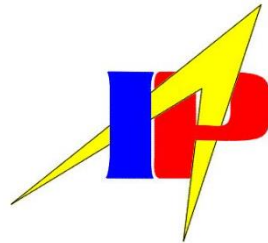


# Independent Power Corporation PLC

## Power Plant Developers and Operators

March 2017

STRICTLY CONFIDENTIAL



## Overview

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- ▶ Founded in 1995 by Peter Earl and Colin Moynihan and now one of the leading British-owned developers and operators of independent power plants.
- ▶ In the 1990s had an alliance with Phillips Petroleum for LNG based power plants
- ▶ Initially worked in partnership with the US utilities, New Century Energies of Denver Colorado and Florida Progress of Tampa, Florida.
- ▶ In 2001 IPC became 100% British owned and in the same year incorporated its O&M subsidiary, Independent Power Operations Limited (“IPOL”).
- ▶ IPC spun off two regional power companies which were floated on the AIM Market of the London Stock Exchange: Rurelec PLC, floated in 2004, and IPSA Group PLC, floated in 2005.
- ▶ IPC has strong engineering and finance capabilities and is recognised as a pre-qualified technical operator by many of the international development banks including the World Bank, Asian Development Bank (ADB) and the European Bank for Reconstruction and Development (EBRD).
- ▶ Two decades of experience in the development, operation and ownership of power plants globally with roughly 4,500 MW operated, developed or owned.
- ▶ IPC is now jointly owned by Peter Earl and the Swiss based projects group, TOMÉ International AG.



## Capabilities

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- ▶ IPC is an international power developer with interests in electricity generation in Europe, Latin America, Southern Africa and Asia.
- ▶ In addition to being a developer, IPC has experience in acquiring older generation assets in de-regulating markets during privatisation of the electricity industry and then adding value to those assets by upgrading and improving performance.
- ▶ IPC has acted as advisor to industrial groups looking to enter the independent power market.
- ▶ Through its operations and maintenance subsidiary, IPOL, IPC has acted as a technical advisor and operator for regulatory and compliance purposes worldwide.
- ▶ IPC acts as its own EPC contractor for IPC led projects, providing engineering, procurement and construction services in house.
- ▶ IPC has developed and operated over 4,500 MW capacity on various fuel types, such coal, gas, diesel and hydro.
- ▶ IPC is currently expanding in its preferred markets of Angola, Bangladesh, Ghana and Kazakhstan, as an independent developer, builder and operator of power plants. It is also working as an early stage developer and future operator of new capacity in the United Kingdom and South Africa. IPC has over 4,000 MW of projects in construction or under development.



## Projects Developed, Owned or Operated

Project	Involvement	Country	City/Region	Fuel	Capacity (MW)	Years
<b>Developed, Owned or Operated</b>						
Karaganda GRES 2	Owned, Operated	Kazakhstan	Karaganda	Coal	608	1996-1997
Central Piedra Buena	Owned, Operated	Argentina	Patagonia	Gas	630	1997-2000
Pawnee Project	Developed, Owned	USA	Denver, CO	Gas	260	1999
Libertador CCGT	Owned, Developed	Argentina	San Antonio	Gas	800	2001
Hidroelectrica Ameghino	Owned, Operated	Argentina	Patagonia	Hydro	46	2000-2001
Central Termica Patagonia (CPT)	Owned, Operated	Argentina	Patagonia	Gas	76	2000-2001
Karaganda Zhylu	Operated	Kazakhstan	Karaganda	Coal	475	2002-2003
Empresa Guaracachi - Acquisition	Owned, Operated	Bolivia	Santa Cruz	Gas	360	2003
Empresa Guaracachi - GCH11	Developed, Owned, Operated	Bolivia	Santa Cruz	Gas	71	2007
Empresa Guaracachi - Jenbachers	Developed, Owned, Operated	Bolivia	Sucre	Gas	6	2009
Empresa Guaracachi - CCGT	Developed, Owned	Bolivia	Santa Cruz	Gas	90	2010
O&M for BP	Operated	Bolivia	Bulo Bulo	Gas	90	2005-2007
Newcastle Project	Developed, Operated	South Africa	KwaZulu Natal	Gas	18	2007
CCGT Expansion for CPT	Developed	Argentina	Patagonia	Gas	60	2009
Al Hamra I	Developed, Operated	UAE	Ras Al Khaimah	Gas	45	2009
Loucetious	Developed, Operated	UK	N Staffordshire	Gas/Diesel	18	2012
Collahuasi	Developed	Chile	Antofagasta	LNG	350	2014
Central Hidroelectrica Canchayllo	Developed	Peru	Junin	Hydro	5.3	2014
Central Termica Parinacota	Developed	Chile	Arica	Liquid Fuel	38	2015
Central Termica Illapa	Developed	Chile	Antofagasta	LNG	255	2015
Central Hidroelectrica Colca	Developed	Peru	Junin	Hydro	12	2015
Central Hidroelectrica Chilcay	Developed	Peru	Junin	Hydro	12	2015
Central Hidroelectrica Huasicancha	Developed	Peru	Junin	Hydro	6.2	2015
Central Hidroelectrica Santa Rita	Developed	Peru	Ancash	Hydro	255	2015
<b>Subtotal - Previously Owned or Operated Projects</b>					<b>4,586.5</b>	



## Projects Under Development

Project	Involvement	Country	City/Region	Fuel	Capacity (MW)	Years
<b>Under Development</b>						
Chittagong I	Developed, Technical Advisor	Bangladesh	Chittagong	Diesel	108	2013-2015
Chittagong II	Under Development, Technical Advisor	Bangladesh	Chittagong	Diesel	108	2015
Takoradi	Under Development, EPC	Ghana	Aboadze	Gas	235	2014-2015
Pram Pram	Under Development, EPC	Ghana	Tema	Gas	400	2014-2015
Anglo Kazakh Pipeline	Under Development, Technical & Financial Advisor	Kazakhstan	Central Kazakhstan Astana, Karaganda, Temirtau,	Gas	1500 (km)	2014-2015
Kaznex Invest	Under Development, Owner	Kazakhstan	Zhezhkazgan	Gas	1600	2014-2015
Kyzylorda	Under Development, EPC	Kazakhstan	Kyzylorda	Gas	425	2016
KazTransGas	Under Development, Owner	Kazakhstan	Atyrau	Gas	169	2015
Soyo	Initial Development, EPCM	Angola	Soyo	Gas	800	2015
Cabinda	Initial Development, EPCM	Angola	Cabinda	Gas	45	2015
Caio	Initial Development, EPCM	Angola	Port Caio	Gas	100	2016
Eastern Metals	Initial Development, EPC	Nigeria	Delta State	Gas	100	2015
NewCogen	Under Development, Technical Advisor	South Africa	Newcastle	Gas	4	2015
<b>Subtotal - Developed or Operated</b>					<b>4,095</b>	



## Project Highlights by Country

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### **Kazakhstan:**

- ▶ Signed MoU with Kaznex Invest and KazTransGas to develop and install four gas fired combined cycle (CCGT) power plants of 400 MW each in Astana, Karaganda, Temirtau and Zhezhkazgan.
- ▶ Signed MoU with KazTransGas for project management of 1,500 kilometre British financed natural gas pipeline linking Central Kazakhstan industrial centres.
- ▶ Outline agreement with KazTransGas to develop and install 169 MW of gas fired capacity in Atyrau for refinery.
- ▶ Project development of a 425 MW CCGT power plant in Kyzylorda, Southern Kazakhstan, in association with the Ministry of Energy and local Akimat.

### **Ghana**

- ▶ Lead developer for two gas fired projects of 235 MW and 400 MW respectively.

### **Bangladesh**

- ▶ Technical Advisor for two 108 MW diesel-fired power plants in Chittagong, the first one of which is now in operation, with the second one under development.

### **Angola**

- ▶ Proposed EPCM contractor and project manager for two gas-fired power plants of 120 and 800 MW capacities located in Cabinda and Soyo respectively, and the completion of 350 km 400 kV transmission line connecting Soyo to Catete.

### **South Africa**

- ▶ Technical oversight of 4 MW of peaking capacity in South Africa based on two Jenbacher gas engines.

### **Nigeria**

- ▶ EPC for 100 MW open cycle gas-fired capacity to be located in Delta State in Nigeria.



## Executive Team

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**Peter Earl**  
**Chief Executive Officer**

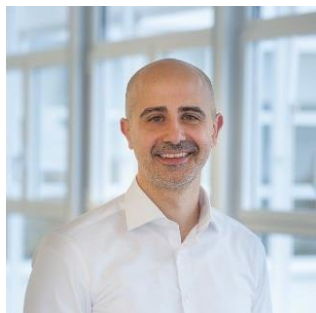
- Extensive experience in Latin American power sector since 1993
- Founder and CEO of Independent Power Corporation PLC (“IPC”) since 1996
- Founder and CEO of Rurelec since its spin-out from IPC and flotation on AIM in 2004 until 2015
- Previously Head of European Corporate Finance, Fieldstone Private Capital Group: advised on power sector acquisitions and bids totalling c. US \$6 billion, involving 5,000 MW of generating capacity including various Latin American transactions in 1993-95
- Oxford University graduate and Kennedy Scholar at Harvard University



**Yuri Goligorsky**  
**Executive Director**

- Free lance journalist and consultant
- Part of the IPC team since its inception and has been advising on business development across Russia and Kazakhstan
- Worked for the BBC World Service as Senior Producer of Current Affairs until 1990; Regional Editor for the FSU and South-West Asia until 1995; Editor in Chief and later Acting Head of BBC Central Asian Service until 2003
- Acted as BBC Business Development Executive until 2007





**Dario Bruno**  
**Director**

- Managing Director of TOMÉ International
- Started career at Alstom Power in 2002 working as a Diagnostic / Thermodynamic Development engineer, becoming a Technical Project Manager in 2006
- Appointed as the Business Sales Manager at Alstom Power in 2010, specializing in Value Based Pricing, Commercial Awareness, and Sales/Negotiations
- He has an MBA from the Swiss Business School of Zurich, Switzerland.



**Martin Bachmann**  
**Director**

- Advisor and Member of the Investment Committee for QG Investments Africa Managements Ltd.
- Executive Vice President of Pöyry PLC. Responsible for the Global Water & Environment Business Group with business units in Europe, Asia, Africa and Latin America.
- Head of International Department Electrowatt Infra AG
- Senior Engineer Parsons Brinckerhoff and previously Deputy Project Manager BAUER Spezialtiefbau GmbH.
- Founder and Chairman of BAB Global AG
- Member of the Board of Directors for Link Africa Group Ltd..





## Management

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### **Ana Gorgyan** – *Associate Director and Company Secretary*

Ana joined IPC in 2008 after her MBA from Copenhagen Business School. She also holds a Master's degree in Mechanical Engineering from the Royal Institute of Technology Stockholm, Sweden. She has gained hands-on experience in power development sector developing and managing power projects in emerging markets in Russia, Kazakhstan, UAE and Chile among others. Over the past year she has been in technical advisory role to RSS, a rental solutions group from Dubai, on 200MW power development in Ghana. Ana worked as investment advisor for telecommunication and biopharmaceutical industries in the past. She is a qualified Chartered Engineer and has been nominated for the Young Energy Professional Award 2014 with Energy Institute, UK's professional body for the energy industry.

### **Ian Cowan** – *Senior Project Manager*

Ian Cowan has almost 30 years of experience in project development and project management / engineering, construction management and plant operations / commissioning (power generation / chemical processes) and 21 years within power generation across numerous projects with an aggregated capacity of 3,000 MW in Europe, the Middle East and Africa. He held positions as hands-on project manager on all projects within the last 11 years running teams of up to 100 staff at any one time, with overall commercial as well as technical responsibilities. He has extensive experience of all aspects of power plant design, construction and commissioning. Ian acts as project manager during EPC selection, leading to financial close, transferring to the site works through to commercial operation.



## London Team

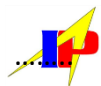
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### **Jelena Zivkovic** –*Accounts Manager*

Jelena joined IPC in 2005 and has been consolidating accounts records since then. She has previously worked as credit controller in construction industry for Delmatic Ltd and bookkeeping for Kvaerner. She has Honorary Degree in English Language and Literature from the University of Sarajevo and started her career as a secondary school teacher of English.

### **Miguel Herrero** – *Assistant General*

Miguel is a philosophy, politics, and economics graduate from the University of East Anglia and holds an MSc in Global Governance and Ethics from UCL. Miguel joined in 2017 and assists with English-Spanish translations , IPC presentations, and project administration and support.



## Senior IPC Consultants

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### **Gerry Blake** – *Senior Engineer*

Gerry has been a director of IPOL since 2004 until 2011. Before that he was a general manager at National Power UK, before being appointed as the director of construction and operation of a 1,320 MW oil-fired power station in Karachi, Pakistan. He also served as energy consultant for a Surat Dawson 500 MW clean coal IGCC project in Transfield, and a vice president of operations and construction of a 1,000 MW coal and oil fired plant in Dominican Republic.

### **Jaime Aliaga** – *Project Administration*

Jaime has worked with IPC since 2004 and has served as general manager of power generation companies and projects in Latin America, most notably Bolivia. He has also served as a sector regulator overseeing privatised industries. He has a Metallurgical Engineering Degree from University of La Plata, Argentina, as well as an MBA. He speaks Portuguese.

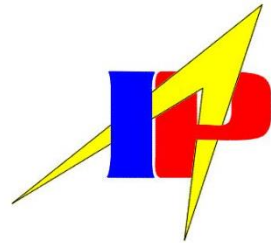
### **Rudy Virreira** – *Plant Manager*

Rudy is a BSc graduate of the University of Guadalajara, Mexico in Mechanical and Electrical Engineering. He has worked with IPC in Africa, the Middle East and Latin America as plant manager focusing on gas turbines. He has special knowledge of aero-derivative gas turbines, managing plants using General Electric LM 2500s and LM 6000s.

### **Tarek El Sheikh** – *Project Manager*

Tarek has 28 years of international experience within power generation plants and their construction on an EPC basis in the Middle East, Gulf countries and Africa working with multinational contracting companies where he has managed all aspects of strategic engineering projects. He has supervised the installation of General Electric 9E based gas fired power plants in Egypt working with Kharafi National of Kuwait.





# Appendix I

## Past Projects



## Karaganda GRES 2, Kazakhstan

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In October 1996, through a 75% owned subsidiary, IPC entered into a joint venture with Samsung Deutschland A.G. (“Samsung”) to acquire Karaganda GRES 2 (“K2”), a 608MW coal-fired plant located in Karaganda, Kazakhstan.

Having acquired the plant, IPC set about improving operating performance and the efficiency of the staff. Previously loss-making, it was returned to profit within a six month period through the judicious use of credit-worthy PPAs denominated in US dollars.



<b>Location:</b>	Karaganda, Kazakhstan
<b>Type of Project:</b>	Coal Fired
<b>Size of Project:</b>	608 MW
<b>Start of Project:</b>	1996
<b>Status of Project:</b>	Owned, Operated



## Karaganda TETS 1 and TETS 3, Kazakhstan

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In September 2002, IPC took over the management of some 475MW of coal-fired installed capacity in Kazakhstan as part of a buy-out of Karaganda Power Company by Integrated Energy Limited, a power generation investment company. This role as Technical Operator of Karaganda TETS 1 and TETS 3 was approved by both the Government of Kazakhstan and the European Bank for Reconstruction and Development (“EBRD”). Both plants were run by IPC’s O&M subsidiary, IPOL.



<b>Location:</b>	Karaganda, Kazakhstan
<b>Type of Project:</b>	Coal Fired
<b>Size of Project:</b>	475 MW
<b>Start of Project:</b>	2002
<b>Status of Project:</b>	Owned, Operated



## Pawnee, Denver, Colorado, USA - OCGT

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In February 1999, IPA, a wholly-owned subsidiary of IPC, was selected in a tender by Public Service Company of Colorado (“PSCo”) on an arms length basis to supply 214MW for seven years at a rate of US\$5.13 per kW month. The Pawnee Project - located in Denver, Colorado - was IPC’s first greenfield development. The development timetable for the project was particularly tight as there were significant penalties in the event that power was not available in time.



<b>Location:</b>	Denver, USA
<b>Type of Project:</b>	Greenfield development
<b>Size of Project:</b>	214 MW
<b>Start of Project:</b>	1999
<b>Status of Project:</b>	Developed, Owned



## Central Piedra Buena, Argentina

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Central Piedra Buena (“CPB”), is the 620MW gas-fired plant in Bahia Blanca, which was offered for privatization by way of a trade sale by the Province of Buenos Aires in 1997. It was one of the few power assets that had not been privatised in the earlier electricity privatisations of 1993. Following a successful tender in October 1997, IPC took a 39 per cent. stake in CPB in partnership with Camuzzi while IPC’s operations subsidiary undertook the role of operator of the plant.



<b>Location:</b>	Bahia Blanca, Argentina
<b>Type of Project:</b>	CCGT
<b>Size of Project:</b>	620 MW
<b>Start of Project:</b>	1997
<b>Status of Project:</b>	Owned, Operated





## Karbochem, KwaZulu Natal, South Africa – CCGT/CHP

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Constructed by former IPC affiliate, IPSA Group PLC, Newcastle Cogeneration provides 16 MWe effective capacity through the installation of:

- two gas turbines (GT) of 6.25 MWe capacity;
- one steam turbine (ST) of 6 MWe capacity.

Electricity generated is sold to Eskom and wheeled through the Newcastle municipal system.

The project has also installed two 55 ton/hr boilers. These generate steam to three occupants of the Karbochem site:



<b>Location:</b>	Newcastle, Republic of South Africa
<b>Type of Project:</b>	CCGT CHP
<b>Size of Project:</b>	18 MWe
<b>Start of Project:</b>	December 2005
<b>Status of Project:</b>	Completed April 2007



## Ras Al Khaimah, United Arab Emirates - OCGT

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The project has installed two LM2500 gas turbines operating in open cycle mode. This involved the installation of two generating units. The first unit was commissioned in February 2009 and the second unit in April 2009. The plant was noteworthy not only for its speed of installation but for the new control system which permits islanded operation of the two gas turbines in open cycle.



<b>Location:</b>	Al Hamra, Ras Al Khaimah
<b>Type of Project:</b>	OCGT
<b>Size of Project:</b>	45 MW
<b>Start of Project:</b>	September 2008
<b>Status of Project:</b>	Commercial operation April 2009



## Energia del Sur, Patagonia, Argentina - CCGT

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The project has converted two General Electric 6551B gas turbines operating in open cycle mode with 76 MW of net installed capacity to combined cycle operation. This involved the installation of two heat recovery steam generators (HRSGs) that utilize the waste heat from the gas turbine to raise steam. The steam is used to generate electricity using a steam turbine. The project resulted in approximately 73% efficiency increase of the plant. In order fully to harness the capacity of the new steam turbine, the project also includes gas over-firing in the steam turbine with a consequent increase of the effective capacity at the project site.



<b>Location:</b>	Comodoro Rivadavia, Argentina
<b>Type of Project:</b>	CCGT
<b>Size of Project:</b>	134 MW
<b>Start of Project:</b>	March 2007
<b>Status of Project:</b>	Completed April 2009 CER application UN registered



## Guaracachi, Santa Cruz, Bolivia - OCGT

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The project installed one General Electric 6FA gas turbines operating in open cycle. This involved the transport of the turbine from the Chilean port of Arica to Santa Cruz through the Andes. The turbine nominal capacity of 71 MW has increased the plant capacity in Santa Cruz.



<b>Location:</b>	Santa Cruz, Bolivia
<b>Type of Project:</b>	OCGT
<b>Size of Project:</b>	71 MW
<b>Start of Project:</b>	2006
<b>Status of Project:</b>	Commissioned March 2007



## Guaracachi, Sucre, Bolivia – Gas Engines

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The project installed seven Jenbacher gas engines in Sucre. This involved the installation of new capacity and the replacement of two Worthington dual fuel engines.



<b>Location:</b>	Sucre, Bolivia
<b>Type of Project:</b>	Gas engine
<b>Size of Project:</b>	6 MW
<b>Start of Project:</b>	2006 First Phase
<b>Status of Project:</b>	Completed 2009



## Guaracachi, Santa Cruz, Bolivia - CCGT

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The project converted two General Electric 6FA gas turbines operating in open cycle mode to combined cycle. This involved the installation of two heat recovery steam generating boilers which utilized the waste heat from the gas turbine to raise steam. The steam was used to generate electricity using an associated steam turbine of 68 MW capacity with over-firing taking the gross capacity to 96 MW.



<b>Location:</b>	Santa Cruz, Bolivia
<b>Type of Project:</b>	CCGT conversion
<b>Size of Project:</b>	90 MW
<b>Start of Project:</b>	2007
<b>Status of Project:</b>	In full commercial operation CER application UN registered



## Hidroelectrica Ameghino, Chubut Province, Argentina - ST

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In June 2000, IPC's shareholders acquired from Camuzzi Argentina, S.A. a controlling interest in an Argentine holding company called Hidroelectrica del Sur, S.A. This company in turn owned a 59 per cent. stake in Hidroelectrica Ameghino, S.A. which owned the privatised 48 MW Ameghino hydroelectric power plant near Trelew in the Chubut Province of Argentina.

At the same time IPC's operating subsidiary took responsibility for all operations of the plant and all aspects of administration, including dispatch. This involved construction of a new online dispatch centre in Buenos Aires linking Ameghino into the Argentine wholesale market system (or MEM) under the control of CAMMESA.



<b>Location:</b>	Trelew, Argentina
<b>Type of Project:</b>	Hydro
<b>Size of Project:</b>	48 MW
<b>Start of Project:</b>	2000
<b>Status of Project:</b>	Owned, Operated



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