	COTE DIVOIRE	ENERGY - OIL AND GAS
FOXTROT INTERNATIONAL LDC	COTE DIVOIRE	ENERGY - OIL AND GAS
PROFICIO D.D.	CROATIA	FINANCIAL SERVICES
DOMINICA ELECTRICITY SERVICES LTD. ("DOMLEC")	DOMINICA	ENERGY - POWER
THE ASIA FOUNDATION	EAST TIMOR	SERVICES
THE ASIA FOUNDATION	EAST TIMOR	SERVICES
D-MIRO, MISIÓN ALIANZA-ECUADOR, VÍA PERIMETRAL, ISLA	ECUADOR	FINANCIAL SERVICES
D-MIRO, MISIÓN ALIANZA-ECUADOR, VÍA PERIMETRAL, ISLA	ECUADOR	FINANCIAL SERVICES
D-MIRO, MISIÓN ALIANZA-ECUADOR, VÍA PERIMETRAL, ISLA	ECUADOR	FINANCIAL SERVICES
D-MIRO, MISIÓN ALIANZA-ECUADOR, VÍA PERIMETRAL, ISLA	ECUADOR	FINANCIAL SERVICES
D-MIRO, MISIÓN ALIANZA-ECUADOR, VÍA PERIMETRAL, ISLA	ECUADOR	FINANCIAL SERVICES
D-MIRO, MISIÓN ALIANZA-ECUADOR, VÍA PERIMETRAL, ISLA	ECUADOR	FINANCIAL SERVICES
CORPORACION QUIPORT S.A.	ECUADOR	TRANSPORTATION
CORPORACION QUIPORT S.A.	ECUADOR	TRANSPORTATION
N/A	EGYPT	ENERGY - OIL AND GAS
VARIOUS APACHE EGYPT CONCESSION SUBSIDIARIES	EGYPT	ENERGY - OIL AND GAS
COLITE EL SALVADOR S.A., C/O RUSCONI -	EL SALVADOR	SERVICES
INTERNATIONAL RESCUE COMMITTEE - ERITREA	ERITREA	SERVICES
INTERNATIONAL RESCUE COMMITTEE - BRANCH OFFICES	ERITREA	SERVICES
N/A	ETHIOPIA	SERVICES
AMERICAN DREAM HOME, S.C.I.	GABON	CONSTRUCTION
JSC TBC BANK	GEORGIA	FINANCIAL SERVICES
N/A	GEORGIA	SERVICES
WEST AFRICAN GAS PIPELINE COMPANY LIMITED	GHANA	ENERGY - OIL AND GAS



<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b><i>Insurance</i></b>		
GHANA HOME LOANS (FUND I) LIMITED	GHANA	FINANCIAL SERVICES
SINAPI ABA TRUST	GHANA	FINANCIAL SERVICES
INTERNATIONAL COMMUNITY SCHOOL, LIMITED	GHANA	SERVICES
N/A	GHANA	SERVICES
GRENADA ELECTRICITY SERVICES LIMITED	GRENADA	ENERGY - POWER
COLITE GUATEMALA, S.A.	GUATEMALA	SERVICES
INTERNATIONAL RESCUE COMMITTEE, INC. - GUINEA	GUINEA	SERVICES
LES MOULINS D'HAITI S.E.M. (LMH)	HAITI	MANUFACTURING
LES MOULINS D'HAITI S.E.M. (LMH)	HAITI	MANUFACTURING
N/A	HAITI	SERVICES
COLITE HONDURAS, S.A.	HONDURAS	SERVICES
SEP ENERGY INDIA PVT. LTD.	INDIA	ENERGY - POWER
SEP ENERGY INDIA PVT. LTD.	INDIA	ENERGY - POWER
PT TUCAN PUMPCO SERVICES INDONESIA	INDONESIA	ENERGY - OIL AND GAS
INTERNATIONAL RESCUE COMMITTEE - JAKARTA	INDONESIA	SERVICES
JL. ADITYAWARMAN	INDONESIA	SERVICES
JL. ADITYAWARMAN	INDONESIA	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	INDONESIA	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	INDONESIA	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	INDONESIA	SERVICES
KHUDAIRI TRADING COMPANY LTD.	IRAQ	SERVICES
DAR ES SALAAM INSURANCE COMPANY	IRAQ	TOURISM/HOTELS
DISI WATER PSC	JORDAN	SERVICES
N/A	JORDAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICES	JORDAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICES	JORDAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICES	JORDAN	SERVICES
THE INTERNATIONAL RESCUE COMMITTEE	JORDAN	SERVICES
N/A	KAZAKHSTAN	SERVICES
INTERNATIONAL RESCUE COMMITTEE - KENYA	KENYA	SERVICES
N/A	KENYA	SERVICES
GENWORTH MORTGAGE INSURANCE CORP, KOREA	KOREA (SOUTH)	FINANCIAL SERVICES
THE ASIA FOUNDATION	KOREA (SOUTH)	SERVICES
THE ASIA FOUNDATION	KOREA (SOUTH)	SERVICES

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>Insurance</b>		
EQUATE PETROCHEMICAL COMPANY K.S.C. (CLOSED)	KUWAIT	MANUFACTURING
KOMPANION FINANCIAL GROUP MICRO CREDIT LIMITED LIABILITY CO.	KYRGYZ REPUBLIC	FINANCIAL SERVICES
KOMPANION FINANCIAL GROUP MICRO CREDIT LIMITED LIABILITY CO.	KYRGYZ REPUBLIC	FINANCIAL SERVICES
JOINT VENTURE ITALKYR CJSC	KYRGYZ REPUBLIC	TOURISM/HOTELS
JOINT VENTURE ITALKYR CJSC	KYRGYZ REPUBLIC	TOURISM/HOTELS
JOINT VENTURE ITALKYR CJSC	KYRGYZ REPUBLIC	TOURISM/HOTELS
BANK AUDI SAL-AUDI SARADAR GROUP	LEBANON	FINANCIAL SERVICES
AMERICAN UNIVERSITY OF BEIRUT	LEBANON	SERVICES
N/A	LEBANON	SERVICES
N/A	LEBANON	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICES	LEBANON	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICES	LEBANON	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICES	LEBANON	SERVICES
LESOTHO FLOUR MILLS LIMITED	LESOTHO	MANUFACTURING
NATIONWIDE GROUP OF COMPANIES, INC.	LIBERIA	MANUFACTURING
INTERNATIONAL RESCUE COMMITTEE	LIBERIA	SERVICES
KWAPLAH INTERNATIONAL (LIBERIA), INC.	LIBERIA	SERVICES
KWAPLAH INTERNATIONAL (LIBERIA), INC.	LIBERIA	SERVICES
RLJ LIBERIA LLC	LIBERIA	TOURISM/HOTELS
WADE RAIN DE MEXICO, S. DE R.L. DE C.V.	MEXICO	SERVICES
N/A	MOLDOVA	SERVICES
THE ASIA FOUNDATION	MONGOLIA	SERVICES
THE ASIA FOUNDATION	MONGOLIA	SERVICES
N/A	MOROCCO	SERVICES
N/A	MOZAMBIQUE	SERVICES
INTERNATIONAL RESCUE COMMITTEE	NEPAL	SERVICES
THE ASIA FOUNDATION	NEPAL	SERVICES
THE ASIA FOUNDATION	NEPAL	SERVICES
SOUTHERN COASTAL PROPERTIES NICARAGUA, S.A., C/O FERNANDO	NICARAGUA	CONSTRUCTION
MKJ EXPLORACIONES INTERNACIONALES, S.A.	NICARAGUA	ENERGY - OIL AND GAS
MKJ EXPLORACIONES INTERNACIONALES, S.A.	NICARAGUA	ENERGY - OIL AND GAS
MKJ EXPLORACIONES INTERNACIONALES, S.A.	NICARAGUA	ENERGY - OIL AND GAS

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>Insurance</b>		
MKJ EXPLORACIONES INTERNACIONALES, S.A.	NICARAGUA	ENERGY - OIL AND GAS
MKJ EXPLORACIONES INTERNACIONALES, S.A.	NICARAGUA	ENERGY - OIL AND GAS
N/A	NICARAGUA	ENERGY - OIL AND GAS
N/A	NICARAGUA	ENERGY - OIL AND GAS
N/A	NICARAGUA	ENERGY - OIL AND GAS
N/A	NICARAGUA	ENERGY - OIL AND GAS
N/A	NICARAGUA	ENERGY - OIL AND GAS
N/A	NICARAGUA	ENERGY - OIL AND GAS
BANCO DE CREDITO CENTROAMERICANO, S.A.	NICARAGUA	FINANCIAL SERVICES
FONDO NICARAGUENSE PARA EL DESARROLLO COMUNITARIO	NICARAGUA	FINANCIAL SERVICES
COLITE NICARAGUA S.A.	NICARAGUA	SERVICES
N/A	NICARAGUA	SERVICES
AES NIGERIA BARGE LIMITED	NIGERIA	ENERGY - POWER
CONTOURGLOBAL SOLUTIONS (NIGERIA) LTD.	NIGERIA	ENERGY - POWER
CONTOURGLOBAL SOLUTIONS (NIGERIA) LTD.	NIGERIA	ENERGY - POWER
COCA-COLA NIGERIA LIMITED	NIGERIA	MANUFACTURING
AMERICAN INTERNATIONAL SCHOOL OF ABUJA	NIGERIA	SERVICES
AMERICAN INTERNATIONAL SCHOOL OF ABUJA	NIGERIA	SERVICES
N/A	NIGERIA	SERVICES
HABIBULLAH COASTAL POWER (PRIVATE) COMPANY	PAKISTAN	ENERGY - POWER
PAKISTAN WATER AND POWER DEVELOPMENT AUTHORITY ("WAPDA")	PAKISTAN	MANUFACTURING
PAKISTAN WATER AND POWER DEVELOPMENT AUTHORITY ("WAPDA")	PAKISTAN	MANUFACTURING
DIRECTORATE GENERAL PROCUREMENT	PAKISTAN	SERVICES
INTERNATIONAL RESCUE COMMITTEE - PAKISTAN	PAKISTAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	PAKISTAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	PAKISTAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	PAKISTAN	SERVICES
SWEETWATER PAKISTAN (PRIVATE) LTD.	PAKISTAN	SERVICES
THE ASIA FOUNDATION	PAKISTAN	SERVICES
THE ASIA FOUNDATION	PAKISTAN	SERVICES

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b><i>Insurance</i></b>		
COLITE PANAMA, S.A.	PANAMA	SERVICES
N/A	PARAGUAY	SERVICES FINANCIAL
FINANCIERA TFC, S.A.	PERU	SERVICES
GLOBOKAS PERU S.A.C.	PERU	MANUFACTURING
GLOBOKAS PERU S.A.C.	PERU	MANUFACTURING
N/A	PERU	SERVICES
TOTAL ARTEFACTOS S.A.	PERU	SERVICES
CE CASECNAN WATER AND ENERGY COMPANY, INC.	PHILIPPINES	ENERGY - POWER
CE CASECNAN WATER AND ENERGY COMPANY, INC.	PHILIPPINES	ENERGY - POWER
NATIONAL POWER CORPORATION ("NAPOCOR")	PHILIPPINES	ENERGY - POWER
MIDAMERICAN ENERGY HOLDINGS CO	PHILIPPINES	ENERGY - POWER FINANCIAL
SEEDFINANCE CORPORATION	PHILIPPINES	SERVICES
N/A	PHILIPPINES	SERVICES
THE ASIA FOUNDATION	PHILIPPINES	SERVICES
THE ASIA FOUNDATION	PHILIPPINES	SERVICES
ASIA FOUNDATION	RISK	SERVICES
INTERNATIONAL RESCUE COMMITTEE	RISK	SERVICES
S.C. EMPIRE TOWER S.R.L.	ROMANIA	CONSTRUCTION
OPEN JOINT STOCK COMPANY TERMINAL	RUSSIA	CONSTRUCTION FINANCIAL
OOO MORGAN STANLEY BANK	RUSSIA	SERVICES
INSTRUM-RAND	RUSSIA	MANUFACTURING
INSTRUM-RAND	RUSSIA	MANUFACTURING
ZAO "ISP OPTICS, SAINT-PETERSBURG"	RUSSIA	MANUFACTURING
INTERNATIONAL RESCUE COMMITTEE, INC.	RUSSIA	SERVICES
MINISTRY OF HEALTH OF SAMARA OBLAST	RUSSIA	SERVICES
SAMARA OBLAST	RUSSIA	SERVICES
SORWATHE S.A.R.L.	RWANDA	MANUFACTURING
INTERNATIONAL RESCUE COMMITTEE, INC.	RWANDA	SERVICES
MINISTRY OF INTERIOR AFFAIRS OF THE REPUBLIC OF SERBIA	SERBIA	COMMUNICATION
INTERNATIONAL RESCUE COMMITTEE, INC. - BRANCH OFFICES	SIERRA LEONE	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	SOMALIA	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	SOMALIA	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	SOMALIA	SERVICES

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b><i>Insurance</i></b>		
GRANTON SAFARIS CC	SOUTH AFRICA	AGRICULTURE
N/A	SOUTH AFRICA	SERVICES
MATH HYDRO POWER (PVT) LIMITED	SRI LANKA	ENERGY - POWER
RELIEF INTERNATIONAL BRANCH OFFICES	SRI LANKA	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICES	SRI LANKA	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICES	SRI LANKA	SERVICES
THE ASIA FOUNDATION	SRI LANKA	SERVICES
THE ASIA FOUNDATION	SRI LANKA	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	TAJIKISTAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	TAJIKISTAN	SERVICES
RELIEF INTERNATIONAL BRANCH OFFICE	TAJIKISTAN	SERVICES
ENTERPRISE HOMES TANZANIA LIMITED, CARE OF ISHENGOMA, MASHA	TANZANIA	CONSTRUCTION
ENTERPRISE HOMES TANZANIA LIMITED, CARE OF ISHENGOMA, MASHA	TANZANIA	CONSTRUCTION
MUTUAL VENTURES LIMITED	TANZANIA	CONSTRUCTION
INTERNATIONAL RESCUE COMMITTEE, INC. BRANCH OFFICES	TANZANIA	SERVICES
N/A	TANZANIA	SERVICES
IRC BRANCH OFFICE	THAILAND	SERVICES
THE ASIA FOUNDATION BRANCH OFFICES	THAILAND	SERVICES
THE ASIA FOUNDATION BRANCH OFFICES	THAILAND	SERVICES
WEST AFRICAN GAS PIPELINE COMPANY LIMITED	TOGO	ENERGY - OIL AND GAS
CONTOURGLOBAL TOGO S.A.	TOGO	ENERGY - POWER
AMERICAN COOPERATIVE SCHOOL OF TUNIS (ACST) ASSOCIATION	TUNISIA	SERVICES
THE AMERICAN COOPERATIVE SCHOOL OF TUNISIA	TUNISIA	SERVICES
THE AMERICAN COOPERATIVE SCHOOL OF TUNISIA	TUNISIA	SERVICES
GENERAL DIRECTORATE OF HIGHWAYS	TURKEY	CONSTRUCTION
DOGA ENERJI URETIM SANAYI VE TICARET L.S.	TURKEY	ENERGY - POWER
ASYA KATILIM BANKASI A.S.	TURKEY	FINANCIAL SERVICES
M/N BUTLER MIMARLAR ARASTIRMA TASARI VE YAPI LTD. STI.	TURKEY	TOURISM/HOTELS
M/N BUTLER MIMARLAR ARASTIRMA TASARI VE YAPI LTD. STI.	TURKEY	TOURISM/HOTELS
M/N BUTLER MIMARLAR ARASTIRMA TASARI VE YAPI LTD. STI.	TURKEY	TOURISM/HOTELS

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b><i>Insurance</i></b>		
CAICOS TELEVISION HOLDINGS LTD.	TURKEY & CAICOS ISLANDS	COMMUNICATION
INTERNATIONAL RESCUE COMMITTEE, INC. - BRANCH OFFICES	UGANDA	SERVICES
A. STUCKI - RAIL	UKRAINE	MANUFACTURING
A. STUCKI - RAIL	UKRAINE	MANUFACTURING
A. STUCKI RAIL	UKRAINE	MANUFACTURING
A. STUCKI RAIL	UKRAINE	MANUFACTURING
N/A	UKRAINE	SERVICES
UNIVERSAL STAR CO.	UKRAINE	SERVICES
EL SALADERO, UY SRL	URUGUAY	AGRICULTURE
TASHKENT INTERNATIONAL SCHOOL	UZBEKISTAN	SERVICES
KHIVA MALIKASI, LLC	UZBEKISTAN	TOURISM/HOTELS
KHIVA MALIKASI, LLC	UZBEKISTAN	TOURISM/HOTELS
MALIKA BARIKHASI, LLC/MALIKA HOTEL BUKHARA	UZBEKISTAN	TOURISM/HOTELS
CONSOLIDADA DE FERRYS C.A. (CONFERRY)	VENEZUELA	TRANSPORTATION
CONSOLIDADA DE FERRYS C.A. (CONFERRY)	VENEZUELA	TRANSPORTATION
CONSOLIDADA DE FERRYS, C. A. (CONFERRY)	VENEZUELA	TRANSPORTATION
VIETNAMNET MEDIA JOINT STOCK COMPANY	VIETNAM	COMMUNICATION
KIDWELL INTERNATIONAL POWER VIETNAM COMPANY LIMITED	VIETNAM	ENERGY - POWER
N/A	VIETNAM	SERVICES
GAZA POWER GENERATING PRIVATE LIMITED COMPANY	WEST BANK & GAZA	ENERGY - POWER
GAZA POWER GENERATING PRIVATE LIMITED COMPANY	WEST BANK & GAZA	ENERGY - POWER
N/A	WEST BANK & GAZA	SERVICES
RELIEF INTERNATIONAL HEBRON CENTER OF EXCELLENCE	WEST BANK & GAZA	SERVICES
RELIEF INTERNATIONAL HEBRON CENTER OF EXCELLENCE	WEST BANK & GAZA	SERVICES
RELIEF INTERNATIONAL HEBRON CENTER OF EXCELLENCE	WEST BANK & GAZA	SERVICES
NATIONAL MILLING COMPANY LIMITED	ZAMBIA	MANUFACTURING
HILL ESTATES LIMITED, P.O. BOX 31617	ZAMBIA	SERVICES
HILL ESTATES LIMITED, P.O. BOX 31617	ZAMBIA	SERVICES
N/A	ZAMBIA	SERVICES
MERODENT ZIMBABWE (PVT.) LTD.	ZIMBABWE	MANUFACTURING

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b><i>Insurance</i></b>		
MERODENT ZIMBABWE (PVT.) LTD.	ZIMBABWE	MANUFACTURING
MERODENT ZIMBABWE (PVT.) LTD.	ZIMBABWE	MANUFACTURING
MERODENT ZIMBABWE (PVT.) LTD.	ZIMBABWE	MANUFACTURING

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b>FUNDS</b>		
ACF INVESTMENTS B, LTD	LATIN AMERICA REGIONAL	FIN
ACF INVESTMENTS, LTD	LATIN AMERICA REGIONAL	FIN
ACF INVESTORS, LTD.	LATIN AMERICA REGIONAL	FIN
ACTIS SOUTH ASIA FUND 2, L.P.	ASIA REGIONAL	FIN
AFRICA TELECOM, MEDIA & TECHNOLOGY FUND LLC	AFRICA REGIONAL	FIN
ALISIS LATIN AMERICA FUND, L.P.	LATIN AMERICA REGIONAL	FIN
AQUA PARTNERS LP	ALL OPIC COUNTRIES	FIN
ASIA DEVELOPMENT PARTNERS II, L.P.	ASIA REGIONAL	FIN
ASIA DEVELOPMENT PARTNERS, L.P.	ASIA REGIONAL	FIN
BANCROFT EASTERN EUROPE FUND LP	EUROPE REGIONAL	FIN
CAPITAL ALLIANCE PROPERTY INVESTMENT CO., LP	NIGERIA	FIN
CLEARWATER CAPITAL PARTNERS INVESTMENTSII LP	ASIA REGIONAL	FIN
DARBY LATIN AMERICAN HOLDINGS, L.P.	LATIN AMERICA REGIONAL	FIN
DARBY PROBANCO II FUND	LATIN AMERICA REGIONAL	FIN
DRAPER INTERNATIONAL INDIA FUND	INDIA	FIN
ECP AFRICA FIII INVESTMENT LLC	AFRICA REGIONAL	FIN
ECP AFRICA FUND II INVESTMENTS LLC	AFRICA REGIONAL	FIN
ECP MENA GROWTH INVESTMENTS, LLC	MIDDLE EAST REGIONAL	FIN
ETHOS PRIVATE EQUITY FUND V	AFRICA REGIONAL	FIN
EUROMENA FUND II, L.P.	MIDDLE EAST REGIONAL	FIN
FONDO ALSIS MEXICO DE VIVIENDA DE INTERES SO	LATIN AMERICA REGIONAL	FIN
FOURSAN CAPITAL PARTNERS I	JORDAN	FIN
GLOBAL ENVIRONMENT EMERGING MARKET FUND	ALL OPIC COUNTRIES	FIN
GLOBAL ENVIRONMENT EMERGING MARKETS FUND, II	ALL OPIC COUNTRIES	FIN
GREYLOCK AFRICA OPPORTUNITY FUND I	AFRICA REGIONAL	FIN
HELIOS SUB-SAHARAN AFRICA FUND I, L.P.	AFRICA REGIONAL	FIN
INDIA PRIVATE EQUITY FUND	INDIA	FIN
ISRAEL GROWTH FUND	ISRAEL	FIN
LATIN POWER TRUST III, L.P.	LATIN AMERICA REGIONAL	FIN
MILLENNIUM GLOBAL AFRICA OPPORTUNITIES FUND	AFRICA REGIONAL	FIN
MODERN AFRICA GROWTH AND INVESTMENT COMPANY	AFRICA REGIONAL	FIN
MODERN AFRICA GROWTH AND INVESTMENT FUND 2	AFRICA REGIONAL	FIN
NEW CENTURY CAPITAL PARTNERS, L.P.	NIS REGIONAL	FIN
NEW CENTURY CAPITAL PARTNERS, L.P.	EUROPE REGIONAL	FIN
PALADIN REALTY EURASIA INVESTORS, L.P.	TURKEY	FIN
PALADIN REALTY LATIN AMERICA INVESTORS II,LP	LATIN AMERICA REGIONAL	FIN
PALADIN REALTY LATIN AMERICA INVESTORS III	LATIN AMERICA REGIONAL	FIN



RUSSIA PARTNERS COMPANY, L.P.	NIS REGIONAL	FIN
RUSSIA PARTNERS COMPANY, L.P.	NIS REGIONAL	FIN
RUSSIA PARTNERS II "O" SERIES, L.P.	NIS REGIONAL	FIN
SAWHF PVE (SA)	SOUTH AFRICA	FIN
SOUTH AMERICA PRIVATE EQUITY GROWTH FUND, LP	LATIN AMERICA REGIONAL	FIN
SOUTHEAST EUROPE EQUITY FUND II, L.P.	EUROPE REGIONAL	FIN
THE GREAT CIRCLE FUND L.P. (MISF)	ALL OPIC COUNTRIES	FIN
VIRGIN GREEN FUND GLOBAL I, L.P.	ALL OPIC COUNTRIES	FIN

**TABLE A-2: INITIAL SHORT LIST**

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b><i>FINANCE- New Project 2008</i></b>		
PACIFIC COLLECTION COMPANY/TRIBAL LOOM	AFGHANISTAN	MFR
SUSTAINABLE ENERGY SERVICES AFGHANISTAN	AFGHANISTAN	POWER
TIVANNAH GLOBAL LDA	ANGOLA	MFR
JSC IBERIA REAL ESTATE	GEORGIA	CONS
SLID INDUSTRIES, LTD.	GHANA	MFR
CEMA ELECTRIC LIGHTING PRODUCTS INDIA PVT LT	INDIA	MFR
AZURE POWER PUNJAB PRIVATE LIMITED	INDIA	POWER
HUSK POWER SYSTEMS, INC.	INDIA	POWER
EPISCOPAL CHURCH OF JERUSALEM & THE MIDDLE E	ISRAEL	CONS
RLJ LIBERIA, LLC	LIBERIA	CONS
BUCHANAN RENEWABLES FUEL INC.	LIBERIA	MFR
BUCHANAN RENEWABLES (MONROVIA) POWER INC.	LIBERIA	POWER
IKH TOKHOIROL XXX	MONGOLIA	MINE
AMTECH SP.ZO.O	POLAND	CONS
DT METAL GERI KAZANIM TEKNOLOJILERI SANAYI	TURKEY	MFR
WBC-FERSAN FERMANTASYON URUN SAN. VE TIC.A.S	TURKEY	MFR
WBC-KAYNAK SULARI VE TURIZM A.S.	TURKEY	MFR
O&S CONSULTING, L.L.C.	UZBEKISTAN	CONS
<b><i>FINANCE- Included in 2007 Inventory</i></b>		
NEPC CONSORTIUM POWER LTD.(HARIPUR)	BANGLADESH	POWER
PAITON ENERGY COMPANY	INDONESIA	POWER
AES JORDAN PSC	JORDAN	POWER
NGL FUNDING LIMITED	NIGERIA	OIL
E.P. INTEROIL, LTD.	PAPUA NEW GUINEA	MFR
ADAPAZARI ELEKTRIK URETIM LTD. SIRKETI	TURKEY	POWER
DOGA ENERJI	TURKEY	POWER
GEBZE ELEKTRIK URETIM LTD SIRKETI	TURKEY	POWER
IZMIR ELEKTRIK URETIM LTD SIRKETI	TURKEY	POWER
ACCROVEN SRL	VENEZUELA	OIL
WILPRO ENERGY SERVICES (EL FURRIAL) LIMITED	VENEZUELA	OIL
WILPRO ENERGY SERVICES (PIGAP II) LTD.	VENEZUELA	OIL

<b>Project Name</b>	<b>Country</b>	<b>Sector</b>
<b><i>Insurance- New Project 2008</i></b>		
AMERICAN DREAM HOME, S.C.I.	GABON	CONSTRUCTION
CONTOURGLOBAL SOLUTIONS (NIGERIA) LTD.	NIGERIA	ENERGY - POWER
GLOBOKAS PERU S.A.C.	PERU	MANUFACTURING
<b><i>Insurance- Included in 2007 Inventory</i></b>		
THE BAKU-TBILISI-CEYHAN PIPELINE COMPANY	AZERBAIJAN	ENERGY - OIL AND GAS
FOXTROT INTERNATIONAL LDC	COTE DIVOIRE	ENERGY - OIL AND GAS
VARIOUS APACHE EGYPT CONCESSION SUBSIDIARIES	EGYPT	ENERGY - OIL AND GAS
WEST AFRICAN GAS PIPELINE COMPANY LIMITED	GHANA	ENERGY - OIL AND GAS
GRENADA ELECTRICITY SERVICES LIMITED	GRENADA	ENERGY - POWER
EQUATE PETROCHEMICAL COMPANY K.S.C. (CLOSED)	KUWAIT	MANUFACTURING
AES NIGERIA BARGE LIMITED	NIGERIA	ENERGY - POWER
HABIBULLAH COASTAL POWER (PRIVATE) COMPANY	PAKISTAN	ENERGY - POWER
PAKISTAN WATER AND POWER DEVELOPMENT AUTHORITY ("WAPDA")	PAKISTAN	MANUFACTURING
DOGA ENERJI URETIM SANAYI VE TICARET L.S.	TURKEY	ENERGY - POWER
GAZA POWER GENERATING PRIVATE LIMITED COMPANY	WEST BANK & GAZA	ENERGY - POWER
<b><i>Funds- Included in 2007 Inventory</i></b>		
LATIN POWER TRUST III, L.P.	LATIN AMERICA REGIONAL	FIN

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## APPENDIX B

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This Appendix contains the inputs, sources of those inputs, and calculations utilized to estimate the maximum Potential to Emit (PTE) for each of the projects in OPIC's 2008 GHG Inventory. If sponsor feedback was submitted, the 2008 operational emissions estimate was also included.

### **TIER A PROJECTS – BASED ON SPONSOR PROVIDED THROUGHPUT**

#### ***AES Nigeria Barge (A1)***

##### Maximum Potential to Emit Estimate

AES Nigeria Barge's emissions estimate of **1,603,307 short tons CO<sub>2</sub>** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	Project Description
Capacity	270 MW	Project Description
Consumption	80 Mcf/day	Project Description
Heat Content Natural Gas	1,029 Btu/scf	The Climate Registry, Table 12.1
Emission Factor	53.06kg CO <sub>2</sub> /MMBtu	The Climate Registry, Table 12.1

Consumption based maximum potential to emit = 1,603,307 short tons CO<sub>2</sub> per year

$$\frac{80\text{Mcf}}{\text{day}} * \frac{333\text{days}}{\text{yr}} * \frac{1029\text{Btu}}{\text{scf}} * \frac{53.06 \text{ kgCO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

##### 2007 Operational Estimate Based On Sponsor Feedback

AES Nigeria Barge's 2007 operational emissions of **1,166,398 short tons CO<sub>2</sub>** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	Project Description
Capacity	270 MW	Project Description
Consumption	58.165 Mcf/day	Project Sponsor
Emission Factor	53.06kg CO <sub>2</sub> /MMBtu	The Climate Registry, Table 12.1

Consumption based emissions = 1,166,398 short tons CO<sub>2</sub> per year

$$\frac{58.165\text{Mcf}}{\text{day}} * \frac{333\text{days}}{\text{yr}} * \frac{1029\text{Btu}}{\text{scf}} * \frac{53.06 \text{ kgCO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

2008 Operational Estimate Based On Sponsor Feedback

AES Nigeria Barge's 2008 operational emissions of **1,341,157 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	270 MW	Project Description
Consumption	66.92 Mcf/day	Project Sponsor
Emission Factor	53.06kg CO2/MMBtu	The Climate Registry, Table 12.1

Consumption based emissions = 1,341,157 short tons CO2 per year

$$\frac{66.92 \text{ Mcf}}{\text{day}} * \frac{333 \text{ days}}{\text{yr}} * \frac{1029 \text{ Btu}}{\text{scf}} * \frac{53.06 \text{ kgCO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

***AES Jordan (A3)***

Maximum Potential to Emit Estimate

AES Jordan's emissions estimate of **1,288,809 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	370 MW	Project Description
Emission Factor for Emissions Estimate from Capacity	395 g CO2/kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 1,288,809 short tons CO2 per year

$$370 \text{ MW} * \frac{1000 \text{ kW}}{\text{MW}} * \frac{8000 \text{ hr}}{\text{yr}} * \frac{395 \text{ gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

2007 Operational Estimate Based On Sponsor Feedback

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 is omitted from the 2007 inventory.

2008 Operational Estimate Based On Sponsor Feedback

AES Jordan's emissions estimate for 2008 of **590,940 short tons CO2** 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 CO2/MMBtu	TCR, Table 12.1

Capacity based maximum potential to emit = 590,940 short tons CO2 per year

$$10,103,603 \text{ MMBtu} * \frac{53.06 \text{ kg CO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

### ***Doga Enerji (A4)***

#### Maximum Potential to Emit Estimate

Doga Enerji's emissions estimate of **816,057 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	180 MW	Project Description
Consumption	48,000 m3/hour	Project Description
Heat Content Natural Gas	1,029 Btu/scf	The Climate Registry, Table 12.1
Emission Factor	53.06kg CO2/MMBtu	The Climate Registry, Table 12.1
Conversion Factor	251.98 cal/Btu	Perry's Chemical Engineering Hand Book, Table 1-7

Consumption based maximum potential to emit = 816,057 short tons CO2 per year

$$\frac{48000\text{m}^3}{\text{hr}} * \frac{8000\text{hr}}{\text{yr}} * \frac{\text{scf}}{0.02832\text{m}^3} * \frac{1029\text{Btu}}{\text{scf}} * \frac{\text{MMBtu}}{1000000\text{Btu}} * \frac{53.06 \text{ kgCO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

Doga Enerji's 2007 operational emissions of **740,756 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	180 MW	Project Description
Annual Fuel Consumption	347,644,124 Sm3	Project Actual Data 2007
Heat Content Natural Gas	9180 kcal/Sm3	Agreement with local Natural Gas supplier (BOTAS)
Emission Factor	53.06kg CO2/MMBtu	The Climate Registry, Table 12.1

Consumption based emissions = 740,756 short tons CO2 per year

$$\frac{347644124 \text{ Sm}^3}{\text{yr}} * \frac{9180 \text{ kcal}}{\text{Sm}^3} * \frac{1 \text{ Btu}}{951.98 \text{ cal}} * \frac{1000 \text{ cal}}{\text{kcal}} * \frac{\text{MMBtu}}{1000000\text{Btu}} * \frac{53.06 \text{ kgCO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

#### 2008 Operational Estimate Based On Sponsor Feedback

Per Sponsor feedback, emissions and operational factors have not changed.

### ***Jorf Lasfar Energy (A10)***

#### Maximum Potential to Emit Estimate

Jorf Lasfar Energy's emissions estimate of **14,268,496 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Coal	Project Description
Capacity	1,356 MW	Project Description
Consumption	630,000 kg/hr	Additional Project Description Details from OPIC
Coal Type	Bituminous	IEA, Coal in Morocco in 2006
Heat Content Coal	24.93 MMBtu/short ton	The Climate Registry, Table 12.1
Emission Factor	93.46 kg CO2/MMBtu	The Climate Registry, Table 12.1

Consumption based maximum potential to emit = 14,268,496 short tons CO2 per year

$$\frac{630,000 \text{ kg}}{\text{hr}} * \frac{8000 \text{ hr}}{\text{yr}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} * \frac{24.93 \text{ MMBtu}}{\text{short ton}} * \frac{93.46 \text{ kg CO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

Per Sponsor feedback, there are no changes to the maximum potential to emit estimate.

#### 2008 Operational Estimate Based On Sponsor Feedback

Per Sponsor feedback, emissions and operational factors have not changed.

### ***Paiton Energy (A13)***

#### Maximum Potential to Emit Estimate

Paiton Energy's emissions estimate of **7,938,380 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Coal	Project Description
Capacity	1,200 MW	Project Description
Consumption	4,300,000 short tons/yr	Project Description
Coal Type	Sub-Bituminous	IEA, Coal in Indonesia in 2006
Heat Content Coal	17.25 MMBtu/short ton	The Climate Registry, Table 12.1
Emission Factor	97.09 kg CO2/MMBtu	The Climate Registry, Table 12.1

Consumption based maximum potential to emit = 7,938,380 short tons CO2 per year

$$\frac{4,300,000 \text{ short tons}}{\text{yr}} * \frac{17.25 \text{ MMBtu}}{\text{short ton}} * \frac{97.09 \text{ kg CO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

2007 Operational Estimate Based On Sponsor Feedback

Paiton Energy's 2007 operational emissions of **9,553,044 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Coal	Project Description
Capacity	1,200 MW	Project Description
Consumption	4,694,238,000 kg	Project Sponsor
Coal Type	Sub-Bituminous	IEA, Coal in Indonesia in 2006
Heat Content Coal	17.25 MMBtu/short ton	The Climate Registry, Table 12.1
Emission Factor	97.09 kg CO2/MMBtu	The Climate Registry, Table 12.1

Consumption based emissions = 9,553,044 short tons CO2 per year

$$4,694,238,000 \text{ kg} \times \frac{\text{short ton}}{907.18 \text{ kg}} \times \frac{17.25 \text{ MMBtu}}{\text{short ton}} \times \frac{97.09 \text{ kg CO}_2}{\text{MMBtu}} \times \frac{\text{short ton}}{907.18 \text{ kg}}$$

2008 Operational Estimate Based On Sponsor Feedback

Sponsor provided data but was for 2010 and not 2008. As a result, 2008 defaults to 2007 data.

***Trakya Elektrik Uretim ve Ticaret (A15)***

Maximum Potential to Emit Estimate

Trakya Elektrik Uretim ve Ticaret's emissions estimate of **1,818,912 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	478MW	Project Description
Consumption	20 kg/s	Project Description
Density of Natural Gas	23.8 scf per lb	EPA AP 42, p.A-7
Heat Content Natural Gas	1,029 Btu/scf	The Climate Registry, Table 12.1
Emission Factor	53.06kg CO2/MMBtu	The Climate Registry, Table 12.1

Consumption based maximum potential to emit = 1,818,912 short tons CO2 per year

$$20 \text{ kg} \times \frac{3600 \text{ sec}}{\text{hr}} \times \frac{8000 \text{ hr}}{\text{yr}} \times \frac{2.2046 \text{ lb}}{\text{kg}} \times \frac{23.8 \text{ scf}}{\text{lb}} \times \frac{1029 \text{ Btu}}{\text{scf}} \times \frac{\text{MMBtu}}{1000000 \text{ Btu}} \times \frac{53.06 \text{ kg CO}_2}{\text{MMBtu}} \times \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

2007 Operational Estimate Based On Sponsor Feedback

Trakya Elektrik Uretim ve Ticaret's 2007 operational emissions of **1,747,956 short tons CO2** was calculated using the following information.



<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	Project Description
Capacity	478MW	Project Sponsor
Consumption	568,912,217 kg	Project Sponsor
Density of Natural Gas	20.8 scf per lb	Project Sponsor
Heat Content Natural Gas	1,120 Btu/scf (HHV)	Project Sponsor
Emission Factor	54.18 kg CO <sub>2</sub> /MMBtu	Project Sponsor
2007 Operating Emissions	1,585,746 metric tonnes	Project Sponsor

Consumption based emissions = 1,747,956 short tons CO<sub>2</sub> per year

$$1,585,746 \text{ metric tonnes} * \frac{\text{short tons}}{0.9072 \text{ metric tonnes}}$$

2008 Operational Estimate Based On Sponsor Feedback

Trakya Elektrik Uretim ve Ticaret's 2008 operational emissions of **1,484,377 short tons CO<sub>2</sub>** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	Project Description
Capacity	478MW	Project Sponsor
Consumption	483,181,877 kg	Project Sponsor
Density of Natural Gas	20.8 scf per lb	Project Sponsor
Heat Content Natural Gas	1,120 Btu/scf (HHV)	Project Sponsor
Emission Factor	54.18 kg CO <sub>2</sub> /MMBtu	Project Sponsor
2008 Operating Emissions	1,346,627 metric tonnes	Project Sponsor

Consumption based emissions = 1,484,377 short tons CO<sub>2</sub> per year

$$1,346,627 \text{ metric tonnes} * \frac{\text{short tons}}{0.9072 \text{ metric tonnes}}$$

## **TIER A PROJECTS – BASED ON CAPACITY (THROUGHPUT NOT AVAILABLE)**

### ***Adapazari Elektrik Uretim (A2)***

#### Maximum Potential to Emit Estimate

Adapazari Elektrik Uretim's emissions estimate of **2,706,499 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	Project Description
Capacity	777 MW	Project Description
Emission Factor for Emissions Estimate from Capacity	395 g CO2/kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 2,706,499 short tons CO2 per year

$$777\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{395\text{gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

Adapazari Elektrik Uretim's 2007 operational emissions of **2,106,754 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	Project Description
Capacity	777 MW	Project Description
2008 Emissions	1,911,247.2 metric tonnes	Project Sponsor

For the purpose of this baseline calculation, we are assuming 2007 operating year was similar to the 2008 operating year for which emissions were provided; therefore 2007 operational emissions = 2,106,754 short tons CO2 per year

$$1,911,247.2 \text{ metric tonnes} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}}$$

#### 2008 Operational Estimate Based On Sponsor Feedback

Sponsor feedback provided last year for 2007 also was applicable for 2008. As a result, there is no change.

### ***Habibullah Coastal Power (A5)***

#### Maximum Potential to Emit Estimate

Habibullah Coastal Power's emissions estimate of **487,658 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	140 MW	Project Description
Emission Factor for Emissions Estimate from Capacity	395 g CO <sub>2</sub> /kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 487,658 short tons CO<sub>2</sub> per year

$$140\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{395\text{gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

Habibullah Coastal Power's 2007 operational emissions of **447,880 short tons CO<sub>2</sub>** was calculated using the following information.

Data	Value	Source
Emissions from CH <sub>4</sub>	406,311.5 metric tonnes	Project Sponsor
Emissions from High Speed Diesel	5.7 metric tonnes	Project Sponsor
2007 Emissions	406,317 metric tonnes	Project Sponsor

For the purpose of this baseline calculation, we are assuming 2007 operating year was similar to the 2007 fiscal year for which emissions were provided; therefore 2007 operational emissions = 447,880 short tons CO<sub>2</sub> per year.

$$406,317 \text{ metric tonnes} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}}$$

#### 2008 Operational Estimate Based On Sponsor Feedback

Per Sponsor Feedback, emissions and operational factors did not change from 2007.

### ***Gebze Elektrik Uretim (A6)***

#### Maximum Potential to Emit Estimate

Gebze Elektrik Uretim's emissions estimate of **5,412,998 short tons CO<sub>2</sub>** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	1554 MW	Project Description
Emission Factor for Emissions Estimate from Capacity	395 g CO <sub>2</sub> /kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 5,412,998 short tons CO<sub>2</sub> per year

$$1554\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{395\text{gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

2007 Operational Estimate Based On Sponsor Feedback

Gebze Elektrik Uretim's 2007 operational emissions of **4,121,923 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	1554 MW	Project Description
2008 Emissions	3,739,408.4 metric tonnes	Project Sponsor

For the purpose of this baseline calculation, we are assuming 2007 operating year was similar to the 2008 operating year for which emissions were provided; therefore 2007 operational emissions = 4,121,923 short tons CO2 per year

$$3,739,408.4 \text{ metric tonnes} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}}$$

2008 Operational Estimate Based On Sponsor Feedback

Per Sponsor feedback, emissions and operational factors for 2008 are the same as 2007.

***Pakistan Water & Power Development Authority (A7)***

Maximum Potential to Emit Estimate

Pakistan Water & Power Development Authority's emissions estimate of **522,490 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	150 MW	Project Description
Emission Factor for Emissions Estimate from Capacity	395 g CO2/kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 522,490 short tons CO2 per year

$$150\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{395\text{gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

2007 Operational Estimate Based On Sponsor Feedback

Per Sponsor feedback, there are no changes to the maximum potential to emit estimate.

2008 Operational Estimate Based On Sponsor Feedback

Per Sponsor feedback, emissions and operational factors have not changed.

### ***Isagen SA (A8)***

Maximum Potential to Emit Estimate

Isagen SA's emissions estimate of **696,654 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	Project Description
Capacity	200 MW + 100MW from steam turbine	Project Description
Emission Factor for Emissions Estimate from Capacity	395 g CO2/kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 696,654 short tons CO2 per year

$$200\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{395\text{gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

2007 Operational Estimate Based On Sponsor Feedback

Isagen SA's 2007 operational emissions of **203,010 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	Project Description
Capacity	300 MW	Project Description
2007 Emissions	184,171 metric tonnes	Project Sponsor

Capacity based emissions = 203,010 short tons CO2 per year

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

2008 Operational Estimate Based On Sponsor Feedback

Need to calculate and add in here.

### ***Izmir Elektrik Uretim (A9)***

Maximum Potential to Emit Estimate

Izmir Elektrik Uretim's emissions estimate of **5,412,998 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	1554 MW	Project Description
Emission Factor for Emissions Estimate from Capacity	395 g CO <sub>2</sub> /kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 5,412,998 short tons CO<sub>2</sub> per year

$$1554\text{MW} * \frac{1000\text{kWh}}{\text{MWh}} * \frac{8000\text{hr}}{\text{yr}} * \frac{395\text{gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

Izmir Elektrik Uretim's 2007 operational emissions of **4,694,380 short tons CO<sub>2</sub>** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	1554 MW	Project Description
2008 Emissions	4,258,741.3 metric tonnes	Project Sponsor

For the purpose of this baseline calculation, we are assuming 2007 operating year was similar to the 2008 operating year for which emissions were provided; therefore 2007 operational emissions = 4,694,380 short tons CO<sub>2</sub> per year

$$4,258,741.3 \text{ metric tonnes} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}}$$

#### 2008 Operational Estimate Based On Sponsor Feedback

Per Sponsor feedback, emissions and operational factors were the same for 2007 and 2008.

### ***Gaza Private Generating PLC (A11)***

#### Maximum Potential to Emit Estimate

Gaza Private Generating PLC's emissions estimate of **487,657 short tons CO<sub>2</sub>** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	140 MW	Project Description
Emission Factor for Emissions Estimate from Capacity	395 g CO <sub>2</sub> /kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 487,657 short tons CO<sub>2</sub> per year

$$140\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{395 \text{ gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

Gaza Private Generating PLC's 2007 operational emissions of **293,804 short tons CO2** 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 tonnes	Project Sponsor

Capacity based emissions = 293,804 short tons CO2 per year

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

#### 2008 Operational Estimate Based On Sponsor Feedback

Gaza Private Generating PLC's 2008 operational emissions of **303,535 short tons CO2** 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 tonnes	Project Sponsor

Capacity based emissions = 303,535 short tons CO2 per year

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

### ***NEPC Consortium Power (A12)***

#### Maximum Potential to Emit Estimate

NEPC Consortium Power's emissions estimate of **383,159 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	110 MW	Project Description
Emission Factor for Emissions Estimate from Capacity	395 g CO2/kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 383,159 short tons CO2 per year

$$110\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{395\text{gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

2007 Operational Estimate Based On Sponsor Feedback

NEPC Consortium Power's 2007 operational emissions of **245,795 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	110 MW with average dispatch of 70.565 MW	Project Sponsor
2007 Emissions	222,985 metric tonnes	Project Sponsor

Capacity based emissions = 245,795 short tons CO2 per year

$$222,985 \text{ metric tonnes} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}}$$

2008 Operational Estimate Based On Sponsor Feedback

NEPC Consortium Power's 2008 operating emissions of **343,581 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas & HFO	Project Sponsor
Heat Content (HFO)	363,184 MMBtu / yr	Project Sponsor
Heat Content (NatGas)	5,335,005 MMBtu / yr	Project Sponsor

Capacity based emissions = **343,581 short tons CO2** per year

$$363,184 \text{ MMBtu} * \frac{78.80 \text{ kg CO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} + 5,335,005 \text{ MMBtu} * \frac{53.06 \text{ kg CO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

***Termovalle SCA (A14)***

Maximum Potential to Emit Estimate

Termovalle SCA's emissions estimate of **714,070 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	205 MW	Project Description
Emission Factor for Emissions Estimate from Capacity	395 g CO2/kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 714,070 short tons CO2 per year



$$205\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{395 \text{ gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

Termovalle SCA's 2007 operating emissions of **16,226 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	205 MW	Project Description
2007 Operating Hours	181.79 hrs	Project Sponsor
Emission Factor for Emissions Estimate from Capacity	395 g CO2/kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based emissions = 16,226 short tons CO2 per year

$$205\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{181.79\text{hr}}{\text{yr}} * \frac{395 \text{ gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

#### 2008 Operational Estimate Based On Sponsor Feedback

Termovalle SCA's 2008 operating emissions of **46,213 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Capacity	205 MW	Project Description
2008 Operating Hours	517.74 hrs	Project Sponsor
Emission Factor for Emissions Estimate from Capacity	395 g CO2/kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based emissions = 46,213 short tons CO2 per year

$$205\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{517.74\text{hr}}{\text{yr}} * \frac{395 \text{ gCO}_2}{\text{kWh}} * \frac{0.0000011023 \text{ short tons}}{\text{g}}$$

### ***Grenada Electricity Services (WRB) (A16)***

#### Maximum Potential to Emit Estimate

Grenada Electricity Services (WRB)'s emissions estimate of **104,604 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Diesel (Fuel Oil)	Project Description
Capacity	18 MW	Project Description
Emission Factor for Emissions Estimate from Capacity	659 g CO <sub>2</sub> /kWh	International Finance Corporation, Guidance Note 3, Annex A section A-(i)

Capacity based maximum potential to emit = 104,604 short tons CO<sub>2</sub> per year

$$18\text{MW} * \frac{1000\text{kW}}{\text{MW}} * \frac{8000\text{hr}}{\text{yr}} * \frac{659\text{gCO}_2}{\text{kWh}} * \frac{0.0000011023\text{ short tons}}{\text{g}}$$

2007 Operational Estimate Based On Sponsor Feedback

Grenada Electricity Services (WRB)'s 2007 operational emissions of **114,571 short tons CO<sub>2</sub>** was calculated using the following information.

Data	Value	Source
Fuel Type	Diesel (Fuel Oil)	Project Description
Fuel Consumption	10,821,042 gallons	Project Sponsor
Heat Rate	8013 Btu/kWh	Project Sponsor
Diesel LHV	70302 Btu/kg	Project Sponsor
Energy Generated	117,323,661 kWh	Project Sponsor
Emissions Factor	73.15 kg CO <sub>2</sub> /MMBtu	The Climate Registry, Table 12-1
2007 Emissions	114,571 short tons	Project Sponsor

Capacity based emissions = 114,571 short tons CO<sub>2</sub> per year

2008 Operational Estimate Based On Sponsor Feedback

Grenada Electricity Services (WRB)'s 2008 operational emissions of **121,156 short tons CO<sub>2</sub>** was calculated using the following information.

Data	Value	Source
Fuel Type	Diesel (Fuel Oil)	Project Description
Fuel Consumption	11,436,588 gallons	Project Sponsor
Heat Rate	8006 Btu/kWh	Project Sponsor
Diesel LHV	40306 Btu/kg	Project Sponsor
Energy Generated	187,689,464 kWh	Project Sponsor
Emissions Factor	73.15 kg CO <sub>2</sub> /MMBtu	The Climate Registry, Table 12-1
2008 Emissions	121,156 short tons	Project Sponsor

Capacity based emissions = 121,156 short tons CO<sub>2</sub> per year

## **TIER B PROJECTS**

### ***Accroven SRL (B1)***

#### Maximum Potential to Emit Estimate

Accroven SRL's emissions estimate of **998,677 short tons CO2** was calculated by utilizing a representative complete calculation of GHG emissions for a natural gas liquids (NGL) facility sourced from the American Petroleum Institute's (API) Compendium on GHG Emissions. The API example had a capacity of 800 MMscfd for annual emissions of 906,000 metric tonnes CO2; the same capacity as Accroven SRL. Below is the information used in the estimate.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	Project Description
Capacity	800 MMscfd	Project Description
"Emissions Factors"	906,000 metric tonnes CO2 per year for a facility with capacity of 800 MMscfd	API Compendium, Table 7-14
Multiplication Factor	1	Factor applied to account for approximate size discrepancy between Accroven and example

Maximum potential to emit = 998,677 short tons CO2 per year

$$\frac{906,000 \text{ metric tonnes CO2e}}{\text{yr}} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}} * 1$$

#### 2007 Operational Estimate Based On Sponsor Feedback

Per Sponsor feedback, there are no changes to the maximum potential to emit estimate.

#### 2008 Operational Estimate Based On Sponsor Feedback

Accroven SRL's 2008 operational emissions of **445,832 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
2008 Emissions	404,458 Metric tons CO2	Project Sponsor

Capacity based emissions = 445,832 short tons CO2 per year

### ***Various Egypt Subsidiaries (Apache)(B2)***

#### Maximum Potential to Emit Estimate

Various Egypt Subsidiaries (Apache)'s emissions estimate of **1,190,476 short tons CO2** was calculated by utilizing an example from API for a similar oil and gas extraction and processing facility. The API example produced 6100 barrels oil per day and 30 MMscf natural gas per day for annual emissions of 108,000 metric tonnes CO2; approximately 1/10<sup>th</sup> the size of Various Egypt Subsidiaries (Apache). Below is the information used in the estimate.

<b>Data</b>	<b>Value</b>	<b>Source</b>
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 tonnes CO2 per year for a facility that produces 6100 barrels oil per day and 30 MMscf natural gas per day	API Compendium, Table 7-4
Multiplication Factor	10	Factor applied to account for approximate size discrepancy between Apache and example

Maximum potential to emit = 1,190,476 short tons CO2 per year

$$\frac{108,000 \text{ metric tonnes CO}_2}{\text{yr}} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}} * 10$$

2007 Operational Estimate Based On Sponsor Feedback

Various Egypt Subsidiaries (Apache)’s 2007 operational emissions of **1,505,247 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
2007 Emissions	1,365,560 metric tonnes	Project Sponsor

2007 Operational Emissions = 1,505,247 short tons CO2 per year

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

2008 Operational Estimate Based On Sponsor Feedback

Various Egypt Subsidiaries (Apache)’s 2008 operational emissions of **1,442,133 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
2008 Emissions	1,442,133 metric tonnes	Project Sponsor

2008 Operational Emissions = 1,442,133 short tons CO2 per year

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

### ***Baku-Tblisi-Ceyhan Pipeline (B3)***

#### Maximum Potential to Emit Estimate

The Baku-Tblisi-Ceyhan Pipeline's emissions estimate of **699,034 short tons CO2** was calculated for emissions related to the combustion of natural gas and diesel in the transportation of crude oil through the pipeline. We assume that the 180 Btu per short ton of crude transport per mile energy requirement is evenly split between natural gas and diesel. Below is the information used in the estimate.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type used for Transport	Natural Gas and Diesel (dual fuel)	Project Description
Pipeline Throughput	1 million barrels crude oil	Project Description
Pipeline Length	1,760 km	Project Description
Conversion Factors	1.6093 km/mile 7.3 lbs/gal (density of crude)	EPA AP 42, p.A-7
Energy Required for Pipeline Transport (Crude)	180 Btu/short ton crude oil per mile (for ~40in. diameter pipeline)	Trans Alaska Pipeline EIS, p. 4.9-2
Emissions Factors	53.06 kg CO2/MMBtu (natural gas) 73.15 kg CO2/MMBtu (diesel)	The Climate Registry, Table 12.1

Maximum potential to emit = 699,034 short tons CO2 per year

$$\frac{1000000 \text{ barrels}}{\text{day}} * \frac{333 \text{ day}}{\text{yr}} * \frac{7.3 \text{ lbs}}{\text{gal}} * \frac{42 \text{ gal}}{\text{barrel}} * \frac{\text{short ton}}{2000 \text{ lbs}} = 51,048,900 \text{ short tons crude/yr}$$

$$\frac{51048900 \text{ short tons crude}}{\text{yr}} * \frac{1760 \text{ km}}{1.6093 \text{ km}} * \frac{\text{mile}}{1.6093 \text{ km}} * \frac{180 \text{ Btu}}{\text{short ton-mile}} * \frac{\text{MMBtu}}{1000000 \text{ Btu}} = 10,049,271 \text{ MMBtu/yr}$$

$$\frac{10049271 \text{ MMBtu}}{\text{yr}} * \frac{73.15 \text{ kg CO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} * 0.5 = 405,153 \text{ short tons CO}_2/\text{yr from diesel}$$

$$\frac{10049271 \text{ MMBtu}}{\text{yr}} * \frac{53.06 \text{ kg CO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}} * 0.5 = 293,881 \text{ short tons CO}_2/\text{yr from nat. gas}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

The Baku-Tblisi-Ceyhan Pipeline's 2007 operational emissions of **707,672 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
2008 Emissions	642,000 metric tonnes	Project Sponsor

For the purpose of this baseline calculation, we are assuming 2007 operating year was similar to the 2008 operating year for which emissions were provided; therefore 2007 operational emissions = 707,672 short tons CO2 per year

$$642,000 \text{ metric tonnes} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}}$$

2008 Operational Estimate Based On Sponsor Feedback

Per Sponsor feedback, emissions and operational factors did not change from 2007 to 2008.

***E.P. Interoil (B4)***

Maximum Potential to Emit Estimate

E.P. Interoil's emissions estimate of **802,469 short tons CO2** was calculated by utilizing an example from API for a refinery with a throughput of 250,000 barrels crude oil per day for annual emissions of 5,600,000 metric tonnes CO2. E.P. Interoil is approximately 13% the size of the example. Below is the information used in the estimate.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Crude Oil	Project Description
Throughput Volumes	32,500 barrels crude oil per day	Project Description
"Emissions Factors"	5,600,000 metric tonnes CO2 per year for a facility with throughput of 250,000 barrels crude oil per day	API Compendium, Table 7-25
Multiplication Factor	0.13	Factor applied to account for approximate size discrepancy between E.P. Interoil and example

Maximum potential to emit = 802,469 short tons CO2 per year

$$\frac{5600000 \text{ metric tonnes CO2}}{\text{yr}} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}} * 0.13$$

2007 Operational Estimate Based On Sponsor Feedback

E.P. Interoil's 2007 operational emissions of **392,296 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
2007 Average Throughput	15,888 BPCD	Project Sponsor
2007 Emissions	355,891 metric tonnes	Project Sponsor

2007 Operational Emissions = 392,296 short tons CO2 per year

$$355,891 \text{ metric tonnes} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}}$$

2008 Operational Estimate Based On Sponsor Feedback

E.P. InterOil's 2008 operational emissions of **103,247 short tons CO2** was calculated using the following information.

Data	Value	Source
2008 Annual MMBtu	15,888 MMBtu	Project Sponsor
2008 Emissions	103,247 short tonnes	Project Sponsor

2008 Operational Emissions = 103,247 short tons CO2 per year

***Foxtrot International (B5)***

Maximum Potential to Emit Estimate

Foxtrot International's emissions estimate of **270,804 short tons CO2** was calculated accounting for both combustion emissions from the compression and transmission of natural gas as well as fugitive emissions using the following information. Additionally, an estimate of platform emissions was provided in the project description and incorporated into the emissions total.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Pipeline Throughput	100 MMscfd	Project Description
Platform Emissions	142,000 short tons CO2e	Project Description
Emissions Factors	3439 lbs CO2 per MMscfd from combustion 4297 lbs CO2 per MMscfd from fugitive	U.S. EIA and EPA GHG Inventory, Tables 3-34 & 3-36

Maximum potential to emit = 270,804 short tons CO2 per year

$$\frac{100 \text{ MMscf}}{\text{day}} * \frac{333 \text{ day}}{\text{yr}} * \frac{3439 \text{ lbs CO}_2}{\text{MMscf}} * \frac{\text{short ton}}{2000 \text{ lbs}} = 57,259 \text{ short tons CO}_2/\text{yr (combustion)}$$

$$\frac{100 \text{ MMscf}}{\text{day}} * \frac{333 \text{ day}}{\text{yr}} * \frac{4297 \text{ lbs CO}_2}{\text{MMscf}} * \frac{\text{short ton}}{2000 \text{ lbs}} = 71,545 \text{ short tons CO}_2/\text{yr (fugitive)}$$

$$142,000 \text{ short tons CO}_2 = 142,000 \text{ short tons CO}_2/\text{yr (platform)}$$

2007 Operational Estimate Based On Sponsor Feedback

Foxtrot International's 2007 operational emissions of **104,484 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
2008 Consumption	1530 MMscf/yr from flaring, power generation, and re-boiler offshore; 206 MMscf/yr from onshore heaters	Project Sponsor

Emissions Factor	0.0546 kg CO2/scf	The Climate Registry, Table 12.1
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For the purpose of this baseline calculation, we are assuming 2007 operating year was similar to the 2008 operating year for which emissions were provided; therefore 2007 operational emissions = 104,484 short tons CO2 per year

$$\frac{1736 \text{ MMscf}}{\text{yr}} * \frac{1000000 \text{ scf}}{\text{MMscf}} * \frac{0.0546 \text{ kg CO}_2}{\text{scf}} * \frac{\text{short ton}}{907.18 \text{ kg}}$$

#### 2008 Operational Estimate Based On Sponsor Feedback

Per Sponsor feedback, emissions and operational factors did not change from 2007 to 2008.

### ***Natural Gas Liquids II Financing (B6)***

#### Maximum Potential to Emit Estimate

Natural Gas Liquids II Financing's emissions estimate of **390,806 short tons CO2** was calculated using gas consumption rates provided in the project description and the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Pipeline Throughput	19.5 MMscfd	Project Description
Heat Content Natural Gas	1029 Btu/scf	The Climate Registry, Table 12.1
Emissions Factors	53.06 kg CO2/MMBtu	The Climate Registry, Table 12.1

Maximum potential to emit = 390,806 short tons CO2 per year

$$\frac{19.5 \text{ MMscf}}{\text{day}} * \frac{333 \text{ day}}{\text{yr}} * \frac{1029 \text{ Btu}}{\text{scf}} * \frac{53.06 \text{ kg CO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

Natural Gas Liquids II Financing's 2007 operational emissions of **244,048 short tons CO2** was calculated using the following information.

Data	Value	Source
2007 Emissions	221,400 metric tonnes	Project Sponsor

2007 Operational Emissions = 244,048 short tons CO2 per year

$$221,400 \text{ metric tonnes} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}}$$

#### 2008 Operational Estimate Based On Sponsor Feedback

Received no Sponsor feedback so 2007 data is used as a default.



### ***Equate Petrochemical (B7)***

Maximum Potential to Emit Estimate

Equate Petrochemical’s emissions estimate of **720,573 short tons CO2** was based on a typical petrochemical facility in the Middle East with 850 MMBtu/hr natural gas equivalent power and 690 MMBtu/hr off gas equivalent power, total energy requirements of approximately 250 MW of natural gas fired power. These average specs were determined by Pace experts and referencing the April 2006 CEC/EPRI report. Below is the information used to perform the calculation.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	CEC, EPRI, p.4-6
Energy Requirements	850 MMBtu/hr (natural gas equivalent power) 690 MMBtu/hr (off gas equivalent power)	CEC, EPRI, p.4-6
Emissions Factors	53.06 kg CO2/MMBtu	The Climate Registry, Table 12.1

Maximum potential to emit = 720,573 short tons CO2 per year

$$\frac{850\text{MMBtu} + 690 \text{ MMBtu}}{\text{hr}} * \frac{8000\text{hr}}{\text{yr}} * \frac{53.06 \text{ kg CO}_2}{\text{MMBtu}} * \frac{0.0011023 \text{ short tons}}{\text{kg}}$$

2007 Operational Estimate Based On Sponsor Feedback (received late)

Equate Petrochemical provided 2007 operational emission data after the 2007 report was complete. While the report reflected Pace’s PTE estimate of 720,573 short tons CO2, **680,311 short tons CO2** is the more up to date value and was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
2007 Emissions	617,178 metric tonnes	Project Sponsor

2007 Operational Emissions = 680,311 short tons CO2 per year

$$617,178 \text{ metric tonnes} * \frac{\text{short ton}}{0.9072 \text{ metric tonnes}}$$

2008 Operational Estimate

Sponsor feedback was not received for 2008. The most recent 2007 operational data received by the sponsor is used.

### ***West African Gas Pipeline (B8)***

Maximum Potential to Emit Estimate

The West African Gas Pipeline’s emissions estimate of **244,728 short tons CO2** was calculated accounting for both combustion emissions from the compression and transmission of natural gas as well as fugitive emissions using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Pipeline Throughput	190 MMscfd	Project Description
Emissions Factors	3439 lbs CO <sub>2</sub> per MMscfd from combustion 4297 lbs CO <sub>2</sub> per MMscfd from fugitive	U.S. EIA and EPA GHG Inventory, Tables 3-34 & 3-36

Total emissions estimate = 244,728 short tons CO<sub>2</sub> per year

$$\frac{190 \text{ MMscf}}{\text{day}} * \frac{333 \text{ day}}{\text{yr}} * \frac{3439 \text{ lbs CO}_2}{\text{MMscf}} * \frac{\text{short ton}}{2000 \text{ lbs}} = 108,792 \text{ short tons CO}_2/\text{yr (combustion)}$$

$$\frac{190 \text{ MMscf}}{\text{day}} * \frac{333 \text{ day}}{\text{yr}} * \frac{4297 \text{ lbs CO}_2}{\text{MMscf}} * \frac{\text{short ton}}{2000 \text{ lbs}} = 135,936 \text{ short tons CO}_2/\text{yr (fugitive)}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

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

#### 2008 Operational Estimate Based On Sponsor Feedback

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

### ***Wilpro Energy Services (El Furrial) – B9***

#### Maximum Potential to Emit Estimate

Wilpro Energy Services (El Furrial)'s emissions estimate of **289,106 short tons CO<sub>2</sub>** was based on capacity values and heat rates derived from the compressor depiction in the project description and from the manufacturer, Nuovo Pignone. Both combustion and fugitive emissions were included in the calculation. Below is the information used in the estimate. Pace experts estimated the energy requirements for the required compression of natural gas based on specifications included in the project description.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Number of Compressors	4	Project Description
Capacity	60 MW	Project Description/Pace and Nuovo Pignone unit specs (Nye Thermodynamics Corporation)
Heat Rate	9,976 Btu/kWh	Nuovo Pignone unit specs (Nye Thermodynamics Corporation)
GWP for CH4	21	The Climate Registry, Appendix B
Emissions Factors	53.06 kg CO2/MMBtu (combustion) 0.0122 tonnes CH4/hr (fugitive)	The Climate Registry, Table 12.1 and API GHG Compendium, Table 6-5

Maximum potential to emit = 289,106 short tons CO2 per year

$$\frac{60\text{MW} * 8000\text{hr} * 1000\text{kWh} * 9976\text{Btu} * \text{MMBtu}}{\text{yr} \quad \text{MW} \quad \text{kWh} \quad 1000000\text{Btu} \quad \text{MMBtu}} * \frac{53.06\text{kgCO}_2}{\text{MMBtu}} * \frac{0.0011023\text{short tons}}{\text{kg}} = 280,069 \text{ short tons CO}_2 \text{ (combust)}$$

$$\frac{0.0122 \text{ tonnes CH}_4}{\text{hr}} * \frac{\text{short ton}}{0.9072 \text{ metric tonne}} * \frac{8000\text{hr}}{\text{yr}} * 4 \text{ compressors} * \frac{21 \text{ tonnes CH}_4}{\text{tonnes CO}_2\text{e}} = 9,037 \text{ short tons CO}_2 \text{ (fugitive)}$$

#### 2007 Operational Estimate Based On Sponsor Feedback

Wilpro Energy Services (El Furrial)'s 2007 operational emissions of **289,106 short tons CO2** was calculated using the following information.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Number of Compressors	4 centrifugal compressors	Project Description
Capacity	60MW	Project Description and Coopers
Heat Rate	9976 Btu/kWh	Coopers Data
GWP for CH4	21	The Climate Registry, Appendix B
Emissions Factors	53.06 kg CO2/MMBtu (combustion) 0.0122 tonnes CH4/hr (fugitive)	The Climate Registry, Table 12.1 and API GHG Compendium, Table 6-5

2007 Operational emissions = 289,106 short tons CO2 per year

$$\frac{60\text{MW} * 8000\text{hr} * 1000\text{kWh} * 9976\text{Btu} * \text{MMBtu}}{\text{yr} \quad \text{MW} \quad \text{kWh} \quad 1000000\text{Btu} \quad \text{MMBtu}} * \frac{53.06\text{kgCO}_2}{\text{MMBtu}} * \frac{0.0011023\text{short tons}}{\text{kg}} = 280,069 \text{ short tons CO}_2 \text{ (combust)}$$

$$\frac{0.0122 \text{ tonnes CH}_4}{\text{hr}} * \frac{\text{short ton}}{0.9072 \text{ metric tonne}} * \frac{8000\text{hr}}{\text{yr}} * 4 \text{ compressors} * \frac{21 \text{ tonnes CH}_4}{\text{tonnes CO}_2\text{e}} = 9,037 \text{ short tons CO}_2 \text{ (fugitive)}$$

2008 Operational Estimate Based

Sponsor feedback was not received for 2008. Defaulted to 2007 operational data provided by the sponsor.

***Wilpro Energy Services (Pigap) – B10***

Maximum Potential to Emit Estimate

Wilpro Energy Services (Pigap)'s emissions estimate of **507,923 short tons CO2** was based on capacity values and heat rates derived from the compressor depiction in the project description and from the manufacturer, Nuovo Pignone. Both combustion and fugitive emissions were included in the calculation. Below is the information used in the estimate. Pace experts estimated the energy requirements for the required compression of natural gas based on specifications included in the project description.

Data	Value	Source
Fuel Type	Natural Gas	Project Description
Number of Compressors	8	Project Description
Capacity	100 MW	Project Description/Pace and Nuovo Pignone unit specs (Nye Thermodynamics Corporation)
Heat Rate	10469 Btu/kWh	Nuovo Pignone unit specs (Nye Thermodynamics Corporation)
GWP for CH4	21	The Climate Registry, Appendix B
Emissions Factors	53.06 kg CO2/MMBtu (combustion) 0.0122 tonnes CH4/hr (fugitive)	The Climate Registry, Table 12.1 and API GHG Compendium, Table 6-5

Maximum potential to emit = 507,923 short tons CO2 per year

$$\frac{100\text{MW} \times 8000\text{hr} \times 1000\text{kWh} \times 10469\text{Btu} \times \text{MMBtu}}{\text{yr} \quad \text{MWh} \quad \text{kWh} \quad 1000000\text{Btu} \quad \text{MMBtu}} \times \frac{53.06\text{kgCO}_2}{\text{MMBtu}} \times 0.0011023\text{short ton/kg} = 489,849 \text{ short tons CO}_2 \text{ (combust)}$$

$$\frac{0.0122 \text{ tonnes CH}_4}{\text{hr}} \times \frac{\text{short ton}}{0.9072 \text{ metric tonne}} \times \frac{8000\text{hr}}{\text{yr}} \times 8 \text{ compressors} \times \frac{21 \text{ tonnes CH}_4}{\text{tonnes CO}_2\text{e}} = 18,074 \text{ short tons CO}_2 \text{ (fugitive)}$$

2007 Operational Estimate Based On Sponsor Feedback

Wilpro Energy Services (Pigap)'s 2007 operational emissions of **571,090 short tons CO2** was calculated using the following information.

<b>Data</b>	<b>Value</b>	<b>Source</b>
Fuel Type	Natural Gas	Project Description
Number of Compressors	8 centrifugal compressors	Project Description
Capacity	100MW	Project Description and Nuovo Pignone data
Heat Rate	11819 Btu/kWh	Nuovo Pignone Data
GWP for CH4	21	The Climate Registry, Appendix B
Emissions Factors	53.06 kg CO2/MMBtu (combustion) 0.0122 tonnes CH4/hr (fugitive)	The Climate Registry, Table 12.1 and API GHG Compendium, Table 6-5

2007 Operational emissions = 571,090 short tons CO2 per year

$$\frac{100\text{MW} * 8000\text{hr} * 1000\text{kWh} * 11819\text{Btu} * \text{MMBtu}}{\text{yr} \quad \text{MW} \quad \text{kWh} \quad 1000000\text{Btu} \quad \text{MMBtu}} * 53.06\text{kgCO}_2 * 0.0011023\text{short tons} = 553,016 \text{ short tonsCO}_2(\text{combust})$$

$$\frac{0.0122 \text{ tonnes CH}_4 * \text{short ton}}{\text{hr} \quad 0.9072 \text{ metric tonne}} * 8000\text{hr} * 8 \text{ compressors} * 21 \text{ tonnes CH}_4 = 18,074 \text{ short tons CO}_2 \text{ (fugitive)}$$

#### 2008 Operational Estimate

Sponsor feedback was not received for 2008. Defaulted to 2007 operational data provided by the sponsor.

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## APPENDIX C

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### **CONVERSION FACTORS AND SOURCES**

Below are additional emission factors, conversions, and other factors used in the emission estimates and sources.

<b>Value</b>	<b>Unit of Measure</b>	<b>Source</b>
8,000	Hours per Year	Conservative Operating Assumption – EIA Form 923 data, 2007
333	Days per Year	Calculated from Hours per Year
1,000	kWh per MWh	The Climate Registry, Appendix C
1,000,000	Btu per MMBtu	The Climate Registry, Appendix C
251.98	Btu per cal	Perry's Chemical Engineering Hand Book, Table 1-7
0.001	metric tonnes per kg	The Climate Registry, Appendix C
0.0011023	Short Tons per kg	The Climate Registry, Appendix C
1,000,000	scf per Mcf	The Climate Registry, Appendix C
0.02832	m3 per scf	The Climate Registry, Appendix C
0.9072	metric tonnes per short ton	The Climate Registry, Appendix C
0.000001	metric tonnes per g	The Climate Registry, Appendix C
0.0000011023	short tons per g	The Climate Registry, Appendix C
907.18	kg per short ton	The Climate Registry, Appendix C
2.2046	lbs per kg	The Climate Registry, Appendix C
2204.62	lbs per metric tonne	The Climate Registry, Appendix C
2,000	lbs per short ton	The Climate Registry, Appendix C
42	gallons per barrel	The Climate Registry, Appendix C
53.06	kg CO2 per MMBtu natural gas	The Climate Registry, Table 12.1
73.15	kg CO2 per MMBtu diesel (fuel oil)	The Climate Registry, Table 12.1
93.46	kg CO2 per MMBtu coal (bituminous)	The Climate Registry, Table 12.1
97.09	kg CO2 per MMBtu coal (sub-bituminous)	The Climate Registry, Table 12.1
74.54	kg CO2 per MMBtu crude oil	The Climate Registry, Table 12.1
0.0546	kg CO2 per scf natural gas	The Climate Registry, Table 12.1
78.80	kg CO2 per MMBtu Residual Fuel Oil (#5 & 6)	The Climate Registry, Table 12.1
1029	Btu per scf natural gas	The Climate Registry, Table 12.1
5.825	MMBtu per barrel diesel (fuel oil)	The Climate Registry, Table 12.1
24.93	MMBtu per short ton coal (bituminous)	The Climate Registry, Table 12.1
17.25	MMBtu per short ton coal (sub-bituminous)	The Climate Registry, Table 12.1
5.8	MMBtu per barrel crude oil	The Climate Registry, Table 12.1
893	g CO2 per kWh generated using coal	IFC Guidance Note 3, Annex A section A-(i)
659	g CO2 per kWh generated using oil	IFC Guidance Note 3, Annex A section A-(i)
395	g CO2 per kWh generated using natural gas	IFC Guidance Note 3, Annex A section A-(i)

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## APPENDIX D

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### **ANNOTATED BIBLIOGRAPHY**

American Petroleum Institute. Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry. February 2004.

<[http://www.api.org/ehs/climate/new/upload/2004\\_COMPENDIUM.pdf](http://www.api.org/ehs/climate/new/upload/2004_COMPENDIUM.pdf)>

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 from, examples from API were used. 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 was used for the Wilpro Energy Services projects as this factor was sourced from the API Compendium of Greenhouse Gas Emissions, Table 6-5.

California Energy Commission, Electric Power Research Institute. Implementing Advanced Control and Power Technologies to Improve Energy Efficiency and Reduce Operating Costs for U.S. Petroleum Refining and Petrochemical Manufacturing. CEC-500-2006-055. April 2006.

No information was provided in the project description for the Equate Petrochemical facility indicating its size or energy consumption. The average size of petrochemical facilities in the Middle East, of ~850,000 tpy, 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 facility.

The Climate Registry. General Reporting Protocol Version 1.1. May 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 forty 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).

Energy Information Administration (EIA) U.S. Natural Gas Consumption by End Use. 2003-2007.

<[http://tonto.eia.doe.gov/dnav/ng/ng\\_cons\\_sum\\_dcunusa.htm](http://tonto.eia.doe.gov/dnav/ng/ng_cons_sum_dcunusa.htm)>

Emissions from natural pipeline transport are very segment specific, varying with 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 assumed pipeline fuel consumption and both combustion and non-combustion CO<sub>2</sub>e 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 CO<sub>2</sub> per MMscfd. The emissions associated with combustion required to move natural gas was calculated to be 3,439 lbs CO<sub>2</sub> per MMscd.

International Energy Agency. Coal in Indonesia in 2006.  
<[http://www.iea.org/Textbase/stats/coaldata.asp?COUNTRY\\_CODE=ID](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, details 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.

International Energy Agency. Coal in Morocco in 2006.  
<[http://www.iea.org/Textbase/stats/coaldata.asp?COUNTRY\\_CODE=MA](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, details 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.

International Finance Corporation. Guidance Note 3: Pollution Prevention and Abatement. July 31, 2007. <<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 tonnes of CO<sub>2</sub>e per year. The table also provides the emissions factor which was applied to the electric generation projects for which no throughput or consumption volumes were available.

Nye Thermodynamics Corporation. Gas Turbine Specifications by Manufacturer. Nuovo Pignone turbine specifications.  
<<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 is 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.

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 facility indicating its size or energy consumption. The average size of petrochemical facilities in the Middle East, of ~850,000 tpy, 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 facility.

Trans Alaska Pipeline Environmental Impact Statement Document, Energy Requirements for Conservation Potential. February 15, 2001.

<[http://tapseis.anl.gov/documents/docs/Section\\_4\\_9\\_May2.pdf](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.

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. <<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.

United States Environmental Protection Agency.(EPA). Inventory of U.S. GHG Emissions and Sinks, 1990-2006. Tables 3-34 and 3-36.

<[http://www.epa.gov/climatechange/emissions/downloads/08\\_CR.pdf](http://www.epa.gov/climatechange/emissions/downloads/08_CR.pdf)>

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