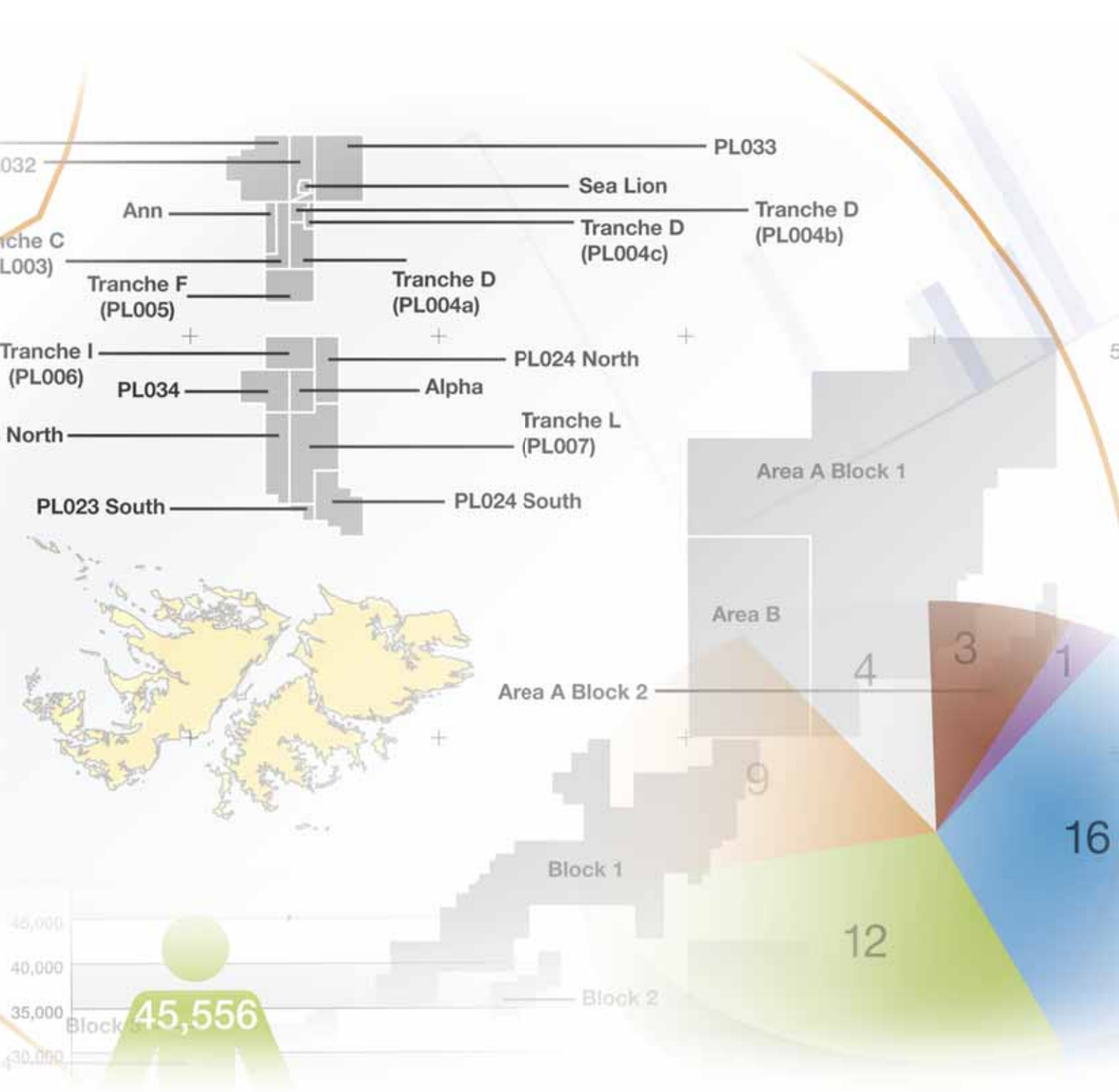
IHS **Networked Report**

The Falkland (*Malvinas*) Islands

April 2012



Executive Summary

The dispute between Argentina and the United Kingdom over the sovereignty of the Falkland (*Malvinas*) Islands is well documented and has become the focus of increasing media attention in the run up to the 30th anniversary of the 1982 conflict. The anniversary comes at a time when energy exploration by British companies in the Islands' waters has complicated the matter further, potentially transforming a dispute over sovereignty into a competition for the Falklands' untapped resources. Given that the political situation reveals little appetite for compromise it is unsurprising that questions are being asked about the possibility of another conflict over the Islands.

By harnessing a broad range of IHS products and expertise through a combination of written analysis and data visualisation, this report provides key information on a wide array of issues surrounding the Falkland (*Malvinas*) Islands in 2012: Transcending the political, energy and military dimensions of the Falklands dispute to provide comprehensive information and insight. The purpose of the report is not to provide conclusions, but rather, to provide key information from which informed conclusions can be drawn.

Politics

Efforts by the Argentine government to challenge the UK over the sovereignty of the Falkland (*Malvinas*) Islands and the ongoing oil exploration by UK companies in the Islands' waters has led to an increasingly hostile exchange of rhetoric between Argentina and the UK. The Argentine President, Cristina Fernández de Kirchner, and the UK Prime Minister, David Cameron, have traded allegations of colonialism.

Argentina is engaged in efforts to garner regional and international support on the Malvinas issue, whilst also imposing limited sanctions on the Islands themselves, in order to maintain pressure on the British government to engage with Argentine concerns. The UK has affirmed its commitment to the Islands, maintaining that it is not open to negotiations over sovereignty with Argentina unless the Falkland Islanders themselves request them.

Throughout 2011 and into 2012 a number of events occurred indicating that the issue of the Islands' status is growing more prevalent rather than receding. Argentina has secured a MERCOSUR ban on Falkland-flagged shipping, nominally excluding vessels from the ports of member states. The UK has bolstered its military position in the region, replacing the Frigate *HMS Montrose* with *HMS Dauntless* – an advanced Type 45 Destroyer – on South Atlantic patrol duty.

There is potential for further escalation during the 1982 conflict's anniversary on 2 April 2012 and in its aftermath; ranging from attacks by Argentine civilians on businesses or symbols associated with the UK, to further lobbying and counter-lobbying in international forums.

Energy

The energy situation provides a highly significant economic dimension to the present dispute. Exploratory drilling in the basins surrounding the Falkland (*Malvinas*) Islands has revealed working petroleum systems of an, as yet, unconfirmed value.

The Falkland (*Malvinas*) Islands has the autonomy to regulate local energy exploration and production, with ultimate authority to issue licences held by the Governor of the Falkland Islands under an "open door" licensing system. Significantly, all companies operating in the Islands are UK based, with Falkland Oil and Gas Ltd. currently holding the highest percentage acreage.

The most significant event of the exploration process so far has been the announcement of an oil discovery by Rockhopper Exploration's Sea Lion prospect. Estimates from this prospect indicate a potential 350 million barrels so far, with further finds possible as the exploration process continues. Based on conservative estimates *IHS Herold's* valuation of the Sea Lion Oil Field presently stands at USD3.1 billion, Rockhopper is now seeking a large international partner to fund further development.

Given its own claims to the sovereignty of the Falkland (*Malvinas*) Islands, Argentina maintains that all oil exploration without a permit from its own government is illegal; issuing threats of legal action and enacting sanctions against all companies involved with the exploration process, barring them from operating in Argentina. If enforced, such sanctions could affect companies currently involved in oil exploration around the Islands.

Military

The military situation in the South Atlantic has recently received increased attention as a result of heightened political tensions in the region. The 30th anniversary of the 1982 conflict has also led to questions as to the condition of Argentine and UK forces. Argentina's armed forces have suffered as a result of prolonged economic problems. Aging equipment is now a significant problem for both the navy and the air force, although small modernisation programmes have been underway since the mid-2000s, Argentine inventories continue to be composed of equipment that lags far behind the modernity of British equipment.

The UK's deployment of the Destroyer *HMS Dauntless* to the South Atlantic has been the most significant military development in recent months. The Type 45 destroyer is one of the Royal Navy's most modern warships, equipped with the Sea Viper surface-to-air (SAM) missile systems, designed to track and engage multiple aerial targets simultaneously. This move could be construed as a symbolic show of strength, illustrating the level of the UK's commitment to the defence of the Islands.

A specifications analysis of relevant military equipment confirms the UK's technological superiority; UK Typhoon aircraft based on the Islands are significantly more modern and carry long range air-to-air missiles, whilst *HMS Dauntless*' Sea Viper system also provides significant anti-air capability. Furthermore, in budgets and procurement, the UK maintains a significant lead over Argentina into the next decade, making it unlikely that Argentina will be able to close the technology gap currently evident.

Contents

The Political Context

Relations between Argentina and the UK have become increasingly sour as a result of the ongoing dispute over the sovereignty of the Falklands *(Malvinas)* Islands. The issue has recently become particularly pronounced as a result of four main factors:

- President Cristina Fernández de Kirchner, initially elected in 2007 and now serving a second presidential term in Argentina, has pursued a policy of only co-operating over the Falklands *(Malvinas)* if sovereignty discussions are on the table. A development of the more assertively nationalistic approach pursued by her late husband President Néstor Kirchner.

- Exploratory oil drilling, conducted by British companies in the waters around the Islands since 2010, has aggravated the issue; leading to accusations from Argentina that the UK was "plundering" its natural resources.

- The 30th anniversary of the conflict has served to draw additional public and media attention to the islands, the conflict of 1982 and contesting claims to sovereignty.

- The UK announced the deployment of one of its modern warships to the region – the Type 45 destroyer *HMS Dauntless* – at around the same time as the heir to the throne Prince William began a six-week tour of duty on the Islands as a search-and-rescue pilot. This lead to Argentine claims that the UK was militarising the dispute.

In spite of efforts by Argentina to get a sovereignty discussion onto the diplomatic agenda, the UK has consistently refused to engage on this issue given the explicit wish of the islanders to remain British. Argentina has sought to regionalise the issue, making an effort to engage diplomatically with neighbouring countries in an effort to isolate the UK. Some regional countries' rhetoric in support of Argentina has been especially strong, notably from certain member countries of the left-of-centre regional ALBA grouping. One action that drew particular attention was a recent agreement of regional countries not to allow Falkland-flagged vessels to use their ports. However, rather than being a significant statement of regional intent, the action is in practice a no-cost move that permits a show of regional solidarity without presenting major difficulties that would threaten bi-lateral relationships with the UK. Firstly, Falkland-flagged vessels are relatively few in number and almost irrelevant in economic terms to regional countries, secondly, changing the Falklands flag to that of other jurisdictions does not present major difficulties. A key development in the months ahead is likely to be renewed efforts by Argentina to shore up its position diplomatically. The appointment of an ambassador to the UK for the first time since August 2008 is indicative of the fact that the Argentine government is unwilling to let the Malvinas issue slide. The fact that the appointee, Alicia Castro, is known to be close to President Cristina Fernández de Kirchner further illustrates the importance the administration places on pursuing the issue.

Aside from affirming its commitment to the Falklands *(Malvinas)* Islands, reaction from the UK government has been fairly low key, underlining the fact that Argentina has yet to pursue any sanctions that are seriously disruptive to the Islanders. The UK's own economic interests are not currently threatened by Argentine policy and a trade war between the two countries is unlikely given that a formal boycott of British goods would almost certainly lead to the European Union exerting pressure on the Argentine government to back down. Neither the Falkland Islands Government (FIG) nor the UK government consider there to be any military threat from Argentina to the islands. UK Defence Secretary Phillip Hammond confirmed this in the UK Parliament on 20 February stating: "There is no evidence of any current credible military threat to the security of the Falkland Islands and therefore no current plan for significant changes to force deployments". Sukey Cameron, a FIG representative at its London office mirrored the Defence Secretary's statement, asserting that the FIG had "no fears of invasion". Argentina is bound to a peaceful pursuit of sovereignty by its 1994 constitution and there is no popular appetite for war: a 2010 poll in Argentina found that only 3% of respondents were in favour of military action to occupy the Islands, while a full 60% favoured the diplomatic route.

One key concern on the islands themselves is the potential loss of the air-link provided by LAN Chile, the Islands' only direct connection with the South American mainland which would be lost if Argentina were to deny LAN the right to use its airspace. At present this seems unlikely, not least because it has fiercely denied that it is imposing any type of "economic blockade" on the Islands, which would be unlikely to strengthen its current rhetoric of "wronged victim of colonialism". What is possible – although thus far difficult to assess how likely – is a perhaps subtler approach of suggesting that LAN Chile will be denied using Buenos Aires' city centre Aeroparque airport, forcing it instead to use exclusively the far larger - and more distant from the central business district - Ezeiza airport. That could potentially impact LAN revenues on the busy Santiago-Buenos Aires route, as both tourists and business travellers calculate the additional costs in time and money that such a change would imply. In effect, it would be an implicit exchange of the continued use of Aeroparque for stopping the Falklands flights. The isolation the Falkland (*Malvinas*) Islands from the South American mainland remains the most prominent threat to the Islanders at the present time.

Argentine - UK Relations 2012

Summary

UK-Argentine relations are at their lowest point since 1982, with no prospect of significant improvement while the government of Argentine President Cristina Fernández de Kirchner remains in power.

Despite heightened rhetoric and media scare-mongering on both sides, the possibility of large-scale future military conflict between the two countries is negligible.

Further escalation of tensions will come principally in the diplomatic and economic areas, with Argentina's actual ability to impact on the Islands' wellbeing and administration relatively limited.

Oil exploration and exploitation in Falklands (*Malvinas*) waters will continue untrammelled by Argentina's newly assertive stance, in the event of commercial extraction Argentina would be unable to impede operations short of a risky military adventure.

During April-June, tensions will rise to particularly high levels, with a threat of attacks on identifiably British interests in Argentina and the possibility of maverick actions by Argentine nationalist or veterans' groups.

Thereafter, although tensions should subside somewhat, the likelihood of deteriorating economic indicators in Argentina throughout 2012 suggests that the issue will continue to remain high-profile. Moreover, with the 180th anniversary of the British 'occupation' of the Islands occurring in 2013 alongside Argentine mid-term elections, elevated medium-term tensions over the Islands also appear inevitable.

Key Recent Events

Date	Measure
1 March 2012	Argentina calls for direct flights between Buenos Aires and Falklands
29 February 2012	Minister of Industry calls for boycott of British imports
27 February 2012	UK cruise ships denied access to two Patagonian ports
13 February 2012	Argentine transport union announces boycott of UK shipping
7 February 2012	Argentina threatens to take Falklands case to UN
2 February 2012	Leftist protestors attack UK-affiliated businesses including HSBC bank
11 January 2012	Argentine fishing fleets urged to catch squid before it enters Falklands waters
31 January 2012	UK announces deployment of HMS Dauntless to Falklands
22 January 2012	Second oil exploration rig arrives in Falklands waters
20 December 2011	MERCOSUR bans Falklands-flagged shipping
26 November 2011	Spanish trawlers complain of Argentine harassment
23 September 2011	Argentine UN ambassador threatens cutting of Falklands air link
8 June 2011	OAS calls on Argentina and UK to negotiate over Falklands

Outlook and Implications

There is no prospect of substantially improved relations between Argentina and the UK while the Fernández administration remains in power. Fernández has adopted the Malvinas issue as a personal cause, and with the resolute refusal of the Islanders to consider sovereignty negotiations, neither side will make any concessions – particularly because of the 30th anniversary celebrations. This will undermine UK attempts to improve its trade relations with Argentina, particularly at a time when it has mounted a re-energised campaign to improve its diplomatic relations and trade links with the region. Nevertheless, analysis suggests that Argentina's actual ability to prosecute its claim outside diplomatic circles is low. *IHS Global Insight* and *IHS Jane's* therefore believe that the likeliest short-term scenario is for rhetoric on all sides to increase substantially during the anniversary celebrations, with a high possibility of attacks on identifiably British targets in Argentina during April and June and the possibility of an attempt by ultra-nationalist or veterans' groups during the period to make a symbolic incursion into Falklands territory or waters. Following the anniversary, tensions may remain high as deteriorating Argentine economic indicators give the government cause to seek foreign distractions. This is likely to remain the case into 2013, which will mark the 180th anniversary of the British 'occupation' of the Islands in 1833 and will be accompanied by mid-term legislative elections in Argentina. Nevertheless, a broader 'trade war' or military action remain significantly more remote possibilities. In summary, it is a dispute that is likely to play out in piecemeal operational, diplomatic and economic measures rather than with any risk of wide-scale military hostilities.

Escalatory Scenarios: Argentina

Tactic	Likelihood
Physical attacks on property, businesses or symbols associated with the UK in Argentina	High
Further diplomatic lobbying in international fora, including the EU	High
Further harassment of Falklands-flagged or UK vessels operating in the region	Moderate to High
Pressure on or action by ALBA countries to support Argentine position	Moderate to High
Proxy and deniable action by ultra-nationalist or veterans groups to make a symbolic political gesture on Falklands territory during anniversary celebrations	Moderate
Suspend LAN flights to the Islands	Low to Moderate
Transfer LAN flights from Aeroparque Jorge Newbery	Low
Imposition of formal import hurdles for British goods	Low
Direct military action to retake the Islands	Negligible

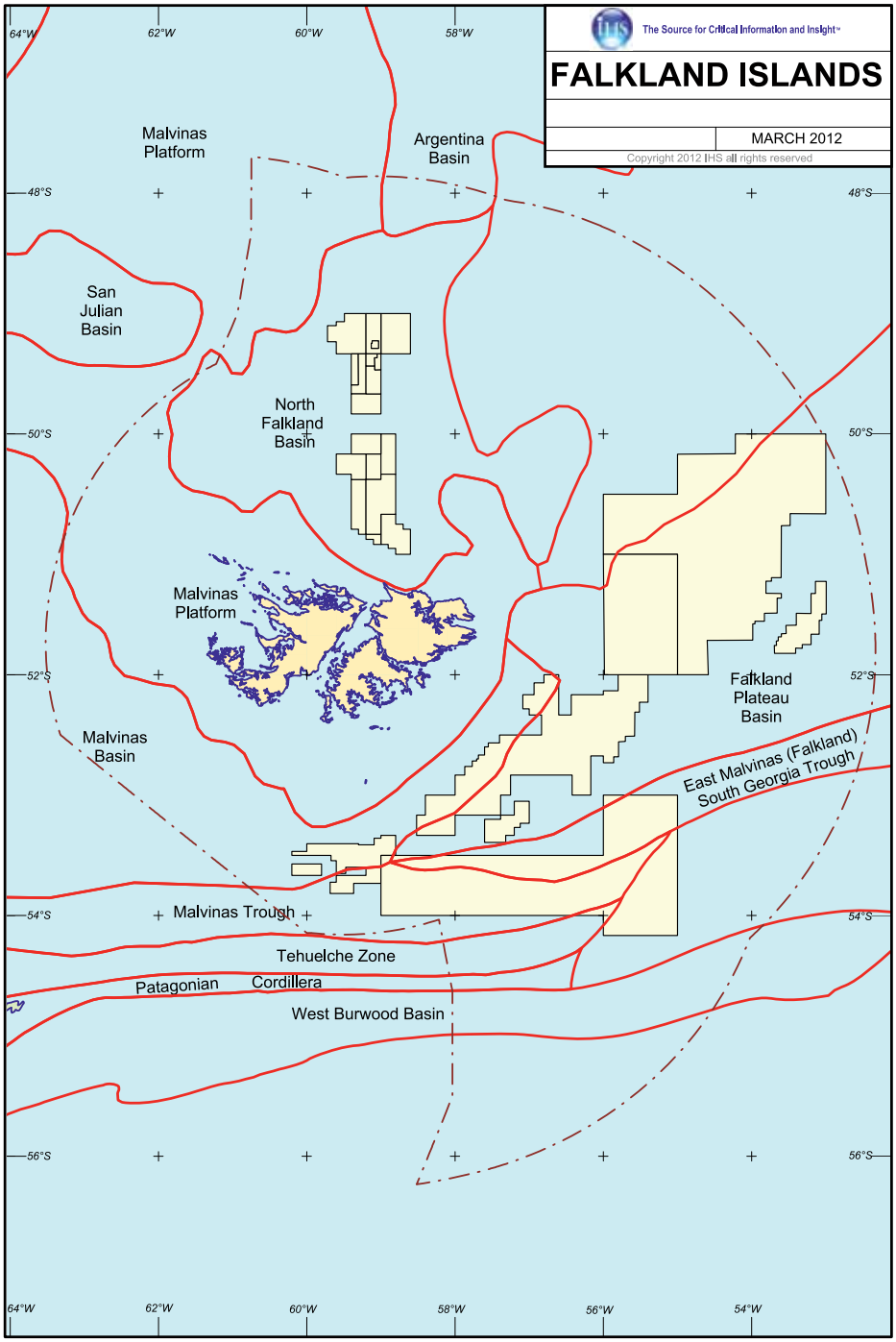
Escalatory Scenarios: United Kingdom

Tactic	Likelihood
Concerted diplomatic campaign within EU to counter Argentine initiatives	High
Increased diplomatic lobbying within Latin America, the Caribbean and UN	Moderate to High
Pressure for end to EU aid programmes to Argentina	Low
Pressure on other international creditors of Argentina (World Bank, IMF, Paris Club)	Low
Formal import measures against Argentine goods	Negligible

Geology

The Falkland (*Malvinas*) Islands are located off the coast of Argentina in the South Atlantic Ocean on a projection of the Patagonian continental shelf. About 230 million years ago, this shelf broke off from what is now South Africa and drifted toward South America as part of the rotation that formed Antarctica. Crustal fragments formed into approximately 740 islands, including the two main Islands, East Falkland and West Falkland.

The Islands are surrounded by four major Mesozoic to Cenozoic sedimentary basins: the Falkland Plateau Basin to the east, the South Falkland Basin to the south, the Malvinas Basin to the west, and the North Falkland Basin to the north. The Falkland Plateau Basin, Malvinas Basin and South Falkland Basin are interconnected, and although their tectono-stratigraphic histories vary, regional correlation of major seismic reflectors between basins allow comparisons to be made. The North Falkland Basin is structurally isolated within the Falkland Plateau north of the Islands.



The basins surrounding the Islands have very rich source rock, and drilling to date has revealed working petroleum systems. The North Falklands sedimentary basin, which has been the target of almost all recent exploration, is formed by two rifts in the continental material that are aligned north to south. This is analogous to the Albert Basin, a portion of the Great African Rift Valley, with oil fields whose total recoverable resources are approximately 900 million barrels of oil based on limited exploration. But unlike the East African basin, the North Falklands Basin features oil from stratigraphic traps, based on the Sea Lion discovery: Because these formations are more difficult to detect through seismic imaging, determining the ultimate hydrocarbon potential might require prolonged exploration.

Exploration History

In 1996, seven Production Licenses were awarded to fourteen companies in the North Falklands Basin, which resulted in the drilling of six wells in 1998. Although five of the six wells had hydrocarbon shows, none were considered commercial. A subsequent review of the wells by the Falkland Island Government concluded that they had all targeted the wrong play concept. Although the results indicated rich source rock, the wells were principally directed at a Lower Cretaceous sandstone that was under-charged. These initial licenses were eventually relinquished or transferred. However, a positive long term oil price outlook and technological advances led to a new wave of interest in this frontier play that resulted in new licensees and a new round of drilling.

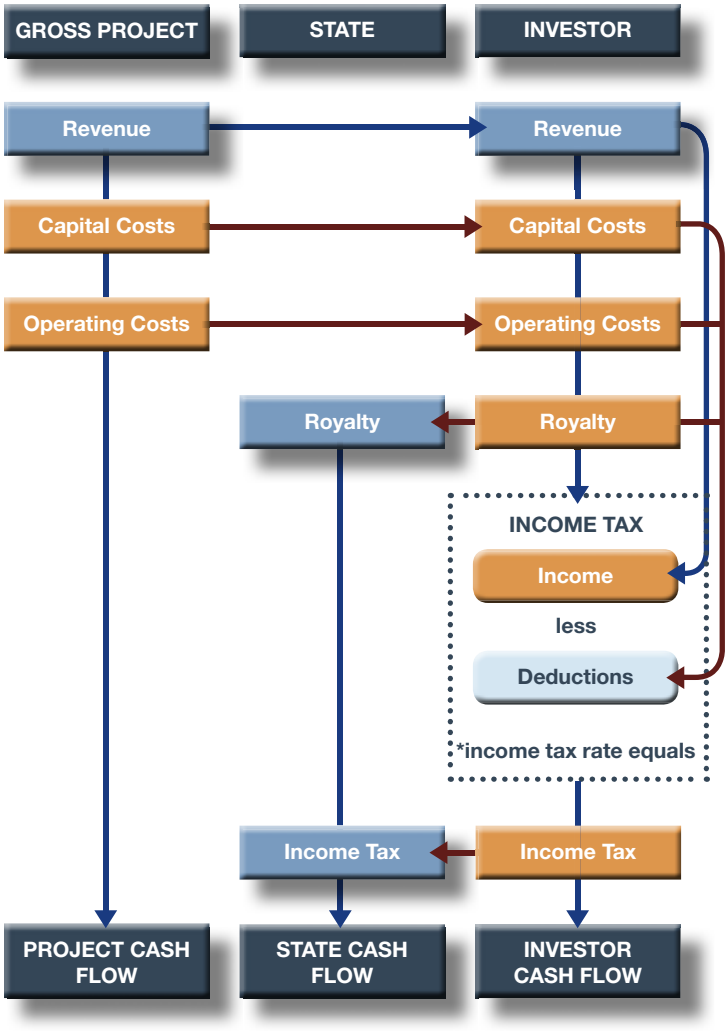
Key Legal & Contractual Elements

INTRODUCTION	Although the region is an overseas territory of the UK, it has autonomy to regulate on hydrocarbon exploration and production activities. To this end, it has passed several legislative documents, the main ones being: Offshore Minerals Ordinance 1994 (as amended), Offshore Petroleum (Licensing) Regulations 1995 and the Offshore Petroleum (Licensing) Regulations 2000 (as amended). Among other issues, these legislative documents deal with the grant of offshore licences and the manner in which operations should be carried out. With regard to contract-specific provisions, model terms are outlined in the relevant licensing guidelines. In addition, the Offshore Petroleum (Licensing) Regulations 2000 prescribe model clauses to be incorporated as licence conditions. Taxation is governed by the provisions of the 1997 Tax Ordinance (as amended).
LICENSING	Even though competitive licensing rounds were held in the past and they are not excluded from the domestic regime, the territory operates an "open door" licensing system. Licences are granted by the Governor of the Falkland Islands upon recommendation by the Department of Mineral Resources (Falkland Islands).
EXPLORATION TERMS	**Type of Right:** Exploration rights can be obtained by way of an Exploration Licence (EL) or a Production Licence (PL). ELs grant companies the right to acquire data (they do not allow drilling deeper than 350 metres); ELs are not area-specific. Contrarily, PLs award exclusive exploration rights over a specific area. **Duration: EL:** 1 year renewable for up to 3 years. PL: Duration divided into 2 or 3 phases (depending on whether acreage was granted as a result of an open door application or a competitive round). Duration of each phase will depend on work commitments. The first phase ranges from 3 to 8 years; the second phase from 5 to 7 years and the third phase (only available as a result of a competitive round) 10 years. **Exploration Obligations:** No minimum commitments are required under an EL. A PL will require minimum work commitments, which are negotiable. During the initial term the licensee is required to complete geological surveying by any physical or chemical means. Drilling is required from the second term.
PRODUCTION TERMS	**Duration:** 35 years (extensions may be allowed to complete production). **Disposal:** There is no specific requirement for the licensee to supply the domestic market and there are no export restrictions.

Main Fiscal Terms

FISCAL REGIME	Royalty/Tax
BONUSES AND OTHER PAYMENTS	No bonuses are required. Annual rental payments ranging from USD30,000 to USD375,000, depending on the stage of the project, are required
STATE PARTICIPATION	None
ROYALTY	9% of gross revenue
INCOME TAX	Levied at 26% on revenue less deductions and depreciation
WITHHOLDING TAX	None

Fiscal Regime - Schematic Representation



Colour Key: Plus | Minus

Source: Petroleum Economics and Policy Solutions (PEPS)

Licensing and License Holders

In 2001, the Falkland (*Malvinas*) Islands replaced the competitive bid system for awarding blocks with an open door license system, under which companies can apply any time. Six companies, five publicly traded and all headquartered in the UK, currently operate in the Falkland (*Malvinas*) Islands. Borders and Southern Petroleum and Falkland Oil & Gas Ltd., both established to seek Falkland licenses in 2004, hold acreage in the South Falkland and Falkland Plateau Basins. North Falkland Basin license holders are Desire Petroleum Ltd. and Argos Resources, both of which were involved in original licenses granted in 1996, and "newcomers" Rockhopper Petroleum and private Denholm Oil & Gas Ltd. Although 70% of the blocks (18 out of 26) are located in the North Falkland Basin, those blocks are significantly smaller in size and only account for 11.74% of the total acreage currently under contract. The five public companies are traded on AIM, the London Stock Exchange's international market for smaller growing companies.

Block Ownership

Company Name	Total Net Sqkm	Total Net Acres	% of Total
Falkland Oil and Gas Ltd	49,214	12,161,116	63.22%
Borders and Southern Petroleum	19,500	4,818,554	25.05%
Rockhopper Exploration Ltd	3,835	947,700	4.93%
Desire Petroleum Ltd	3,442	850,451	4.42%
Argos	1,147	283,430	1.47%
Denholm Oil & Gas Ltd	712	175,976	0.91%
Total	77,850	19,237,226	

Data from EDIN

Acreage by Company

Company Name	Block Name	Interests Pct
Argos Ltd	Tranche A (PL 001)	100
Borders and Southern Petroleum	South Falklands Malvinas Trough	100
Denholm Oil & Gas Ltd	PL034	80
Denholm Oil & Gas Ltd	Ann	35
Denholm Oil & Gas Ltd	Alpha	50
Desire Petroleum Ltd	PL034	20
Desire Petroleum Ltd	Ann	57.5
Desire Petroleum Ltd	Tranche C (PL 003)	92.5
Desire Petroleum Ltd	Tranche D (PL 004a)	92.5
Desire Petroleum Ltd	Tranche D (PL 004b)	40
Desire Petroleum Ltd	Tranche D (PL 004c)	75
Desire Petroleum Ltd	Tranche F (PL 005)	100
Desire Petroleum Ltd	Alpha	50
Desire Petroleum Ltd	Tranche I (PL 006)	100
Desire Petroleum Ltd	Tranche L (PL 007)	100
Falkland Oil and Gas Ltd	Area A Block 1	100
Falkland Oil and Gas Ltd	Area A Block 2	100
Falkland Oil and Gas Ltd	Area B	100
Falkland Oil and Gas Ltd	Block 1	100
Falkland Oil and Gas Ltd	Block 2	100
Falkland Oil and Gas Ltd	Block 3	100
Falkland Oil and Gas Ltd	Block 4	100
Rockhopper Exploration Ltd	PL023 North	100
Rockhopper Exploration Ltd	PL023 South	100
Rockhopper Exploration Ltd	PL024 North	100
Rockhopper Exploration Ltd	PL024 South	100
Rockhopper Exploration Ltd	PL032	100
Rockhopper Exploration Ltd	Sea Lion	100
Rockhopper Exploration Ltd	PL033	100
Rockhopper Exploration Ltd	Ann	7.5
Rockhopper Exploration Ltd	Tranche C (PL 003)	7.5
Rockhopper Exploration Ltd	Tranche D (PL 004a)	7.5
Rockhopper Exploration Ltd	Tranche D (PL 004b)	60
Rockhopper Exploration Ltd	Tranche D (PL 004c)	25

Data from EDIN

Exploration Results

Rockhopper Exploration's May 6, 2010 announcement of an oil discovery on its Sea Lion prospect in the North Falkland Basin has been the highlight of the recent Falkland (*Malvinas*) Islands exploration. Rockhopper has been successful on seven of nine Sea Lion exploration and appraisal wells, which have collectively discovered an estimated 350 million barrels of recoverable oil. In addition, Rockhopper has announced oil and gas discoveries at Casper and Casper South and the Beverly gas discovery. While not large, these add incremental resources that further support the economics of Sea Lion development.

		Recoverable Reserves			
Field Name	**Operator**	**Oil (MMbbl)**	**Gas (Bcf)**	**Condensate (MMbbl)**	**Total (MMboe)**
14/15-04 (Beverly, Casper, Casper South)	Rockhopper Exploration Ltd	25	210	2	62
Liz	Desire Petroleum Ltd		110	12.65	31
Sea Lion	Rockhopper Exploration Ltd	310	90		325
Sebald (Johnson)	Rockhopper Exploration Ltd		1560	1.5	262

Data from EDIN

The rest of the 20 wells drilled since February 2010, have been unsuccessful. Desire Petroleum has drilled six wells with only a small gas discovery and, out of cash, it recently farmed out a 52.5% interest in block PL004b (Area 1) and a 17.5% interest in PL004c (Areas 2) to Rockhopper. The Sea Lion and Casper/Beverly discoveries extend into both blocks. The only well completed in the South Falkland Basin, Toroa well, was a dry hole and caused BHP Billiton to exit its partnership with Falkland Oil & Gas. Borders & Southern Petroleum is currently drilling the second exploration well (Darwin 1) in the South Falkland Basin, with results expected in late March 2012.

Well Name	Total Depth (Feet)	Operator Name	Block Name	Spud Date	Notes
Sebald 1A/Johnson 1A (14/05-01A)	14,846	Shell Exploration Co BV	Tranche B (PL 002)	07/05/1998	Gas discovery
Little Blue 1 (14/09-01)	8,579	Amerada Hess (Falkland Isl) Ltd	Tranche A (PL 001)	26/04/1998	Dry Hole - Encountered traces of hydrocarbons
Galapagos 1 (14/09-02)	7,779	Amerada Hess (Falkland Isl) Ltd	Tranche A (PL 001)	13/10/1998	Dry Hole
Fitzroy 1 (14/10-01)	9,859	Shell Exploration Co BV	Tranche B (PL 002)	31/10/1998	Dry Hole - Non-commercial hydrocarbon shows
Sea Lion 2 (14/10-02)	8,916	Rockhopper Exploration Ltd	PL032	16/04/2010	53 meters of net oil pay
Sea Lion 3 (14/10-03)	9,285	Rockhopper Exploration Ltd	PL032	13/01/2011	7.3 meters of net oil pay, tested at 2,304 b/d
Sea Lion 4 (14/10-04)	9,190	Rockhopper Exploration Ltd	Sea Lion	19/01/2011	33 meters of net oilpay
Sea Lion 5 (14/10-05)	8,944	Rockhopper Exploration Ltd	Sea Lion	01/05/2011	Tested at 5,508 b/d of oil and 940 Mcf/d of gas
Sea Lion 6 (14/10-06)	8,878	Rockhopper Exploration Ltd	PL032	15/07/2011	36.4 meters of net oil pay
Sea Lion 7 (14/10-07)	8,845	Rockhopper Exploration Ltd	Sea Lion	22/08/2011	26 meters of net oil pay
Sea Lion 8 (14/10-08)	8,750	Rockhopper Exploration Ltd	Sea Lion	25/09/2011	Dry Hole - Good quality thick reservoirs sands were water bearing
Sea Lion 9 (14/10-09)	8,350	Rockhopper Exploration Ltd	Sea Lion	25/10/2011	36 meters of net oil pay
Sea Lion 9Z (14/10-09Z)	8,530	Rockhopper Exploration Ltd	Sea Lion	16/11/2011	Sidetrack well obtained 60 meters of core logs

Minke 1 (14/13-01)	5,087	Lasmo Int'l Ltd	Tranche C (PL 003)	05/06/1998	Dry Hole - no hydrocarbons encountered
Rachel 1 (14/15-01)	9,439	Desire Petroleum Ltd	Tranche D (PL 004)	27/09/2010	Dry Hole - No hydrocarbons encountered
Rachel 1-ST (14/15-01Z)	11,214	Desire Petroleum Ltd	Tranche D (PL 004)	16/10/2010	Dry Hole - Oil shows, mechanical failure of wellbore caused inability to obtain well cores
Rachel North 2 (14/15-02)	10,013	Desire Petroleum Ltd	Tranche D (PL 004)	12/11/2010	Dry Hole - 57 meters of net pay was water bearing
Ninky 1 (14/15-03)	8,596	Desire Petroleum Ltd	Tranche D (PL 004)	29/03/2011	Dry Hole - oil shows in poor quality reservoirs
Beverley 1 (14/15-04)	8,250	Rockhopper Exploration Ltd	Tranche D (PL 004b)	28/11/2011	57 meters of net oil pay in SLMC, Beverly, Casper South and Casper reservoir targets
Beverley 1Z (14/15-04Z)	8,383	Rockhopper Exploration Ltd	Tranche D (PL 004b)	01/12/2011	Sidetrack well obtained 115 meters of core logs
Liz 1A (14/19-01A)	12,031	Desire Petroleum Ltd	Tranche C (PL 003)	22/02/2010	17 meters of net gas pay
Braela 1 (14/24-01)	9,642	Sodra Petroleum AB	Tranche F (PL 005)	15/09/1998	Dry Hole - no hydrocarbons encountered
Dawn/Jacinta 1 (25/05-01)	5,568	Desire Petroleum Ltd	Tranche I (PL 006)	18/12/2010	Dry Hole - Gas shows
Ernest 1 (26/06-01)	7,349	Rockhopper Exploration Ltd	PL024 North	23/07/2010	Dry Hole - no hydrocarbons encountered
Toroa 1/Toroa F61/5-1 (F61/05-01)	8,123	BHP Billiton	Block 1	31/05/2010	Dry Hole - Potential reservoir sands were water bearing
Darwin 1 (61/17-01)		Borders and Southern Petroleum	South Falklands Malvinas Trough	31/01/2012	In Progress - Results Expected in late March 2012

Data from EDIN
Notes from Company PR's and EDIN

Summary

The five public companies active in the Falkland (*Malvinas*) Islands are traded on AIM, the London Stock Exchange's international market for smaller growing companies. Many AIM-listed oil and gas companies, which typically raise funds through equity offerings, act as scouts for the industry by exploring potential new, or "frontier", hydrocarbon regions. The current stock market capitalizations of these companies range from under £50 million for Argos Resources to approximately £1 billion for Rockhopper Exploration. The primary impact on valuation is the discovery of hydrocarbon resources, and Rockhopper's stock price soared from about 38 pence per share to over 330 pence per share after the announcement of the Sea Lion discovery.

Based on a discounted cash flow analysis of currently available data, *IHS Herold* estimates that the Sea Lion field could be worth about $3.1 billion, which is based on a conservative recoverable resource estimate of 250 million barrels. Rockhopper has hired an outside consultant to produce a new competent persons report for the field with results expected by the end of March 2012. Based on the success of the appraisal drilling program on the field, the new estimate of recoverable reserves at the field could exceed 350 million barrels. The company is expected to launch a pre-selection process for the front-end engineering and design for development of this discovery early in 2012, targeting first oil in 2016.

Rockhopper has announced that it is seeking a large international partner to help fund the multi-billion development costs of the project and provide technological expertise. The latter is particularly important for Sea Lion, as the discovered crude oil has a high wax content, which complicates production in cold weather climates. Based on comparable transactions in other frontier hydrocarbon regions, *IHS Herold* currently values the estimated recoverable resources at $5.00 to $7.00 per barrel.

The four other publicly traded Falklands companies are also seeking partners to fund exploration and potential development. In these types of transactions, the incoming partners will likely agree to fund a certain amount of the current license holder's future exploration expenses in exchange for an interest in the licenses. Falkland Oil & Gas recently announced it had signed an option agreement with an unnamed potential partner, but no terms were disclosed.

MM £, as of March 15, 2012				
Company	**Ticker**	**Exchange**	**Current Market Capitalization**	**Current Enterprise Value**
Falkland Oil and Gas Ltd	FOGL LN	London	£195.2	£107.3
Borders and Southern Petroleum	BOR LN	London	£296.9	£196.2
Rockhopper Exploration Ltd	RKH LN	London	£1,023.7	£915.4
Desire Petroleum Ltd	DES LN	London	£103.5	£94.9
Argos	ARG LN	London	£38.4	£30.5

*Note: Denholm Oil & Gas is a private company and thus was not included in the table.

IHS Herold Valuation Model				
	350 MMbbl		**250 MMbbl**	
Discount Rate	**$80/bbl**	**$100/bbl**	**$80/bbl**	**$100/bbl**
10%	$4,519	$6,269	$2,516	$3,776
15%	$2,699	$3,838	$1,396	$2,209
20%	$1,599	$2,367	$722	$1,270
Production Rate (Mb/d)	**120 Mb/d**		**85 Mb/d**	

Political/Commercial:

Sovereignty over the Falkland (*Malvinas*) Islands remains under dispute. As a consequence, Argentina claims that all petroleum activities carried out in the region without a valid permit from its government are illegal and has recently threatened legal action against companies operating under the rules set out by the Falkland Islands Government. Furthermore, Argentina has passed legislation (Law No. 26.659 of 12 April 2011) establishing sanctions for companies involved in the upstream sector in the Falkland (*Malvinas*) Islands. In accordance with this law, companies supporting activities in the region (not only operators, but also contractors, investment banks, and professional services companies) are barred from taking part in petroleum activities in Argentina. Although this law remains to be regulated, and hence it is not fully enforceable, the principles contained in it are still valid and could eventually be used against affected companies.

Legal/Contractual:

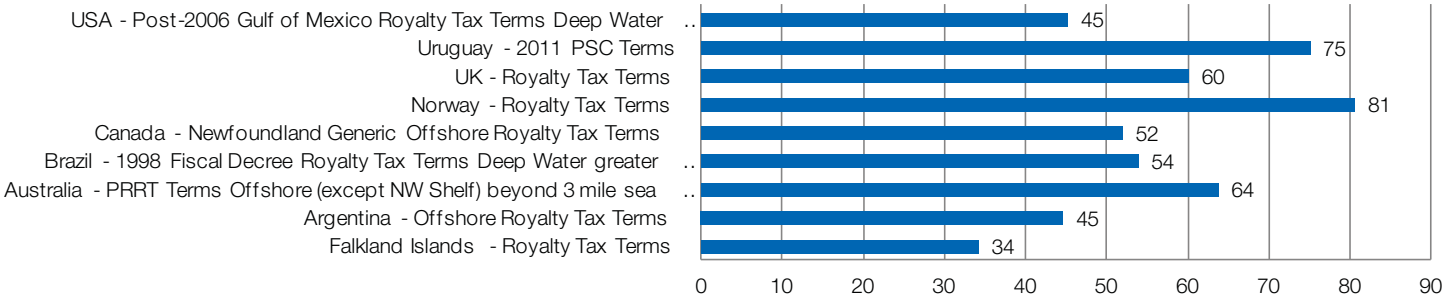
The terms offered by the Falkland Islands Government are in line with common practice and no major risks emerge from the framework legislation. Companies should be aware that there is no strict award criteria and therefore the process to obtain exploration and production rights remains highly discretional.

Fiscal:

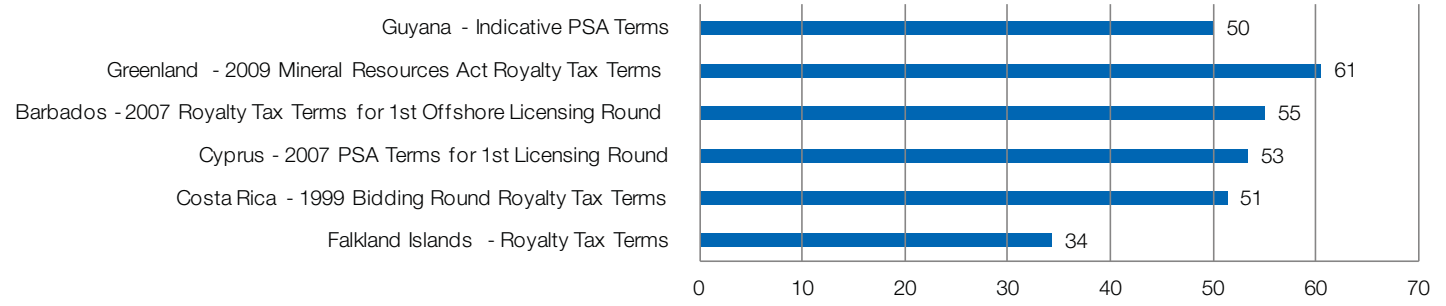
The Falkland (*Malvinas*) Islands offer reasonably attractive fiscal terms when compared with other frontier provinces and also when compared with neighbouring countries. The total State Take represents only 34% of the Gross Project operating profit, whereas most frontier regimes tend to provide for an average 50% State Take. Key to this is the fact that the Falkland Islands Government does not require companies to pay bonuses and there is no state participation. Also, the 9% royalty is fairly low when compared with peer countries and the 25% income tax is also below average. At present, the regime lacks an additional profits tax, allowing investors to keep more of the upside from any commercial discovery. It remains to be seen if this will change in the near future. It is typical for frontier regimes to impose higher levies once a hydrocarbon basin has been proved to be commercial. This was the case in Norway and in the UK, which introduced a 50% special petroleum duty and a 75% petroleum revenue tax, respectively, after significant commercial discoveries were made.

Fiscal Attractiveness – How Does the Region Compare with Others?

Average State Take* (%) from Oil Fields in Selected Regimes - NEIGHBOURS & HIGHLY PROSPECTIVE PROVINCES



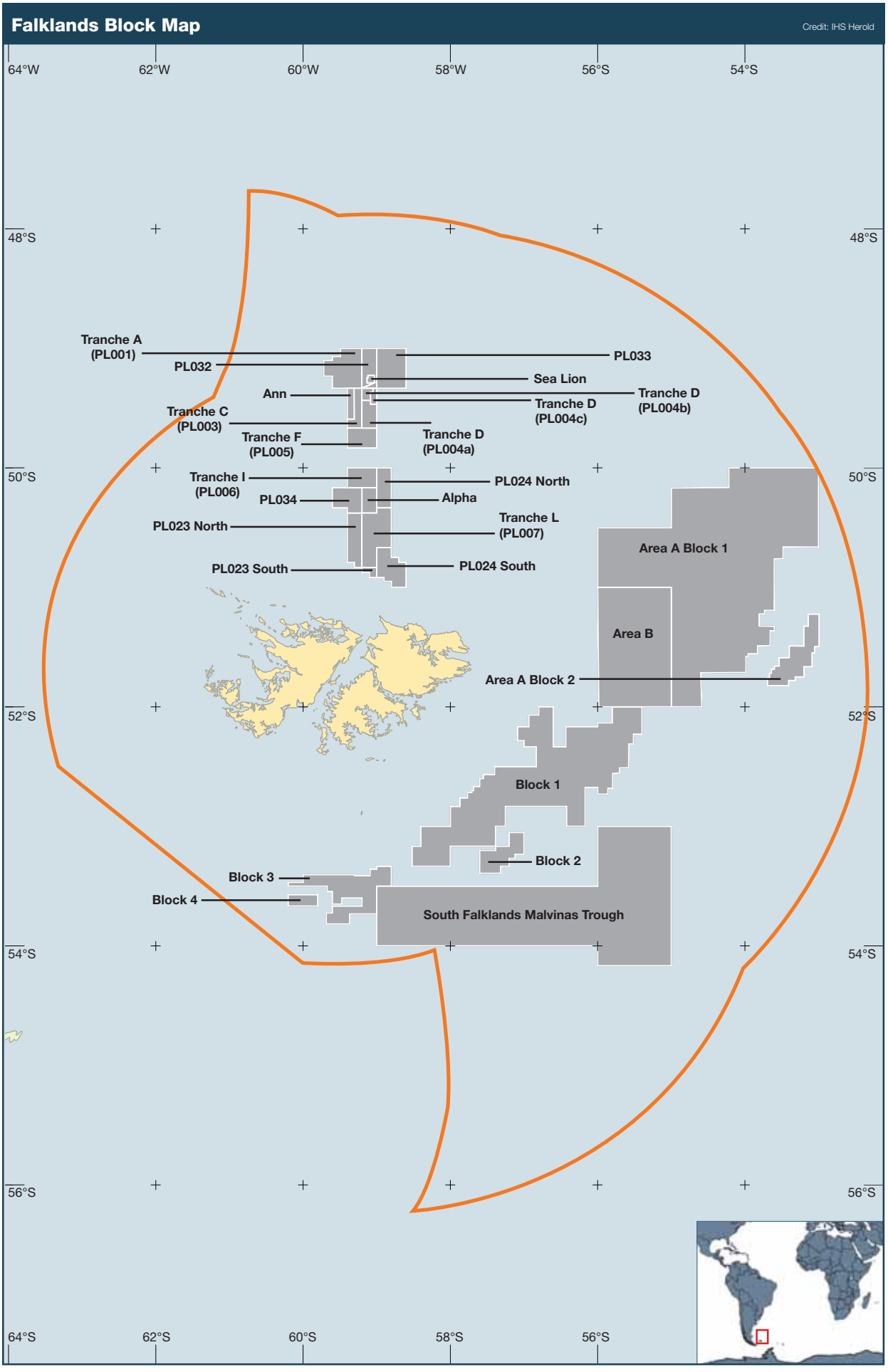
Average State Take* (%) from Oil Fields in Selected Regimes - FRONTIER PROVINCES



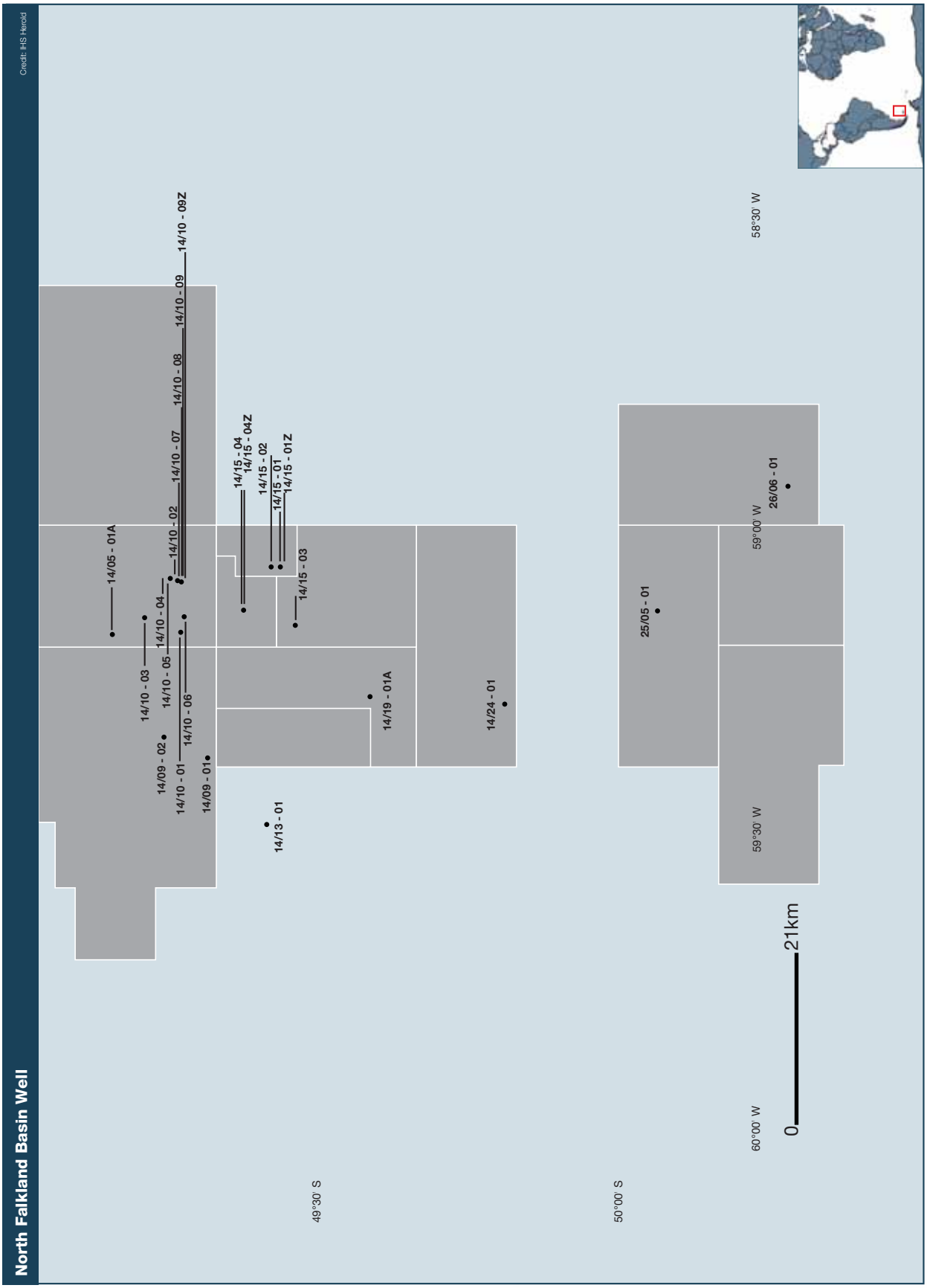
(*) State Take would be equal to the percentage of the Gross Project operating profit which accrues to the Government by way of royalties and taxes paid by the investor(s), plus the operating profit attributable to the State's direct participation in a project. State Take is similar to Government Take but it INCLUDES the cash flow attributable to the direct financial participation in a project by the State or National Oil Company.

SOURCE: Petroleum Economics and Policy Solutions (PEPS)

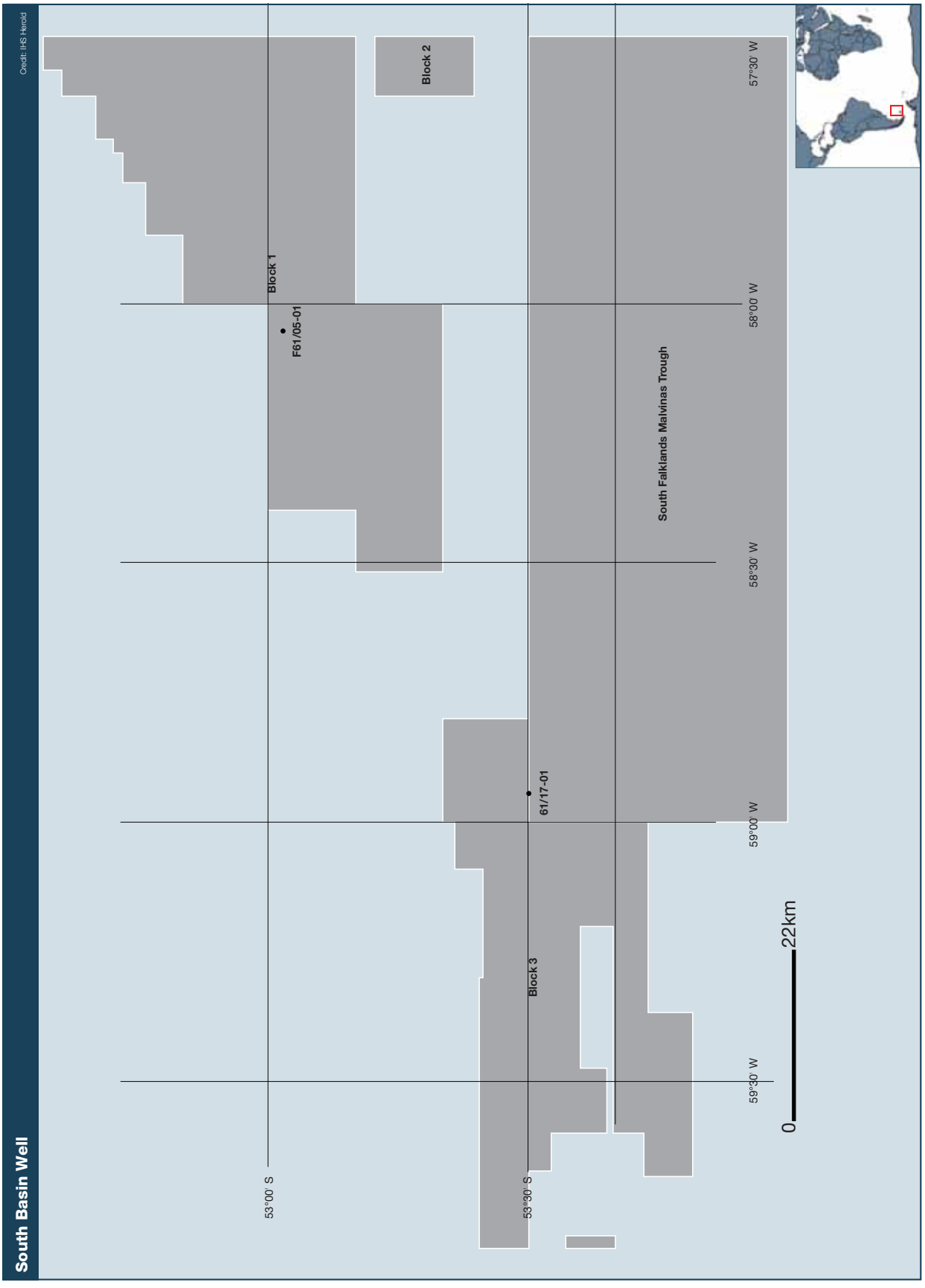
Falklands Blocks Map



North Basin Wells



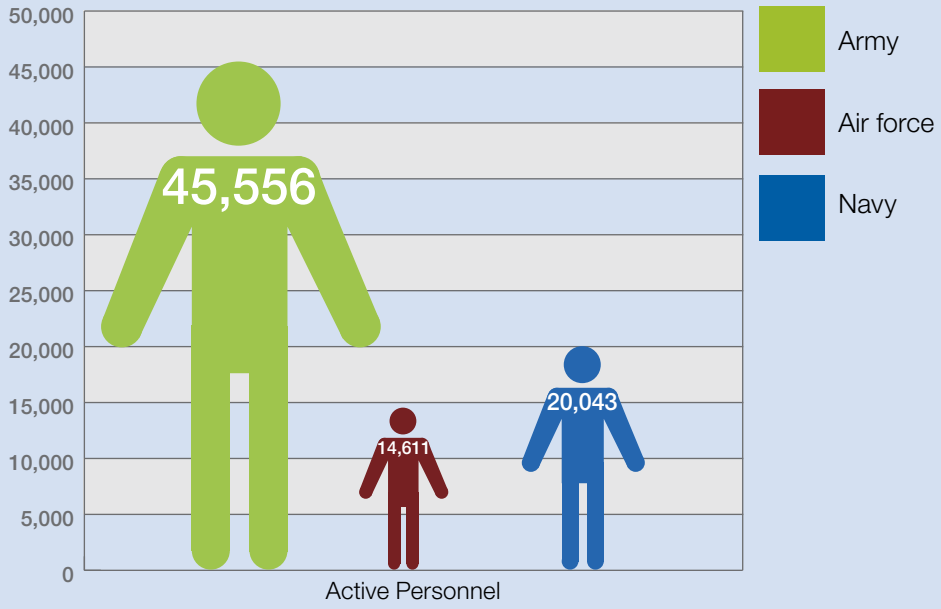
South Basin Wells



Overview

In light of increasing levels of sabre ratling by Argentina over the Falkland (*Malvinas*) Islands at the end of 2011 and continuing into 2012, the following provides an overview of Argentina's armed forces and its ability to launch and maintain an operation should armed conflict take place. Although the army is better organised and trained than at almost any time in its history, and is a very different force from the one involved in the 1982 conflict having assimilated the lessons learned, it would likely only provide man-power support and the new special forces unit – the Agrupación de Fuerzas de Operaciones Especiales - in the eventuality of an armed conflict. The analysis, therefore, focuses primarily on the air force and the navy as these would be the services at the forefront of such a conflict.

Armed Forces - Personnel Figures



- Overall, Argentina's armed forces have well trained personnel that still maintain a level of battle experience within the forces and continue to perform regular exercise. One of the main problems revealed during the 1982 conflict was the lack of joint services operational doctrine and the armed forces recent focus on tri-service interoperability displays willingness – and, through joint exercises, an ability – to work effectively together and incorporate conflict experience into their current doctrine.

- The armed forces have been severely constrained by the country's prolonged economic hardship and the urgent need to replace and upgrade its increasingly aging platforms across the entire force will have to be addressed if it is to retain strategic relevancy within the region. Its inability to invest in modernisation or replacement of equipment during the last decade has undone some of the progress made through the post 1982 reorganisation and modernisation programmes of the 1990s.

- Ageing platforms are most notable within the air force and the navy. Upgrades and new equipment would need to provide a modicum of deterrence and be able to sustain a medium-high tempo level of operations in the event of an armed conflict.

- A plan addressing the loss of capabilities was set in motion by the Fernandez administration in 2011 under the title of Plan de Capacidades Militares (PLANCAMIL), which will define through the Directiva de Obtención de Medios or DOM (Means Acquisition Directive) which capabilities require new equipment and which equipment requires upgrades.

- The country's recent economic recovery in the mid-2000s has allowed for small modernisation programmes to get underway. These include a limited upgrade of the armoured fleet, missile inventory, the acquisition of additional jet trainers and helicopters for the air force, as well as completion of protracted patrol vessels programmes and consideration of new shipbuilding and upgrade projects for the navy.

- With the disastrous financial situation in 2000 and 2001 still being felt and with salary costs reportedly continuing to consume over 70 per cent of the total defence budget of approximately USD4 billion in 2012, it is highly unlikely that complete fleet upgrades and major platform acquisition will take place in the short-to-medium term.

Air Force

During the 1982 Falkland (*Malvinas*) Islands conflict, the Argentine Air Force (Fuerza Aérea Argentina (*FAA*)) showed itself to be the most effective branch of the armed forces. Since then, there has been some planning towards major reorganisation and manpower reductions in order to release funds for modernisation, but doubts over the willingness of the government to allow the savings to be used for new equipment have hampered serious reform. The current strength of the FAA stands at around 14,600 and is among the most professional in South America with a generally good level of morale; however, obsolete equipment and a chronic lack of funds continue to plague the FAA. In March 2009 the government said that flying hours were to be restricted due to funding shortages before the FAA eventually announced in 2010 that funding had been secured to increase flight time to an average of 113 hours per pilot per year.

- Mirages IIIEA: With the remaining Mirages IIIEAs expected to be withdrawn from use in 2012, the need for a replacement fighter is pressing. Various second-hand options have been explored, such as the mid-2007 French offer to supply 12 Mirage 2000s (although these would not be available until 2014) and the mid-2008 Spanish offer of 12 to 16 surplus Mirage F1Ms (although this has apparently been turned down). No other further visible progress has been made in regards to finding a solution to this impending capability gap.

- A-4AR Fightinghawks: If no replacement is found soon for the Mirages, it is likely that the A-4ARs may comprise the mainstay of the air forces combat assets in the short term. The A-4AR Fightinghawks are a considerably newer platform when compared to the FAA's other combat assets, having been delivered from 1997. Over 30 remain in service, out of an original order for 36 aircraft.

- Dagger A: The FAA's Dagger As are over 30 years old and only 10 are operational from an original total of nearly 40 airframes. However, after such a long operational lifespan, the serviceability of those listed as operational would be questionable and is assumed to be low.

An Argentine A-4AR Fightinghawk

Jose Higuera

Navy

The current strength of the Argentine navy is just over 20,000, which includes 3,500 marines and 3,000 naval aviation personnel, along with the air force, it would likely be heavily engaged in the event of any conflict with the UK over the Falkland (*Malvinas*) Islands. Argentina's naval officers are among the most recognised in the region and the navy is a proud institution, exercising regularly and maintaining a generally good level morale. However, its operational capabilities have diminished in recent years due to lack of suitable upgrades in equipment.

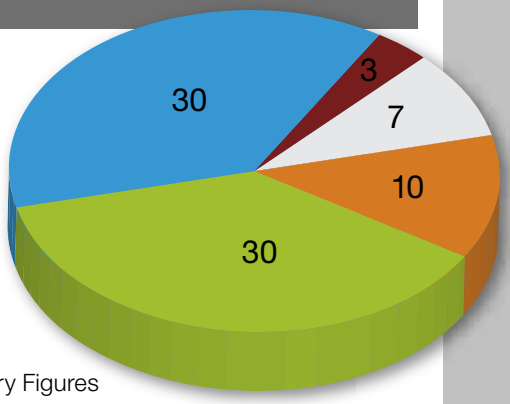
• Submarines: The navy operates two Santa Cruz (TR 1700)-class and one Salta (Type 209/1200)-class submarines. These boats are all over 25 years old and have already completed or are currently undergoing refit. Salta completed a mid-life modernisation at the Domecq Garcia Shipyard in May 1995 fitting new engines, weapons and electrical systems. Installation of new batteries was completed in August 2005 and a further refit during 2009-10 included upgrade of the sonar and combat system. Santa Cruz underwent a mid-life upgrade replacement of the engines, batteries, and sonar during 1999-2001 and San Juan is currently undergoing the same refit. Initially, work was to be completed in late 2011, but it is not clear if this date was met. If not, this would mean that Argentina is currently only fielding one 28 year-old and one 38 year-old submarine.

• Frigates: The navy operates six Espora (Meko 140)-class and three Drummond (Type A 69)-class frigates. The Espora (Meko 140) frigates, were commissioned steadily from 1985 up to 2004 and three are to receive a mid-life update in order to extend their service life by at least another 20 years. However, reports state that funding for this upgrade was only released in 2011 so any upgraded vessels would not be back in service for a number of years, further stretching their already long service life. The three Drummond (Type A 69)-class frigates, meanwhile, are all over 30 years old and were all fitted with MINIACO C 31 combat data system by 2008. They were also reported to be equipped with refurbished MM-38 missiles during 2010.

• Destroyers: The programme to refit and upgrade the four Meko 360 destroyers has been moving at a slow pace, due to the economic situation, but funds have reportedly been assigned in order to begin work on two destroyers as part PLANCAMIL. Initial upgrades to ARA La Argentina (refit completed 2006), ARA Heroina (refit completed 2008), and ARA Sarandi (completed 2009) included modernisation of the combat management system (CMS) based on a CITEFA designed system which were integrated with existing sensors (identified as Phase 1). ARA Almirante Brown last underwent refit during 2003-05 and is projected to be the first to receive Phase 2 system upgrades during the next refit period. Phase 2 will comprise an as yet unidentified combination of new sensors and systems integrated into the new CMS. Work will also extend to modification of the flight deck to allow operation of larger S-61 Sea King type helicopters on selected vessels.

IHS Global Limited/Harry M Steele

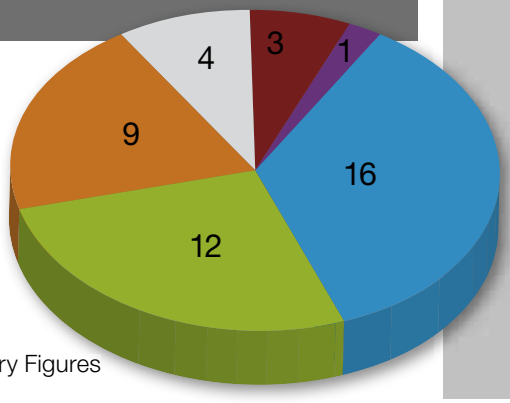
Air Force - Combat Aircraft



Inventory Figures

- Obsolete equipment and a chronic lack of funds continue to plague capabilities.
- Under the modernisation programme outlined in 2007, the air force's priorities are listed as: transport aircraft; liaison / training aircraft; helicopters; and combat attack/bombers.
- There has been some planning towards major reorganisation and manpower reductions, in order to release funds for modernisation, but doubts over the willingness of the government to allow the savings to be used for new equipment have hampered serious reform.
- With the remaining Mirages expected to be withdrawn from use by 2012 (some of which already have malfunctioning equipment), the need for a replacement fighter is pressing although no solid alternative has arisen.
- In 2010 the Minister of Defence announced plans to have 21 A-4AR in operational status by 2015.

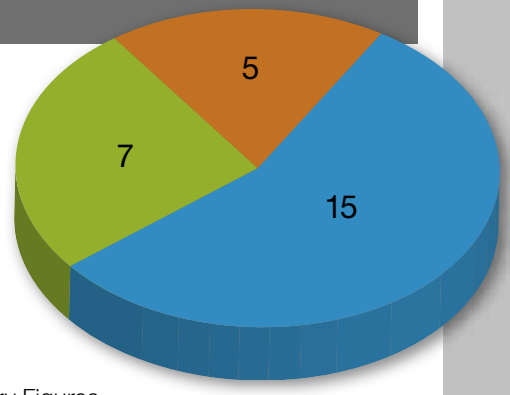
Navy - Major Naval Combatants



Inventory Figures

- Argentina maintains an ageing fleet that is at best 25 years old and in need of new acquisitions and upgrades to maintain operational capability and relevance.
- Funds have now been released to begin the upgrade of its ageing fleet, but progress continues to be slow in this regard.
- In 2010, Argentina stated its interest in domestically building a nuclear-powered submarine from 2015. It is considered unlikely by *IHS Jane's* that such a costly nuclear programme will ever come to fruition.

Naval Aviation



Inventory Figures

- The naval air arm suffered heavily in the 1982 war and found the replacement of combat attrition difficult to achieve, due mainly to the arms embargo imposed during the years following the conflict.
- Subsequently the inventory consists of ageing platforms, led by some of the same Super Etendard fighters that saw combat in 1982.
- Unsurprisingly, in this state the Argentine naval air wing would find it hard to maintain any operation for a sustained period.

Recent Deployments

By deploying some of its most advanced military hardware to the Falkland (*Malvinas*) Islands, the United Kingdom has made both a symbolic and practical commitment to its sovereignty claim.

Most recently, on 31 January, the UK Ministry of Defence announced it would send one of its newest and most advanced warships – *HMS Dauntless* Type 45 anti-air warfare destroyer – to the Falklands. The Royal Navy said was a long-planned rotation to support the Atlantic Patrol Task (South) (APT-S), a unit that supports UK dependent territories in the South Atlantic and West Africa. However, the *HMS Dauntless*, commissioned in 2010, replaced the much older and much smaller Duke-class (Type 23) frigate, *HMS Montrose*. Critically, HMS Dauntless is the first Type 45 vessel to have its Sea Viper anti-air guided weapon system fully operational.

Losses incurred during the 1982 South Atlantic campaign awoke the Royal Navy to the limitations of its existing anti-air warfare capability, both in blue water and littoral environments. Post-conflict operational analysis and technical studies identified the inability of conventional area air-defence systems - relatively slow to respond and unable to intercept the most stressing threats - to cope with the attacks envisaged in future anti-air warfare scenarios. It has taken almost three decades, but that new umbrella of protection, for which the Royal Navy has waited so long, is manifest in the Type 45 destroyer and its Sea Viper system.

The Royal Air Force (RAF) has also committed its newest hardware to the Falklands. In late 2009, the RAF deployed four Eurofighter Typhoon multirole combat aircraft to replace the Panavia Tornado F3 aircraft of Flight 1435, based on the islands.

This advanced hardware underlines the substantial and growing technological gap between UK military forces in the region and their Argentine counterparts.

HMS Dauntless

HMS Dauntless

Capability Gaps

The UK's highly visible display of technological superiority underpins a strategy of deterrence, which aims to dissuade any potential foe from launching an attack on Islands. However, despite significant technological advantages over Argentina, the UK suffers from a significant capability gap that handcuffs the military's efforts to defend the Falklands.

The retirement of both the aircraft carrier *HMS Ark Royal* and the Royal Navy's fixed-wing air component provided by the Harrier GR.9 has severely curtailed the navy's ability to project force, support land operations, and strike at a time and place of its choosing. The implications for any replay of the 1982 war are obvious: today, the Royal Navy would not be able to provide air cover to a battlegroup on station in the South Atlantic.

With the UK's new Queen Elizabeth-class aircraft carrier – to be equipped with Lockheed Martin F-35 Joint Strike Fighters – not due to enter the fleet until about 2020, critical capability will be gapped for a decade.

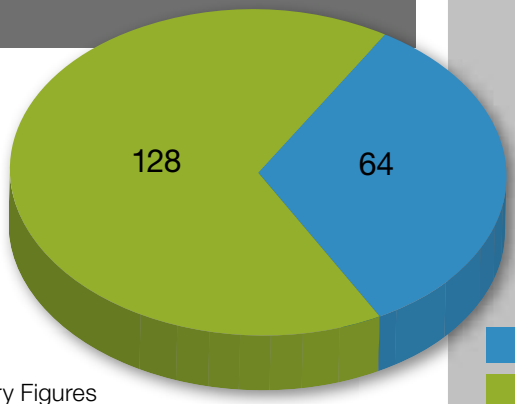
As a result, Mount Pleasant air base on the Falkland (*Malvinas*) Islands is now at the heart of the UK's military strategy. The airfield is home to 905 Expeditionary Air Wing, which is equipped with a flight of Typhoon fighters as well as C-130 transport and VC10 tanker aircraft, plus Sea King helicopters for search and rescue missions.

The military must retain control of RAF Mount Pleasant to sustain land-based air defence cover of any incoming naval battlegroup and to enable the deployment of reinforcements into the base at high speed and at short notice. If the base were lost, it would be unfeasible to deploy major surface assets in defence of the Islands and would make it very extremely difficult for the UK military to dislodge any occupying Argentine forces.

An 8,000-ton hull block for the first of the UK's Queen Elizabeth-class aircraft carriers

IHS Global Limited/Patrick Allen

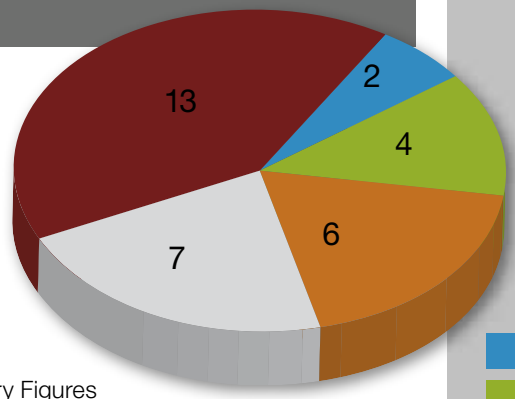
Air Force - Combat Aircraft



Inventory Figures

- The Royal Air Force (RAF) is an effective force undergoing significant modernisation and rationalisation in response to the demands placed on it by the UK's October 2010 Strategic Defence and Security Review (SDSR).
- The 2010 SDSR imposed heavy reductions in the number of fast jets in RAF service, including the withdrawal of all BAE Systems Harriers and reductions in the Panavia Tornado GR.4 and Eurofighter Typhoon fleets. The fleet - comprising 230 Harriers, Tornados and Typhoons in 2010 – will be reduced to around 110 Tornados and Typhoons by the end of 2012.

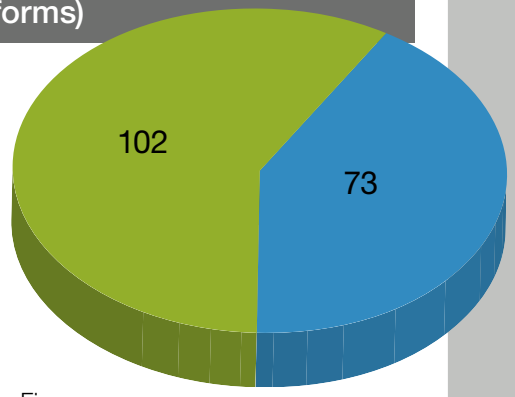
Navy - Major Naval Combatants



Inventory Figures

- The Royal Navy (RN) remains one of the most technologically advanced naval forces in the world. However, the implementation of recommendations in the SDSR will see the navy operating on a considerably tighter budget, with a smaller fleet, fewer personnel, reduced capability and, arguably, less flexibility than it has ever previously enjoyed.
- Notably, the RN now lacks an aircraft carrier, while its frigate, mine countermeasures and auxiliary fleets are all being reduced in size. However, the introduction of six Daring (Type 45)-class air defence destroyers will do much to sustain the navy's combat capabilities over the next decade.
- The UK's high readiness amphibious capability is being scaled back. The Royal Marines 3 Commando Brigade is being scaled back in size by 15 per cent to a commando group of 1,800 personnel. Meanwhile, one of the RN's two Albion-class amphibious assault ships was transferred to 'extended readiness' status and is now unavailable for short-term or rapid reaction operations.

Naval / Army Aviation (Relevant Platforms)



Inventory Figures

- With its carrier capability to be gapped for a decade, the RN is now confronted with a challenge to bridge the carrier aviation skills gap - in the cockpit, on the flight deck and inside the ship – until 2020.
- To achieve this, the UK will look to both the US Navy (USN) and French Navy to help gain the experience necessary to stand up its future carrier operations. In particular, the RN is scaling up programmes to embed personnel with the USN for catapult-assisted take-off but arrested recovery (CATOBAR) carrier operations training.
- The RN and British Army displayed good interoperability during the Libyan campaign of 2011. The navy's Lynx aircraft, operating from escort ships, carried out sweeps in search of ships trying to break the arms embargo while Army Air Corps Apache AH.1 attack helicopters were hosted on the helicopter carrier HMS Ocean in order to launch strikes against land targets in Libya.

Aircraft Development Milestones

This section illustrates the heritage of Argentine and British combat aircraft, focusing on the dates key development milestones were met. Development milestones are significant as they provide an indication of both the age of the aircraft in service and the technology involved in its development, in the chart below, the modernity of the Typhoon in comparison Argentine aircraft is particularly striking. Variations in design and upgrades are also shown, in some cases during the developmental process contractors have changed; the Dagger A is derivative of the Mirage 5 but was built by IAI rather than Dassault, similarly, the A-4AR is a variant of the McDonnell Douglas Skyhawk upgraded for Argentina by Lockheed Martin.

Milestones	Aircraft Programmes				
Initial Contractor	Eurofighter	Dassault	Dassault	Dassault	McDonnell Douglas
	 Typhoon	 Mirage III	 Mirage 5	 Super Etendard	 Skyhawk
Requirement issued	1983	1952			
		Mirage IIIEA			
First Flight	1994	1961	1967	1974	1954
			Dagger A*		
First Flight Production	2003		1969	1977	
	FGR Mk.4				A-4AR*
In Service	2008	1972	1978	1981	1997
Service	RAF	FAA	FAA	Naval Aviation	FAA
Notes			*IAI		*Lockheed Martin upgrade

Aircraft in service with UK

Variant in service with UK

Aircraft in service with Argentina

Variant in service with Argentina

Key:

Requirement issued: The year the developmental process commenced.

First flight: The year a prototype model first flew.

First flight, production: The year a production model aircraft first flew.

In service: The year in which the aircraft entered service with Argentina or the UK.

Note: Where a variant aircraft appears, the data that follows applies to that aircraft

Specifications Analysis: Aircraft

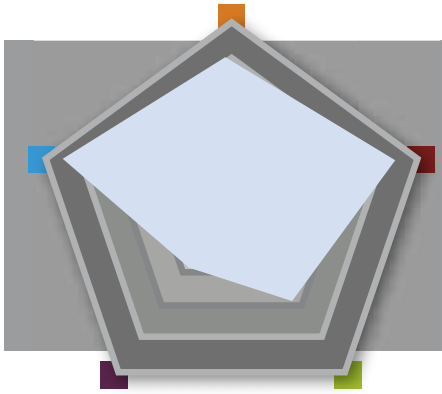
This section provides profiles of Argentine and British combat aircraft, relativising key performance characteristics to produce graphical representations of aircraft specifications. Although other specifications also contribute to overall aircraft performance, they are beyond the scope of this specifications analysis. Each graphic is accompanied by the specifications on which it is based, along with any conditions that may apply to each specification type.

Note: complete specifications for A-4R Skyhawk unavailable.

Typhoon

Service: RAF
First delivery: 2008 (FGR. Mk 4)
Role: Combat - Multirole

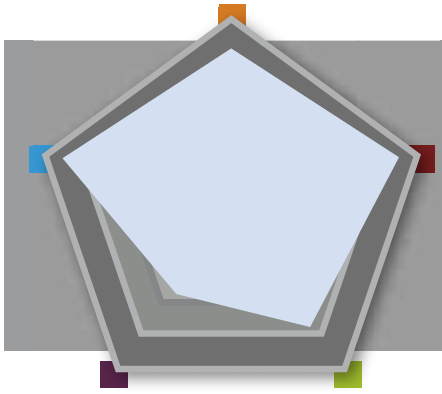
	Specifications	Conditions
Radius of operation:	750 n miles (1,388 km; 863 miles)	air defence with 10 minute loiter
Service ceiling:	16,765 m (55,000 ft)	-
Payload:	6,500 kg (14,330 lbs)	external, normal, weapons and/or fuel
Hardpoints:	13	-
Max level Mach number:	2.0	-



Mirage IIIEA

Service: FAA
First delivery: 1972
Role: Combat - Multirole

	Specifications	Conditions
Radius of operation:	647 n miles (1,200 km; 745 miles)	ground attack
Service ceiling:	17,000 m (55,775 ft)	at M1.8
Payload:	4,000 kg (8,818 lbs)	-
Hardpoints:	5	-
Max level Mach number:	2.2	at 12,000 m (39,375 ft)



Mirage 5*

Service: FAA
First delivery: 1978
Role: Combat - Attack

*Mirage 5 specifications stand in for the IAI Dagger A which shares a similar design

	Specifications	Conditions
Radius of operation:	700 n miles (1,300 km; 808 miles)	with 907 kg (2,000 lb) bomb load, hi-lo-hi
Service ceiling:	17,000 m (55,775 ft)	at M1.8
Payload:	5,000 kg (11,023 lbs)	-
Hardpoints:	7	-
Max level Mach number:	2.2	at 12,000 m (39,375 ft)

Super Etendard

Service: COAN
First delivery: 1981
Role: Combat - Attack

	Specifications	Conditions
Radius of operation:	460 n miles (850 km; 530 miles)	with AM 39 missile and two external tanks, hi-lo-hi
Service ceiling:	13,700 m (45,000 ft)	-
Payload:	2,100 kg (4,630 lbs)	internal fuel only
Hardpoints:	6	-
Max level Mach number:	1.0	(est) at height

Radius of operation | Service ceiling | Payload | Hardpoints | Max level Mach number

Values displayed relative to centre-point of chart

Specifications Analysis: Air-Launched Weapons

The capabilities of Argentine and UK air forces are defined by more than just the specifications of individual aircraft; the weapons they carry also make a major difference to performance in a combat situation. Longer range missiles enable pilots to control an engagement, if an aircraft is equipped with missiles of a superior range they can fire without fear of immediate reprisal, attacking an enemy target whilst staying out of range of enemy weapons. This section provides key specifications on air-launched missiles from Argentine and UK inventories, including missile roles, warhead types, launch weights and maximum ranges.

Argentina

Manufacturer	Role	Type	Range	Launch weight (kg)	Warhead
Matra	Air-to-Air	R 530	15 km	195 kg	27 kg HE fragmentation
Rafael	Air-to-Air	Shafrir	3 km	95 kg	11 kg HE fragmentation
Lockheed Martin	Air-to-Air	AIM-9B Sidewinder	2 km	76 kg	4.5 kg HE blast/fragmentation
Raytheon	Air-to-Air	AIM-9L Sidewinder	8 km	87 kg	9.5 kg HE fragmentation
MBDA	Anti-Ship Attack	AM 39 Exocet	72 km	670 kg	165 kg HE shaped charge fragmentation

UK

Manufacturer	Role	Type	Range	Launch weight (kg)	Warhead
Raytheon	Air-to-Air	AIM-120A AMRAAM	50 km	157 kg	22 kg HE directed fragmentation
Raytheon	Air-to-Air	AIM-120C-5 AMRAAM	50 km	161 kg	20 kg HE directed fragmentation
Matra BAE	Air-to-Air	Sky Flash	40 km	195 kg	30 kg HE continuous rod
Bodenseewerk	Air-to-Air	AIM-9L Sidewinder	8 km	87 kg	9.5 kg HE fragmentation
Matra BAE	Air-to-Air	ASRAAM	20 km	88 kg	HE blast/fragmentation
Raytheon	Air-to-Surface	AGM-65G2 Maverick	20 km	293 kg	136 kg blast/frag penetrator
Boeing	Anti-Ship Attack	AGM-84A Harpoon	220 km	540 kg	221 kg HE blast penetration

Given the significance of the Exocet in the 1982 conflict it is appropriate to note that Argentina retains this weapon. The map below indicates the combat radius of a Super Etendard and the range of an air-launched Exocet flown from the Argentine air base at Rio Gallegos to engage a hypothetical vessel. It should be noted that the flight path from Rio Gallegos is entirely within range of the RAF Typhoons based at Mount Pleasant.

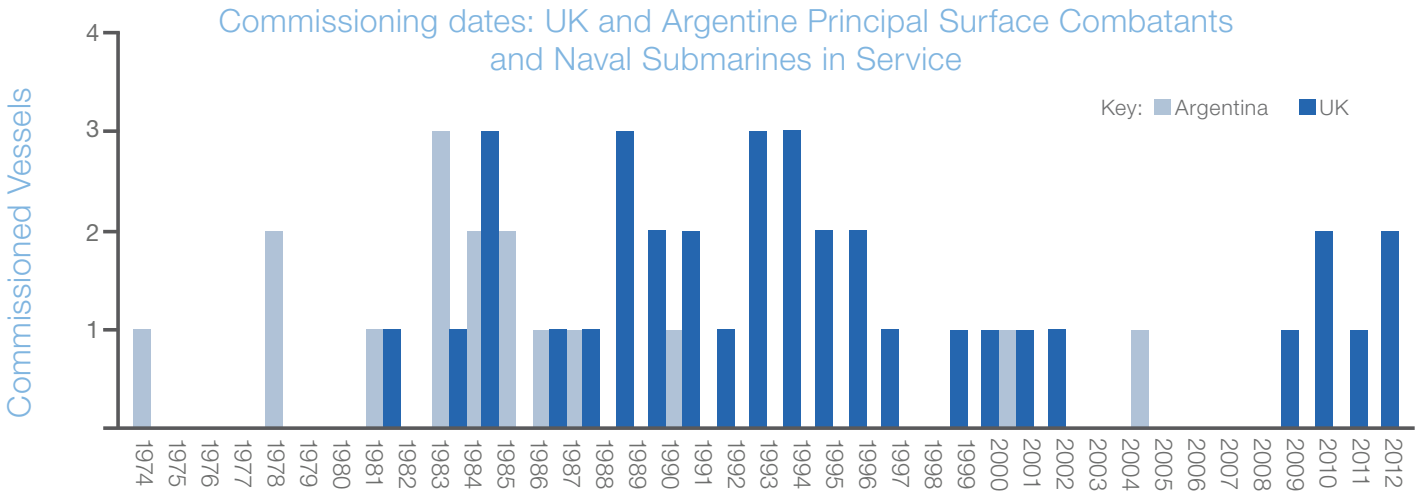
Range of Exocet missile fired from Super Etendard at max radius of operation

Credit: Mark Newton

Naval Commissioning Timelines

This timeline shows the years in which Argentine and British combat vessels were commissioned. Although the UK only deploys a small number of vessels to the South Atlantic, the Royal Navy maintains the ability to alter its deployment strategy to incorporate more modern vessels such as the Type 45 Destroyer *HMS Dauntless*, recently deployed to patrol the area. Comparing the modernity of Argentine and British naval assets provides an indication of the level of investment received by each service and the age of the technology incorporated into vessel design. The types of vessel commissioned are described according to NATO standards.

Principal surface combatants:	Naval submarines:
Aircraft/Helicopter Carriers	Submarines General
Cruisers	Attack Submarines
Destroyers	Ballistic Missile Submarines
Frigates	Patrol Submarines
Corvettes	Auxiliary Submarines



Argentina

Commissioned	Vessel Type	Ship type abbreviation	Ship type definition	Class name
1974	Patrol Submarines	SSK	Patrol Submarine, Long Range	Salta
1978	Frigates	FFG	Frigate, Guided Missile	Drummond
1978	Frigates	FFG	Frigate, Guided Missile	Drummond
1981	Frigates	FFG	Frigate, Guided Missile	Drummond
1983	Destroyers	DDGHM	Guided missile destroyer, Helicopter Capable	Almirante Brown
1983	Destroyers	DDGHM	Guided missile destroyer, Helicopter Capable	Almirante Brown
1983	Destroyers	DDGHM	Guided missile destroyer, Helicopter Capable	Almirante Brown
1984	Patrol Submarines	SSK	Patrol Submarine, Long Range	Santa Cruz
1984	Destroyers	DDGHM	Guided missile destroyer, Helicopter Capable	Almirante Brown
1985	Patrol Submarines	SSK	Patrol Submarine, Long Range	Santa Cruz
1985	Frigates	FFGH	Frigate, Guided Missile, Helicopter Capable	Espora
1986	Frigates	FFGH	Frigate, Guided Missile, Helicopter Capable	Espora
1987	Frigates	FFGH	Frigate, Guided Missile, Helicopter Capable	Espora
1990	Frigates	FFGH	Frigate, Guided Missile, Helicopter Capable	Espora
2000	Frigates	FFGH	Frigate, Guided Missile, Helicopter Capable	Espora
2004	Frigates	FFGH	Frigate, Guided Missile, Helicopter Capable	Espora

UK

Commissioned	Vessel Type	Ship type abbreviation	Ship type definition	Class name
1982	Destroyers	DDGH	Guided missile destroyer, Helicopter Capable	Type 42
1984	Attack Submarines	SSN	Submarine, Attack, Nuclear-Powered	Trafalgar
1985	Attack Submarines	SSN	Submarine, Attack, Nuclear-Powered	Trafalgar
1985	Destroyers	DDGH	Guided missile destroyer, Helicopter Capable	Type 42
1985	Destroyers	DDGH	Guided missile destroyer, Helicopter Capable	Type 42
1987	Attack Submarines	SSN	Submarine, Attack, Nuclear-Powered	Trafalgar
1988	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Broadsword
1989	Attack Submarines	SSN	Submarine, Attack, Nuclear-Powered	Trafalgar
1989	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Broadsword
1989	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Broadsword
1990	Attack Submarines	SSN	Submarine, Attack, Nuclear-Powered	Trafalgar
1990	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Broadsword
1991	Attack Submarines	SSN	Submarine, Attack, Nuclear-Powered	Trafalgar
1991	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
1992	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
1993	Ballistic Missile Submarines	SSBN	Submarine, Ballistic Missile, Nuclear-Powered	Vanguard
1993	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
1993	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
1994	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
1994	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
1994	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
1995	Ballistic Missile Submarines	SSBN	Submarine, Ballistic Missile, Nuclear-Powered	Vanguard
1995	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
1996	Ballistic Missile Submarines	SSBN	Submarine, Ballistic Missile, Nuclear-Powered	Vanguard
1996	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
1997	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
1999	Ballistic Missile Submarines	SSBN	Submarine, Ballistic Missile, Nuclear-Powered	Vanguard
2000	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
2001	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
2002	Frigates	FFGHM	Frigate, Guided Missile, Helicopter Capable	Duke
2009	Destroyers	DDGHM	Guided missile destroyer, Helicopter Capable	Type 45
2010	Attack Submarines	SSN	Submarine, Attack, Nuclear-Powered	Astute
2010	Destroyers	DDGHM	Guided missile destroyer, Helicopter Capable	Type 45
2011	Destroyers	DDGHM	Guided missile destroyer, Helicopter Capable	Type 45
2012	Attack Submarines	SSN	Submarine, Attack, Nuclear-Powered	Astute
2012	Destroyers	DDGHM	Guided missile destroyer, Helicopter Capable	Type 45

Specifications Analysis: Naval Weapons

Modern naval weapons systems are comprised of launchers, missiles, radar systems and the ship itself. The Type 45 destroyer *HMS Dauntless* boasts a highly sophisticated Sea Viper air warfare system designed to track and engage multiple aerial targets; a significant development given the losses sustained by the Royal Navy as a result of Argentine air attacks on shipping during the 1982 conflict. Argentina's principal surface combatants possess older weapons systems and their air warfare capabilities are more limited. However, significantly they still carry versions of the anti-ship Exocet missile, which could pose a potential threat to any shipping should conflict arise.

UK Vessels and Weapons

Class/Ship	Ship type abbreviation	Launchers/ missiles	Fire-control radar	Search radar
Daring (Type 45)	DD	16 Aster 15	Sampson	S 1850M
		32 Aster 30		

Missiles	Aster 15	Aster 30
Speed:	M3	M4.5
Range:	16 n miles (30 km)	64.6 n miles (120 km)
Altitude:	13,000 m	20,000 m

Argentinian Vessels and Weapons

Class/Ship	Ship type abbreviation	Missile version	Launchers/missiles	Data system	Search radars
Almirante Brown (MEKO 360)	DDGHM	MM 40	2/8	SEWACO	ZW 06
Espora (MEKO 140)	FFGH	MM 38	2/4	SEWACO	DA 05
Drummond (Type A 69)	FFG	MM 38	2/4	MINIACO	DRBV 51

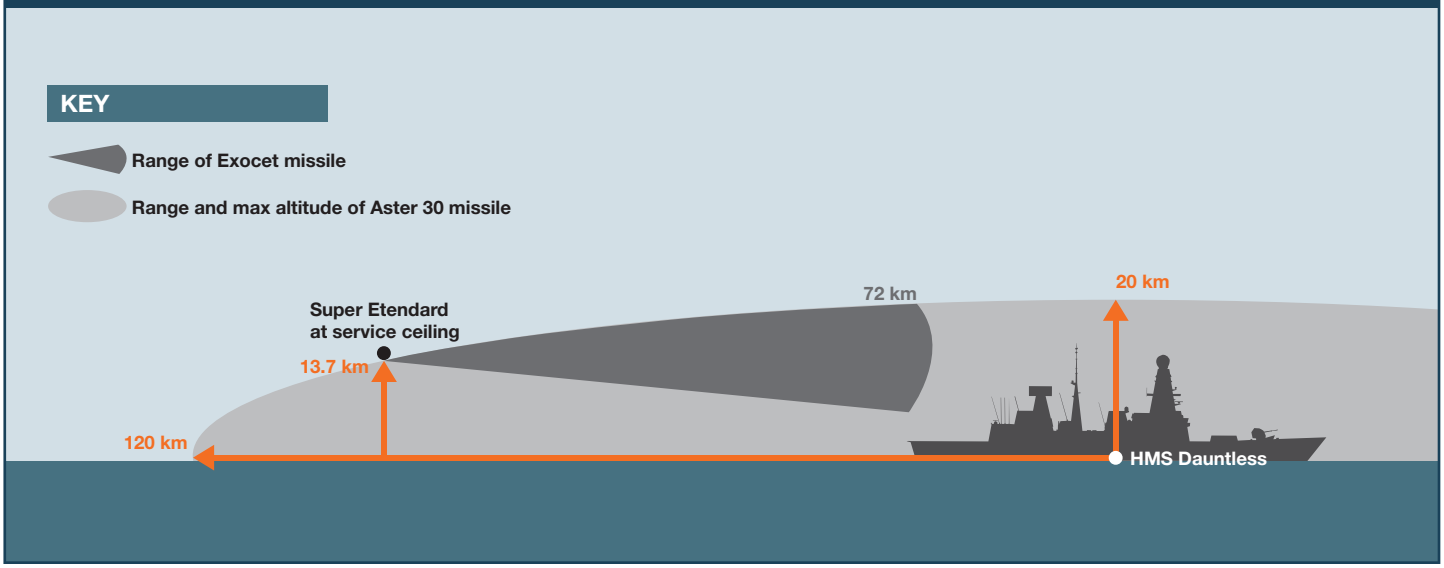
Missiles	MM 38	MM 40 Block 1	MM 40 Block 2	MM 40 Block 3
Speed:	M0.9	M0.9	M0.9	M0.9
Range:	22.5 n miles (42 km)	38 n miles (70 km)	40.5 n miles (75 km)	97 n miles (180 km) (est)
Warhead :	165 kg RDX	165 kg RDX	165 kg RDX	165 kg RDX

The graphic below illustrates the ability of *HMS Dauntless* to engage Argentine aircraft, plotting the range of its Aster 30 missiles against the range of an Argentine air launched Exocet missiles. *HMS Dauntless* is able to engage the Super Etendard before it reaches Exocet firing range.

Note: Graphic not indicative of aircraft mission profile

Aster 30 and air launched Exocet missile ranges

Credit: Mark Newton

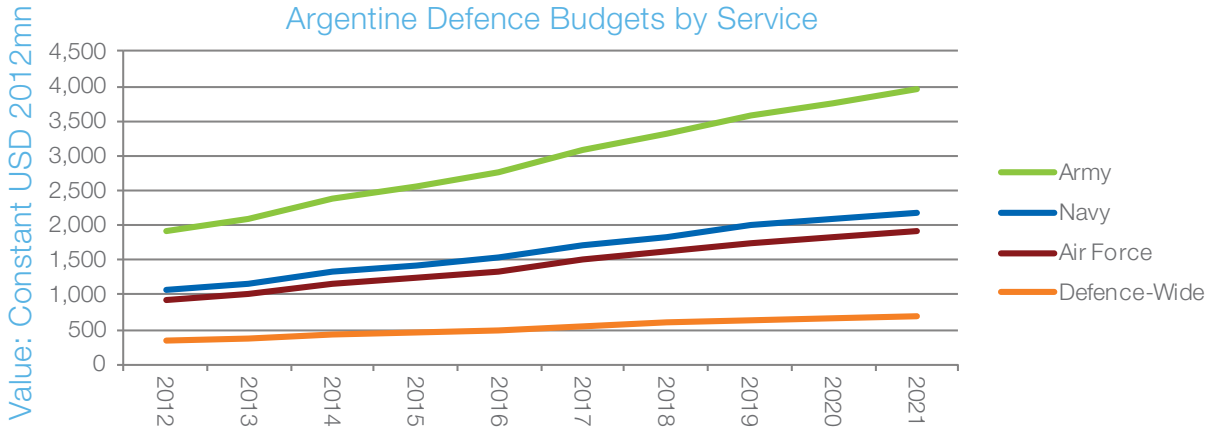


Defence Budgets: Summary

Defence budgets consist of procurement, military personnel, Research Development Test & Evaluation (RDT&E), Operations & Maintenance (O&M) and other costs associated with the armed forces. Analysing trends in defence budgets by service provides an overview as to how much money each service has been allocated to meet these costs

As could be expected, UK defence budgets are significantly higher than the Argentine budgets, with the UK spending at least ten times more in each of the armed forces. Argentina is projected to make a significant growth in spending, more than doubling over the 2012 – 2021 forecast period, however this still leaves their spending USD54 billion less than the UK's 2012 starting point.

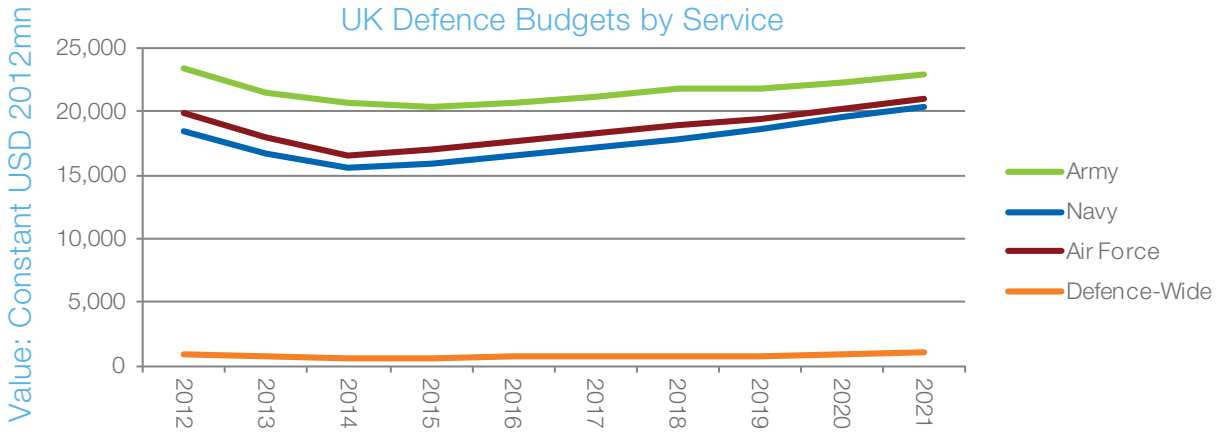
UK budgets continue to be prioritized towards the Army, with around 37% of spending, a fairly normal trend and indicative of the UK's current priorities in Afghanistan. The UK is spending more on the Air Force than the Navy, with the bulk being taken up by the F-35 programme. Contrastingly, Argentina has its lowest investment in the Air Force, with its Army getting more than double the budget, around 45% over the forecast period. All are set to receive similar levels of growth through coming years.



Argentina Defence Budget Summary

ALL FIGS CONSTANT USD 2012mn

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Army	1,904	2,077	2,388	2,559	2,749	3,073	3,313	3,584	3,752	3,944
Navy	1,058	1,154	1,326	1,421	1,527	1,707	1,841	1,991	2,084	2,191
Air Force	931	1,016	1,167	1,251	1,344	1,502	1,620	1,752	1,834	1,928
Defence-Wide	338	369	424	455	489	546	589	637	667	701
Total	4,230	4,616	5,306	5,686	6,110	6,828	7,363	7,964	8,338	8,765



UK Defence Budget Summary

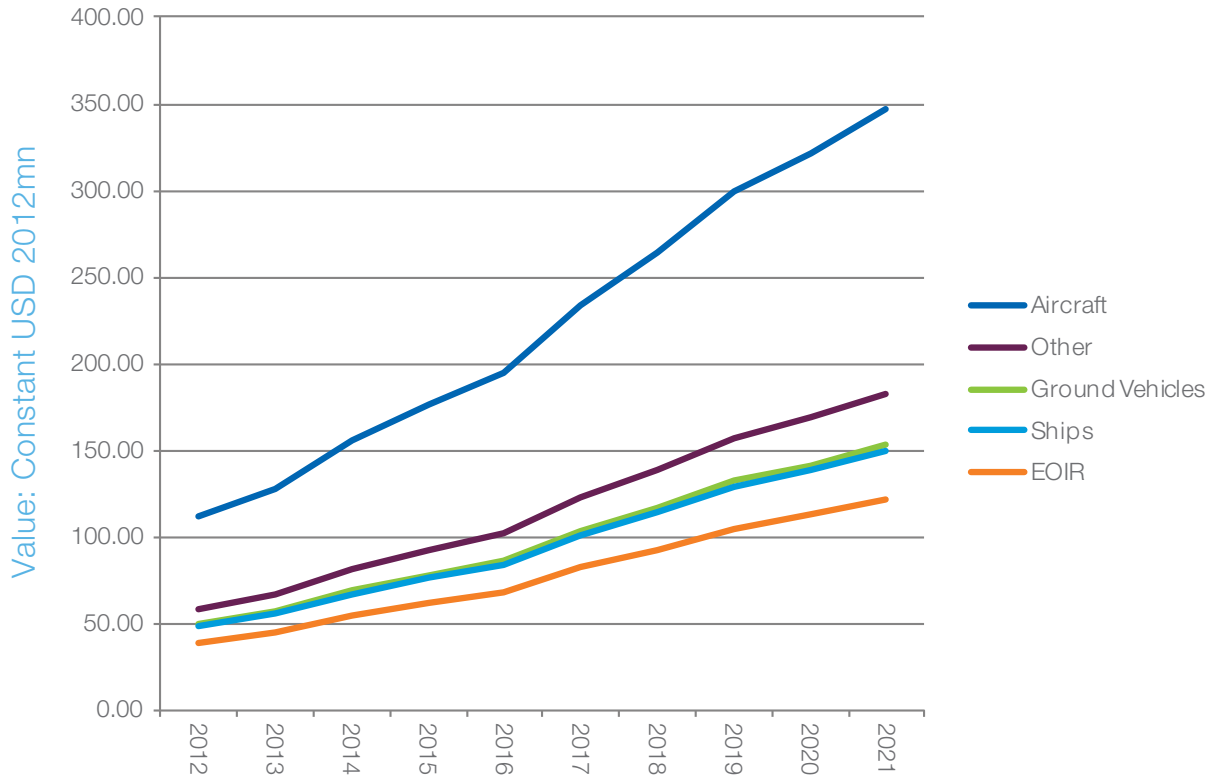
ALL FIGS CONSTANT USD 2012mn

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Army	23,430	21,491	20,665	20,429	20,675	21,169	21,775	21,767	22,328	22,862
Navy	18,468	16,715	15,633	15,943	16,607	17,257	17,859	18,614	19,553	20,380
Air Force	19,975	17,909	16,596	17,078	17,722	18,350	18,987	19,463	20,247	20,968
Defence-Wide	942	739	642	594	724	748	712	788	946	1,110
Total	62,815	56,855	53,536	54,045	55,729	57,523	59,333	60,632	63,074	65,320

Procurement Budgets: Argentina

The top 5 procurement budgets for Argentina from 2012 to 2021 are illustrated in the graph below, other procurement budgets are shown in the accompanying table. Budget allocation for procurement is indicative of military priorities for Argentina in the coming years; upward trends are evident across the board, with aircraft procurement resources starting from a relatively strong position in 2012 and rising significantly to more than double by 2021. This is vital given the age of a large portion of Argentine combat aircraft. In spite of this, in all aspects of military procurement Argentina continues to lag behind the UK, indicating that the equipment technology gap evident in 2012 is unlikely to change significantly in the coming years.

Top 5 Argentine Procurement Budgets 2012-2021



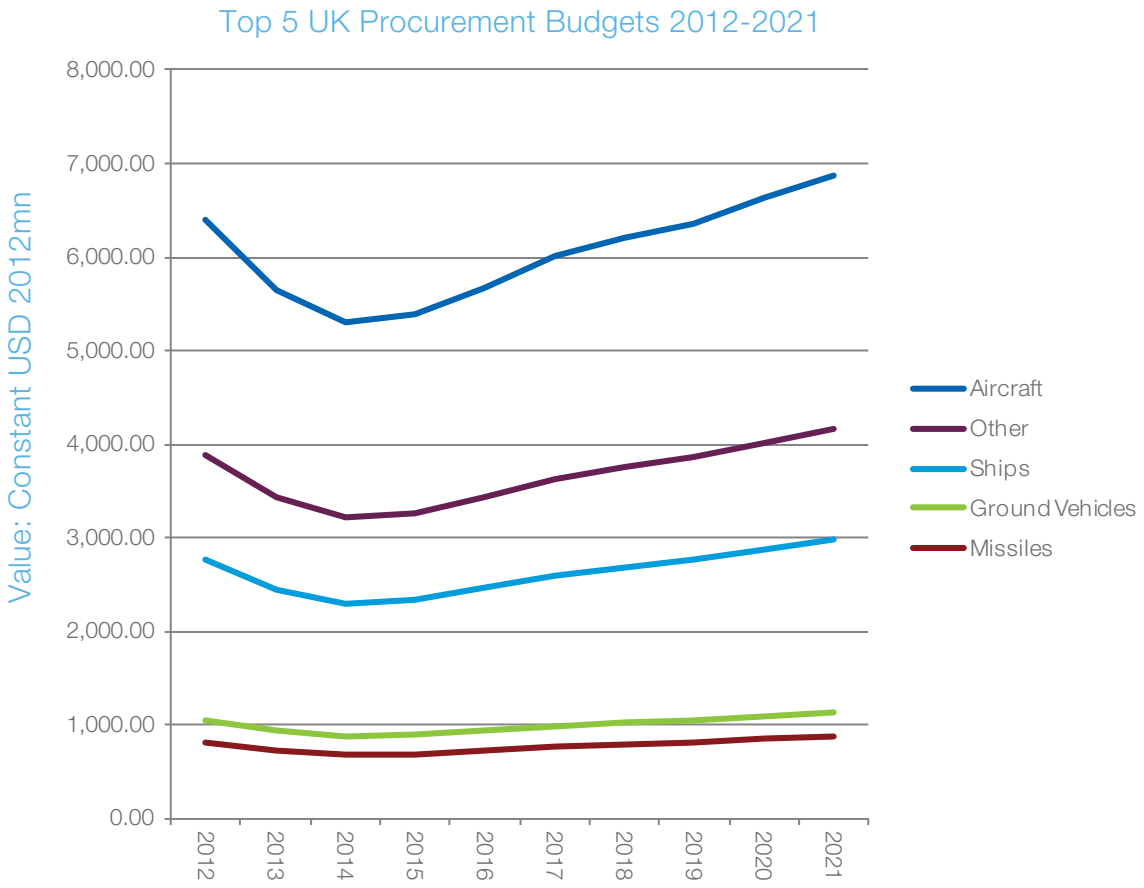
Argentina Procurement Budget Summary

ALL FIGS CONSTANT USD 2012mn

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Aircraft	111.67	127.73	155.45	175.84	194.76	233.91	264.47	299.32	321.29	346.83
C2	15.24	17.44	21.22	24.00	26.59	31.93	36.10	40.86	43.86	47.34
EOIR	39.17	44.80	54.52	61.67	68.31	82.04	92.75	104.98	112.68	121.64
Ground Vehicles	49.21	56.29	68.50	77.49	85.83	103.08	116.54	131.90	141.58	152.84
Intelligence	0.31	0.36	0.44	0.49	0.55	0.65	0.74	0.84	0.90	0.97
Military Communication	19.00	21.73	26.44	29.91	33.13	39.79	44.99	50.92	54.65	59.00
Missiles	19.93	22.80	27.75	31.39	34.77	41.75	47.21	53.43	57.35	61.91
Other	58.63	67.06	81.62	92.32	102.25	122.81	138.85	157.15	168.69	182.09
PGW	4.77	5.45	6.64	7.51	8.32	9.99	11.29	12.78	13.72	14.81
Radar	18.33	20.97	25.52	28.87	31.97	38.40	43.41	49.14	52.74	56.93
Ships	48.27	55.22	67.20	76.01	84.19	101.11	114.32	129.39	138.89	149.92
Sonar	1.72	1.97	2.39	2.71	3.00	3.60	4.07	4.61	4.95	5.34
Space Systems	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UAV	4.57	5.23	6.37	7.20	7.98	9.58	10.83	12.26	13.16	14.20
UGV	0.04	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
USV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Procurement Budgets: UK

The top 5 procurement budgets for the UK from 2012 to 2021 are illustrated in the graph below, other procurement budgets are shown in the accompanying table. Budget allocation for procurement is indicative of military priorities for UK in the coming years, although it should be noted that these figures are not directly indicative of new resources the UK would be willing to devote to the defence of the Falklands. It is notable that procurement budgets are generally forecast to fall before rising again after 2015 as a result of the UK's Strategic Defense and Security Review (SDSR), contrasting with Argentina's consistent upward trends. The UK is devoting a large portion of its procurement budget to aircraft, although aircraft presently in service are already significantly more modern than those of Argentina. Across the board the UK continues to invest significantly more in military procurement than Argentina.



UK Procurement Budget Summary

ALL FIGS CONSTANT USD 2012mn

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Aircraft	6,396.82	5,651.32	5,302.99	5,380.89	5,674.15	6,002.48	6,200.57	6,360.98	6,625.34	6,865.74
C2	304.25	268.80	252.23	255.93	269.88	285.50	294.92	302.55	315.12	326.56
EOIR	181.43	160.28	150.40	152.61	160.93	170.24	175.86	180.41	187.91	194.73
Ground Vehicles	1,053.98	931.15	873.75	886.59	934.91	989.01	1,021.65	1,048.08	1,091.63	1,131.25
Intelligence	69.56	61.45	57.66	58.51	61.70	65.27	67.42	69.17	72.04	74.66
Military Communication	761.83	673.05	631.56	640.84	675.77	714.87	738.46	757.56	789.05	817.68
Missiles	817.04	721.82	677.33	687.28	724.74	766.67	791.98	812.46	846.23	876.94
Other	3,873.47	3,422.05	3,211.12	3,258.29	3,435.87	3,634.68	3,754.63	3,851.77	4,011.85	4,157.42
PGW	76.30	67.40	63.25	64.18	67.68	71.59	73.96	75.87	79.02	81.89
Radar	240.46	212.43	199.34	202.27	213.29	225.63	233.08	239.11	249.05	258.08
Ships	2,771.73	2,448.70	2,297.77	2,331.53	2,458.59	2,600.86	2,686.69	2,756.20	2,870.74	2,974.91
Sonar	53.37	47.15	44.25	44.89	47.34	50.08	51.73	53.07	55.28	57.28
Space Systems	131.33	116.03	108.87	110.47	116.49	123.24	127.30	130.60	136.02	140.96
UAV	87.62	77.41	72.64	73.71	77.72	82.22	84.93	87.13	90.75	94.04
UGV	7.21	6.37	5.98	6.07	6.40	6.77	6.99	7.17	7.47	7.74
USV	1.67	1.47	1.38	1.40	1.48	1.56	1.62	1.66	1.73	1.79

Contributors

Report Convener

Ryan Ginbey, Technical Content Editor, IHS Jane's

Design

Carol Kidd, Graphics Manager, IHS

Carolina Lorenzo, Graphic Designer, IHS

Mark Newton, Graphic Designer, IHS

Politics & Security

Robert Munks, Senior Analyst, Latin America, IHS Country Risk

Dr Laurence Allan, Senior Analyst, Latin America, IHS Country Risk

Energy

Tom Biracree, Senior Financial Editor, IHS Herold

Claudia Pessagno, Senior Analyst, Energy Research, IHS Herold

Henrik Aittola, Senior Analyst, IHS Herold

Juliana Abella, Managing Editor, Energy Legal & Fiscal, IHS Energy

Steve Parish, Senior Economist, Energy Legal & Fiscal, IHS Energy

Military

Ryan Ginbey, Technical Content Editor, IHS Jane's

Alexander von Rosenbach, Armed Forces Editor, IHS Jane's

Russell Jones, Armed Forces Analyst, Sub-Saharan Africa, Central & South America, IHS Jane's

Alex Pape, Senior Analyst II, Naval Programs/Forecasts, Research and Analysis, A&D, IHS

Charles Hollosi, Senior Analyst I, Air Programs/Forecasts, Research and Analysis, A&D, IHS

Jon Hawkes, Senior Vehicle Programme Analyst, A&D, IHS

Budgets

Paul Burton, Senior Principal Analyst, Defence Budgets, Research and Analysis, A&D, IHS

Product Bibliography

Politics

IHS Jane's Intelligence Review

Energy

IHS Herold Regional Play Assessments

IHS Herold M&A Database

IHS Herold Company Valuation Reports

IHS Herold Significant Energy Assets on the Market Alerts

IHS Petroleum Economics and Policy Solutions

IHS EDIN Database

Military

IHS Jane's Fighting Ships

IHS Jane's All the World's Aircraft

IHS Jane's Aircraft Upgrades

IHS Jane's Naval Weapons Systems

IHS Jane's Air-Launched Weapons

IHS Jane's World Armies

IHS Jane's World Air Forces

IHS Jane's World Navies

IHS Sentinel Country Risk Assessments

IHS Jane's Defence Budgets

IHS Jane's Defence Sector Budgets

IHS Jane's Defence Procurement

IHS Jane's DS Forecast

IHS Jane's Defence Equipment and Technology

IHS Jane's Military and Security Assessments