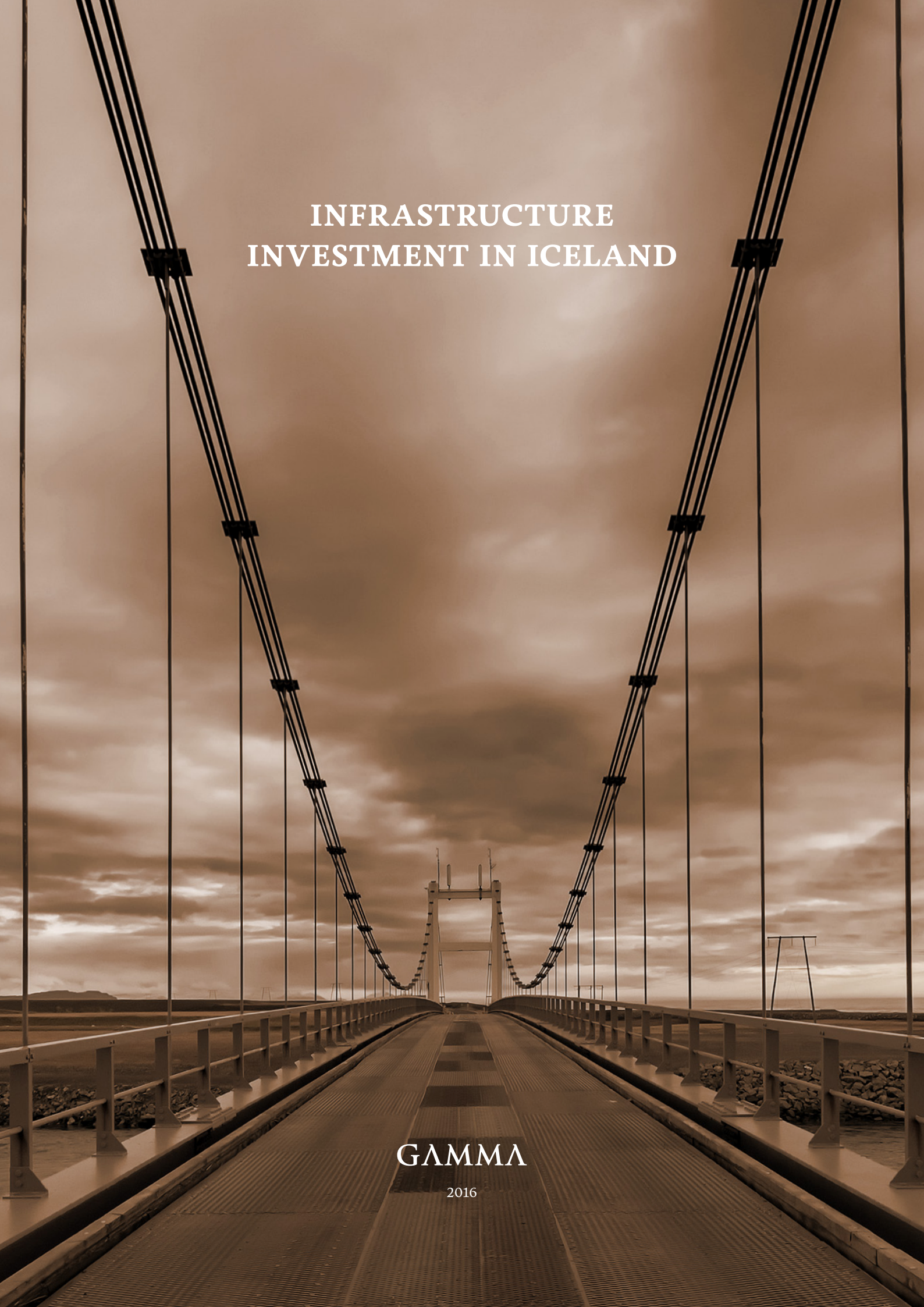

INFRASTRUCTURE INVESTMENT IN ICELAND

GAMMA

2016

Editor:

Gisli Hauksson, B.A. Economics, CEO and co-founder.

Contributors:

- Alexander Jensen Hjalmarsson, B.Sc. Engineering & B.Sc. Finance, Alternative Investments.
- Fridrik Mar Baldursson, PhD Economics, Professor of Economics at Reykjavik University and Head of Economic Advisory Board.
- Julius Fjelsted, M.Sc. International Business, Corporate Finance.
- Lydur Thor Thorgeirsson, B.Sc. Engineering & MBA, Managing Director of Alternative Investments.
- Ragnar Jonasson, Cand. jur., Head of Legal.
- Solvi Blondal, M.Sc. Economics, Alternative Investments.
- Tryggvi Thor Herbertsson, PhD Economics, Senior Advisor.

Legal advisors:

- LEX Reykjavik (lex.is), Asgerdur Ragnarsdottir, LL.M., Supreme Court Attorney.

Advisor on infrastructure investments in Greenland:

- Haukur Oskarsson, B.Sc. Engineering, CEO of Refskegg

Translation Services:

- Quentin Bates

Published in London, 2016

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- The Central Bank of Iceland.
- Landsvirkjun, the National Power Company of Iceland.
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GAMMA calculates and publishes seven indices daily relating to the Icelandic markets, available on Bloomberg


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FOREWORD BY PROFESSOR FRIDRIK MAR BALDURSSON

Infrastructure is of enormous importance to the economy. Good infrastructure – harbours, airports, roads, bridges, tunnels, electricity transmission grids, broadband and other IT infrastructure, state-of-the-art hospitals and schools – is a key enabler of productivity, welfare and investment. Conversely, inadequate infrastructure can be a major hindrance to economic growth and prosperity.

Infrastructure is the basis for providing services that are publicly provided in most Western countries, such as education, health and transport services. Hence, governments are typically the parties responsible for infrastructure investment. Moreover, as this report documents, governments have to a large degree financed infrastructure investments directly by taking on debt. In some cases, users pay for these services, and sometimes they are provided on a market basis by publicly owned enterprises, but most often they are heavily subsidised or free of charge. This state of affairs was not so problematic when states and municipalities had relatively low indebtedness. But in the last decade or so – and especially during and following the great recession – public debt has risen rapidly and large fiscal deficits have opened up. The pressure on public purses has resulted in a fall in infrastructure investment and deteriorating productivity. It is now widely recognised that large infrastructure investments need to be made to compensate for the low levels of recent years. Furthermore, considerable additional investment needs to take place to sustain future economic growth.

Iceland is no exception to this pattern. As detailed in this report, public infrastructure investment fell by a third, measured as a share of GDP, following the banking crisis of 2008. Despite robust growth in recent years these low levels persist. But to support economic growth, annual infrastructure investment needs to rise to pre-crisis levels.

In addition, substantial additional investment must take place to make up the cumulative shortfall of the post-crisis years. This implies that annual infrastructure investment over the next decade or so ought to rise well above historical averages and substantially from current levels.

Public debt rose to unprecedented levels after the 2008 crisis and the credit rating of the Icelandic state was at risk of falling to non-investment grade. Considerable consolidation has, however, taken place. Debt is now moderate and falling and the creditworthiness of the Icelandic state is on the rise. Yet, if all the necessary investment of the next years were to be funded from the public coffers, this would place a severe strain on public finances. Seeking private involvement in infrastructure investment is a natural consequence. This report documents how this can be done via various models of public-private partnership. It also gives several examples of investment projects that would be natural candidates for private participation.

In order to be successful, public-private partnerships need to be properly designed. Institutional investors are typically interested in such projects not because of large expected profits, but rather because they typically offer a relatively stable yield that has low correlation with other market assets such as traded shares and bonds. This makes infrastructure investment attractive as a part of a diversified portfolio of assets. However, as this report details, there are a number of risks, other than market risks, involved. One of them is political risk. For various reasons, governments may find it difficult to commit not to undermine the economic viability of a private infrastructure investment by, for example, changes in regulations or tax codes. An impartial and fair justice system that enforces property rights and the rule of law is of key importance in supporting such commitment and facilitating private sector participation in infrastructure projects.

The burden of responsibility to safeguard the interests of consumers and firms that use a particular infrastructure is also important and falls on the government. For example, where a private (or public) party is placed in a situation of monopoly through control of infrastructure such a monopoly needs to be regulated to prevent the abuse of such a position. In the long term this is of course also beneficial for the investor; an unregulated monopoly situation is inherently unstable and is bound to lead to political intervention in the end. A well-regulated entity, provided with adequate, but not excessive, long-term returns, is much to be preferred for both consumers and investors.

Dr. Fridrik Mar Baldursson is Professor of Economics at Reykjavik University, Head of GAMMA Capital Management's Economic Advisory Board and Former Dean of Reykjavik University Business School.

The creditworthiness of the Icelandic state has improved dramatically in recent months and continues to rise.

OVERVIEW OF THE ICELANDIC ECONOMY

Iceland is an open Nordic economy, combining free markets with an Scandinavian welfare state.[1] It is the smallest economy within the OECD, with USD 16.7bn in annual GDP, but among the top ranked countries in terms of GDP per capita. Iceland is currently ranked 22nd globally in terms of GDP per capita. Comparisons constantly ranking among nations with the highest standard of living in the world.

Iceland's success in building a prosperous and globally competitive economy can be attributed to factors such as a strong institutional framework, a skilled workforce, a high degree of economic freedom, a sound democracy, and low corruption. These qualities are well portrayed in various competitive indices as shown in Table 1. Iceland ranks at the top in terms of peace. Female labor force participation is high, measured 70% by the World Bank, which is a significantly higher than elsewhere in Europe. A high labor participation rate, coupled with high average working hours, contribute toward making the labor market a key strongpoint of the Icelandic economy.

Small open economies are often more volatile than larger economies, as they lack regional diversification, but at the same time they tend to be more agile. This has been the case for Iceland, which has experienced a more pronounced business cycle than most other developed countries, both historically and in recent times. Leading up to the financial crisis in 2008, Iceland was experiencing economic growth almost unparalleled among high income countries, averaging 6.5% in annual growth over a four year period. Conversely, over the two years following the

Table 1: Competitiveness ranking 2015

	Iceland Rank	Number of Countries
Gender equality (WEF)	1	145
Global Peace Index	1	162
Democracy Index (The Economist)	2	167
Environmental Performance Index (YALE)	2	180
Prosperity Index (Legatum)	12	142
Corruption (Transparendcy Int.)	13	167
Global Innovation Index (INSEAD)	13	141
Media Freedom (Freedom House)	14	199
Human Development (UN)	16	188
Doing Business (WB)	19	189
Economic freedom (HF)	20	178
Property Rights Index (IPRI)	23	129
Competitiveness (IMD)	24	61
Global Competitiveness Index (WEF)	29	140
Globalization (KOF)	50	207
Economic freedom (Fraser)	85	157

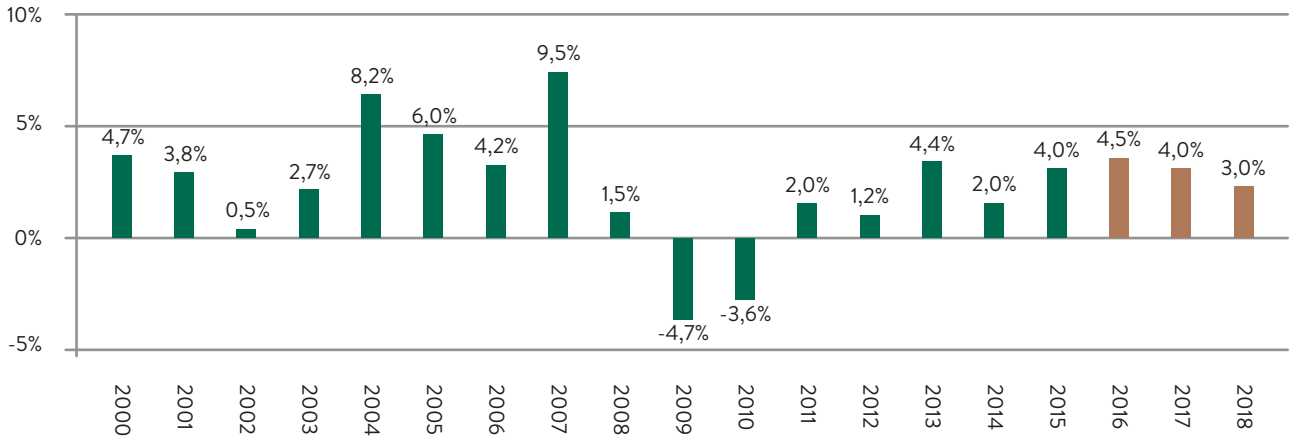
Source: Respective websites

[1] This overview is to a great extent adopted from „The Icelandic Economy 2016," an annual publication by the Chamber of Commerce in Iceland.

financial crisis, the economy contracted by more than 8% in total, a more severe contraction than that experienced by most other European countries.

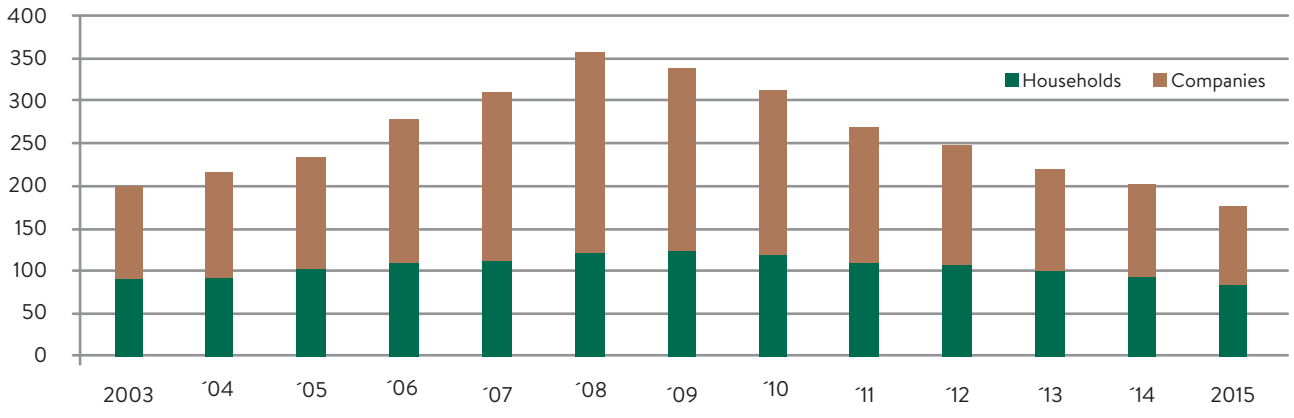
During the last few years, Iceland has experienced a robust economic growth, higher than its neighboring countries or high-income countries in general. This development has derived from a sustainable source – the export sector – and been driven mostly by the fast growing tourism industry. The growth in 2015 was no exception as export growth was the main driver, along with strong contributions from business investment and private consumption. The Central Bank of Iceland predicts that growth will continue and even accelerate over the next few years. The labor market has followed suit with the overall economy. Unemployment rose from 1% in 2007 to 8% in 2009, but has since gradually declined, standing at 2.3% mid-year 2016. Current unemployment rate is considered to be close to Iceland's natural unemployment rate (NAIRU). Several industries currently face labor force shortage, mostly in construction where multiple tourism infrastructure and real estate projects are taking place. At the same time as the improvements have occurred in the labor market, the economy has, contrary to most industrialized countries, been in a deleveraging phase as Figure 2 shows.

Figure 1: Real GDP Growth in Iceland 2000-´15, Projected Growth 2016-´18



Source: Central Bank of Iceland

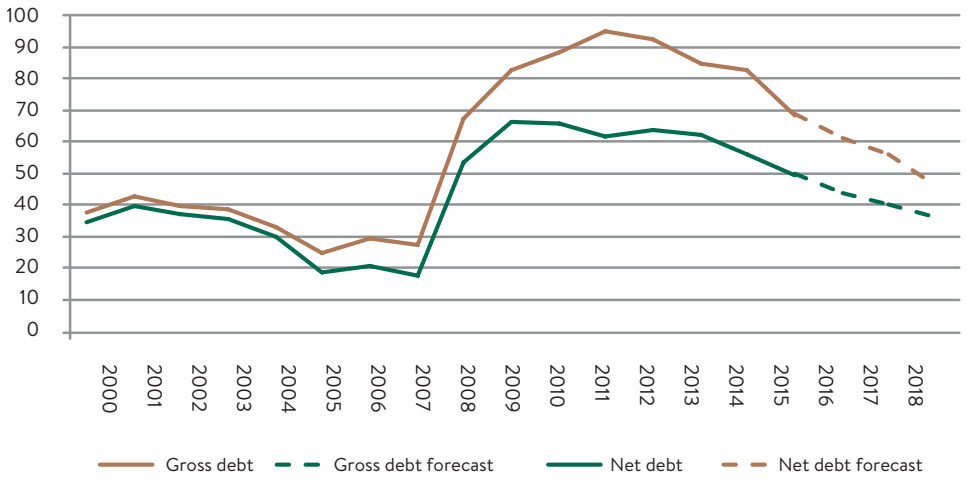
Figure 2: Corporate and Household Debt 2003 - ´15 (% of GDP)



Source: Central Bank of Iceland

Both firms and households have been deleveraging for the last eight years. Debt levels, especially corporate debt, have declined rapidly and are now at lower levels than in 2003. Figure 3 shows how Iceland's public debt has also been rapidly declining.

Figure 3: Gross and Net General Government Debt 2000-´15, Projected 2016-´18 (% of GDP)



Source: Central Bank of Iceland

The increased government debt was due to the re-capitalization of the Central Bank and the commercial banks, a cost which the IMF estimates at around 34% of GDP. Additionally, tax revenues declined and use of the welfare system increased, resulting in a budget deficit for the first few years following the crisis. Following this development, austerity measures were undertaken and public expenditures were reduced. The government achieved a budget surplus in 2014. Recently, public debt levels have gone down again mainly due to the government running a surplus and the sale of selected assets that the state acquired in a settlement with the creditors of the commercial banks. Current net government debt is approximately 44%. The government debt level in Iceland has thus fallen rapidly and is below most European countries.

One of the characteristics of the Icelandic economy is its small currency, the ISK, and the high impact of exchange rate fluctuations on inflation. When the Icelandic Krona weakens, import prices of foreign goods and services rise, causing inflation. In 2008 and the beginning of 2009, this pass-through effect was particularly pronounced. During this period, the value of the Krona fell by 50%, resulting in inflation peaking at 18.6%. Since this spike, inflation has gradually declined and has remained below the Central Bank's inflation target (2.5%) since early 2014. Inflation has remained below the inflation rate target the first half of 2016 and is not expected to rise above the Central Bank's target in 2016. Despite significant nominal wage increases, inflation has not followed as the Central Bank expected, and the bank's inflation forecast through the year 2018 is within its target range. The locals are accustomed to this periodically inflationary environment and work around it e.g. with inflation linked (CPI indexed) loans and rental agreements on commercial and residential real estate.

The small size of the domestic economy makes Iceland highly dependent on international trade. To fund imports, a strong export sector is required. International trade thus plays an important role when examining Iceland's economic performance. Prior to 2008, Iceland's trade balance was highly negative, which led to a build-up of record-high levels of external debt. This trade deficit was in large part caused by a strong exchange rate of the Icelandic krona, which lowered prices of foreign goods and services. Then, in 2008, foreign funds started flowing out of Iceland, resulting in a major devaluation of the currency. Also,

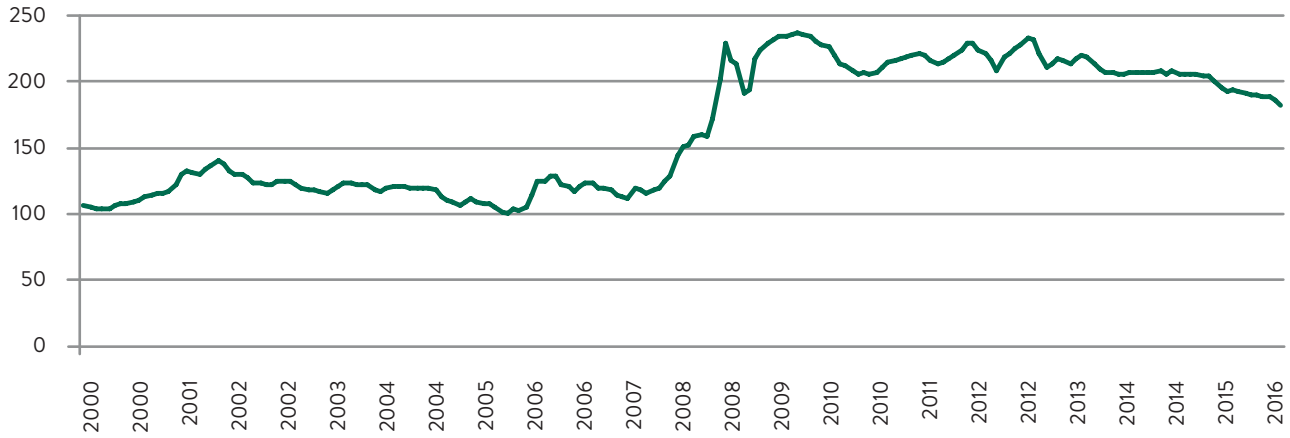
Figure 4: CPI Inflation in Iceland January 2000 – June 2016

Source: Central Bank of Iceland

the Central Bank of Iceland is better equipped to meet „sudden-stop“ scenarios as the foreign reserves of the Bank now amount to 35% of GDP.

This caused the trade deficit to revert to a surplus as revenues from exports increased measured in domestic currency. Consequently, the ISK has now begun to strengthen again. GAMMA anticipates that this appreciation will continue the next two to three years. In 2015, exports of goods and services amounted to about 50% of Iceland's GDP and there was a surplus in the balance of trade in goods and services of about 7%. In the six years following the financial crisis (2009-2015) there has been a total trade surplus of 54% of one year's GDP, which is almost unprecedented in the country's economic history. This large trade surplus has contributed to a current account surplus, although not as significant as the trade surplus. The underlying current account surplus has averaged about 5.2% of GDP since 2008. This is in strong contrast to the persistent and significant current account deficit that Iceland had been running, especially in the years leading up to the financial crisis, as Figure 6 shows.

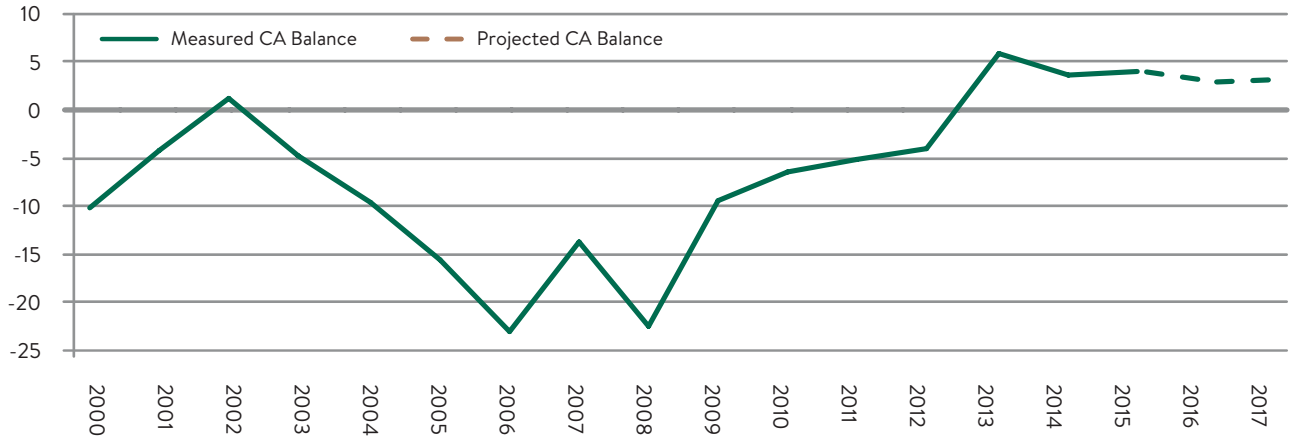
Figure 5: Trade Weighted Exchange Rate Index for Iceland, January 2000 – June 2016



Source: Central Bank of Iceland

The net international investment position (NIIP) measures assets owned by domestic entities abroad

Figure 6: Current Account Balance 2000-´15, Projected 2016-´18 (% of GDP)

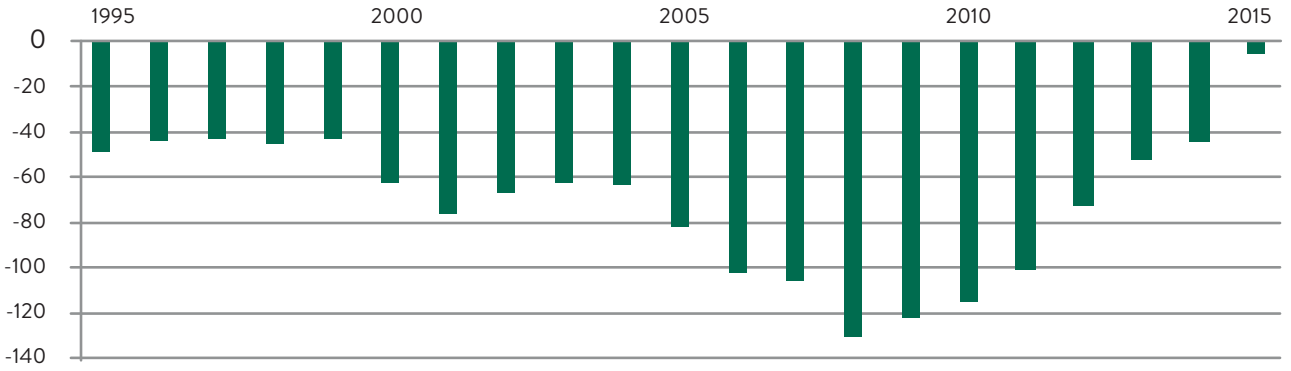


Source: Central Bank of Iceland

minus domestic assets owned by foreign entities. Thus, a negative NIIP results in a net outward flow of interest and dividends. Iceland's NIIP, shown in Figure 7, became progressively more negative, reaching unsustainable levels before 2008. After a restructuring of the banking system in the aftermath of the financial crisis and years of current account surplus, the position gradually became less negative. Today the NIIP is the most favorable it has been in the history of Iceland. The main driver of the improvement in 2015 was a settlement of the failed bank estates which eliminated the balance of payment risk associated with the estates. That procedure in itself reduced NIIP by a fifth of GDP.

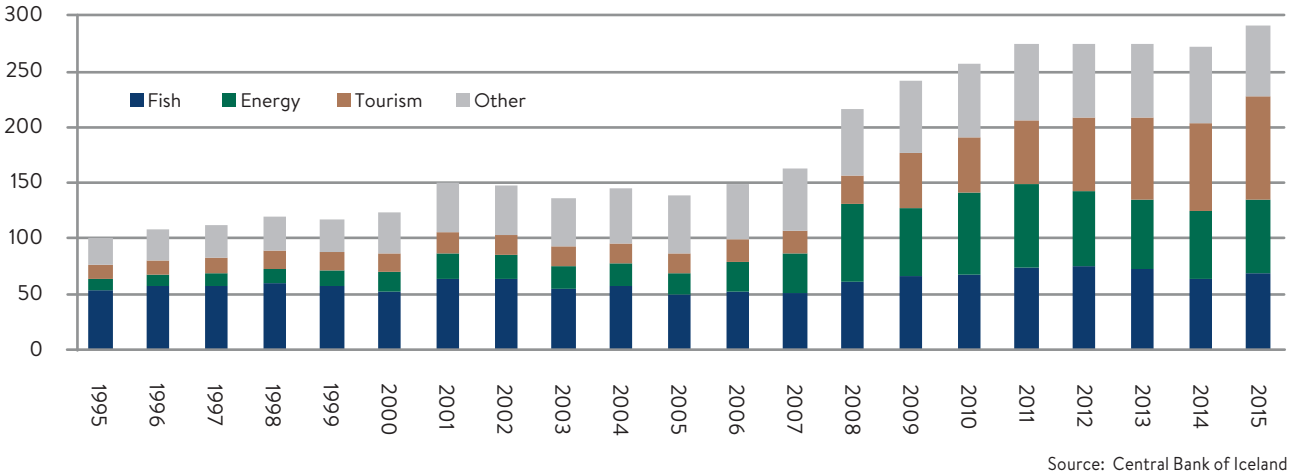
It remains a key challenge for Iceland to maintain current account surplus and strong sustainable growth. For that Iceland has, among other things, to invest in the infrastructure of the country. Two decades ago the country was largely dependent on fishing, with more than half of exports originating from the fishing industry. Since then, fish-related exports have remained relatively stable, as the industry is limited by the quantity it can harvest, so as to preserve the size and sustainability of the fishing stock. In recent years, three additional export foundations have emerged. Around the new millennium there was a large amount of growth in the international sector – the sector of the economy that is engaged in international

Figure 7: Net Outwards Position of Iceland 1995-2015, (% of GDP)



Source: Central Bank of Iceland

Figure 8: Composition of the Icelandic Export Sector 1995 – 2005 (Index 1995=100)



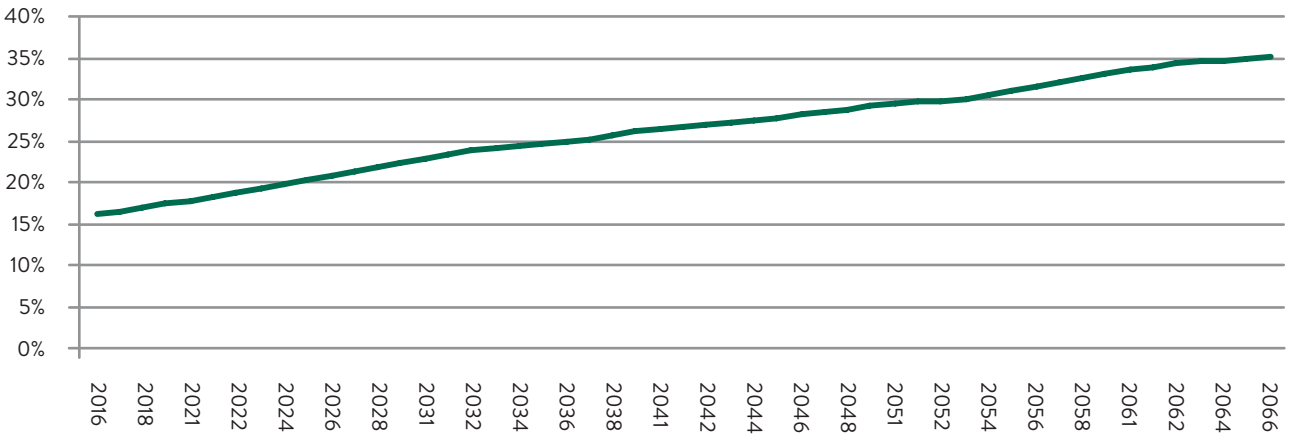
Source: Central Bank of Iceland

competition and not reliant on natural resources. Then, from 2005 to 2008, exports of aluminum took off following the expansion of heavy industries. Finally, in the last few years, Iceland has witnessed rapid growth in the tourism industry which now makes up a third of Iceland's total export. Overall, Iceland's exports of goods and services have grown rapidly and become more diversified over the last two decades. Figure 8 shows this development.

In the context of infrastructure investments the demand for health care infrastructure is particularly pressing in Iceland. The demographic structure is changing rapidly as the population ages.

As can be seen from Figure 9 the population age structure in Iceland is going to change dramatically in the next fifty years. In 2016 the number of individuals aged 65+ as a percentage of individuals aged 0-64 is 16%. In 2066 this number will be 35%. This will increasingly put pressure on health care infrastructure investment in particular and age-related infrastructure in general in coming years.

Figure 9: Projected Ratio of Population Aged 65+ to Population Aged 0 – 64, 2016 - 2066



Source: Statistics Iceland and GAMMA Calculations

Finally, in the last few years, Iceland has witnessed rapid growth in the tourism industry which now makes up a third of Iceland's total export.

WHY DOES INFRASTRUCTURE MATTER?

Sufficient level of infrastructure investment is a driver of long-term economic growth. A shortfall in such investment can deter growth of the economy over an extended period.

GAMMA estimates that the current accumulated need for infrastructure investment in Iceland is valued beyond USD 2bn. Looking ahead, seven to ten years, GAMMA estimates the need for investment to be at least USD 4-5bn.

A shortage of infrastructure investment appears to be a problem on an international scale. Public investment proportional to GDP has been falling throughout Europe since the 1990s, dropping from approximately 5% to around 2.5%. According to an OECD estimate, investment in infrastructure needs to be at least 4.1% of GDP to support an extended growth of the economy.

Iceland is no exception to this, on the contrary. The country is sparsely populated with only about 3 inhabitants per sq. km compared to 269 in the UK or 234 in Germany according to The World Bank. Consequently, the need for, i.e., investment in transportation infrastructure is much higher per capita than in most Western countries. Historically about half of all infrastructure investment in Iceland have been transport related. The other half has mostly been invested in public buildings and communication. Due to factors such as the large size of the country, relatively few inhabitants and favourable demographics most agree that long-term infrastructure investment levels need to be higher in Iceland than the OECD average. The level was fairly stable during 1990-2008, at an average of 5.5% of GDP annually. This is considered to be the ideal long term infrastructure investment level in Iceland.

Types of Infrastructure

The financial markets refer to two types of infrastructure:

A. **Economic or Conventional infrastructure.**
Examples of economic infrastructure include transport (roads, ports, airports, bridges, tunnels, and parking lots), utilities (utility companies, energy distribution, energy generation, water, sewage, waste) and communications (distribution and transport construction).

B. **Social infrastructure.**
Social infrastructure is defined as including schools and other educational establishments, buildings and services related to health provision (such as rest homes for the elderly), buildings and services related to the justice system, prisons, sports halls and playing fields.

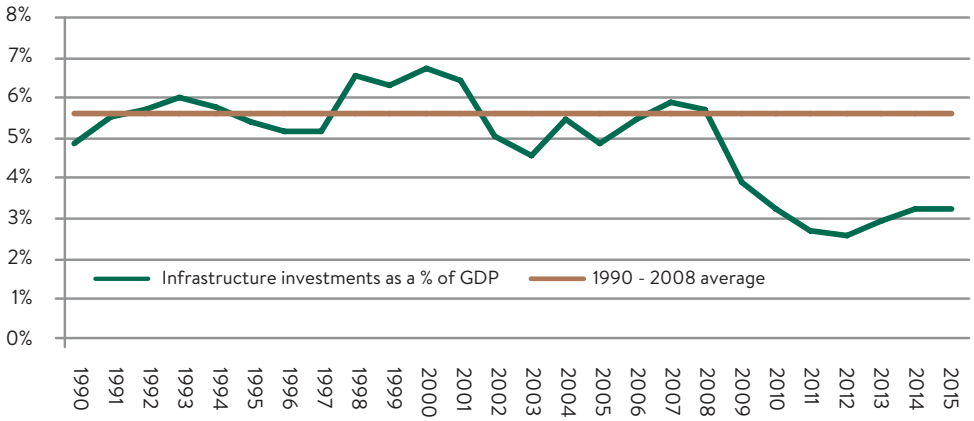
The significant drop in investment since 2008 has led to depreciation exceeding new investment, with the low point of 2012 at approximately 2.5% of GDP as can be seen in Figure 10. Today there are numerous indicators of an accumulated need for investment. Relative to an annual ideal investment, it can be estimated that the accumulated shortfall in infrastructure investment stands at USD 2bn.

The ratio of infrastructure assets to GDP – the capital output ratio – has been on a downward trend from 2010, see Figure 11. This ratio stood at 0.65 in 2015. This implies that the proportion of infrastructure is more than 10% lower than would be needed to maintain growth, comparable to that of the 1990-2008 period. The theory predicts that as the capital stock of a country decreases economic growth slows.

the need for investment in infrastructure over the coming 7-10 years at around 25% of GDP.

The accumulated shortfall in infrastructure investment since 1990 totals approximately USD 1.7bn in 2015 terms. This does not include infrastructure investment that could become vitally important in coming years. To illustrate this further, there has been a considerable reduction in overall investment since 2008, and in spite of the improvement in business investment, infrastructure investment continues to trail behind.

Figure 10: Infrastructure Investment 1990 - 2015



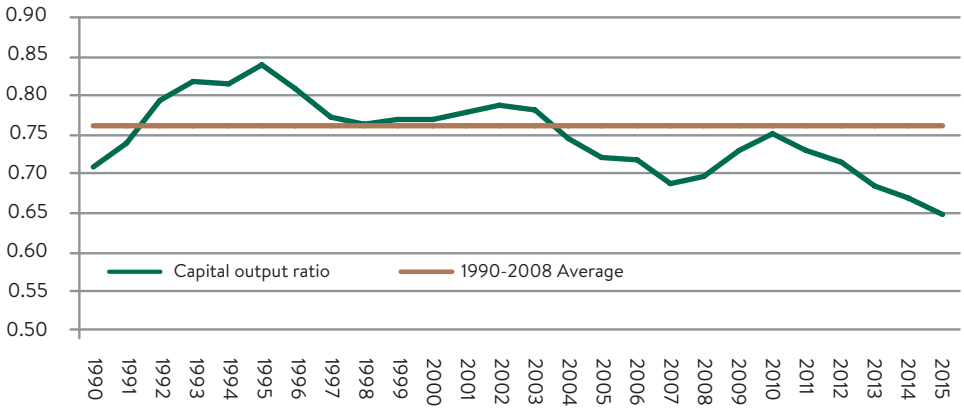
Source: Statistics Iceland and GAMMA Calculations

However, this has not turned out to be the case in Iceland. Partly this can be explained by the fact that the service industry, tourism, has grown much faster than traditional capital intensive industries.

In broad terms, there is a significant need for infrastructure development in Iceland. The accumulated shortfall in investment in Iceland's infrastructure, both conventional and social, is estimated by GAMMA to stand at 15-18% of GDP. Approximately half of this amount is the accumulated need for investment in transportation projects. Analysis puts

The development of economic growth in Iceland indicates that an ideal proportion of overall investment to GDP each year is in the region of 5.5% - if a 2.5% - 3% economic growth is to be maintained over an extended period. Taking this into account, it can be estimated that the investment shortfall (business, public and housing) from 2000 onwards can be put at USD 2bn.

Figure 11: Capital Output Ratio 1990 - 2015



Source: Statistics Iceland and GAMMA Calculations

INFRASTRUCTURE AS AN ASSET CLASS

Infrastructure investment has become an asset class of its own and investor demand is high. In a recent survey by Preqin among institutional investors 52% of respondents are going to increase their infrastructure investments in 2016. In the same survey over 77% of respondents said that their previous infrastructure investment met their expectations or performed better than expected. The main reason for this is the changing attitude of institutional investors to ownership distribution and risk, a process that began following the international downturn that occurred in 2000. At that time the financial sector presented infrastructure investment as a new investment option.

> ***In a recent survey by Preqin among institutional investors 52% of respondents are going to increase their infrastructure investments in 2016.***

Investor interest in infrastructure is particularly due to three main factors:

A) A hedge against inflation.
Revenue that is directly and indirectly index-linked, and asset values generally remain in tune with inflation.

B) Revenue streams.
Predictable payment streams, profits often linked to economic management of infrastructure, fulfils investors' long-term financial obligations.

C) Risk visibility.
A new asset type, with limited correlation with other asset types and lower effects of economic downturns on asset values.

The trend, on a worldwide scale, has been for institutional investors to steadily reduce the value of equity in their portfolios over the past decade, from around to 60% to approximately 47%. This has been replaced by an increased weight of alternative investments. Institutional investors have in recent years had to cope with lower returns on assets, increased price fluctuations and rising obligations due to low interest rates and higher life expectancy.

Investments in infrastructure should be attractive to institutional investors such as pension funds and insurance companies due to the prospect of a steady long-term revenue stream, limited correlation with other asset types and low likelihood of default.

But infrastructure investment is not without risk. There are significant and relevant hazards, in particular of a political nature. Other risk factors are construction costs, operating costs, and maintenance costs, as well as the risks associated with demand in some initiatives, plus risks associated with inflation and interest, re-financing,

environmental issues, resale possibilities and the risks due to timing of investments and reputation risk.

International studies among institutional investors have shown that there is a clear will to engage in increased investment in infrastructure. According to OECD figures, infrastructure investments represent 3% of the assets of pension funds. Among insurance companies, a corresponding figure is 2%. These parties have different objectives: 40% aim for a 1-5% investment ratio, while 38% aim for a 5-9.9% investment ratio. On the other hand, most of them, around 60%, today fall below these targets. There are no comparable infrastructure investment targets to be found among Icelandic institutional investors.

The basis for domestic institutional investors placing part of their capital in this asset class is that this is a market that exists. The demand is there, but the supply needs to be bolstered.

PUBLIC-PRIVATE FUNDING

Governments are constantly seeking out new ways of financing infrastructure projects with the aim to reduce budget deficits and state borrowings. A common practice is to turn to market solutions. Usually private ventures manage to keep costs lower than public enterprises but funding costs tend to be higher as the government enjoys better terms.

The Public Private Partnership is the most common form of private participation in infrastructure investment. It is a long-term, performance-measurable approach made to ensure development of nationally beneficial infrastructure initiatives. The private entities take on a large proportion of the risk of design, financing, construction, running and economic effectiveness of the initiative during its lifetime while delivering the benefits of the infrastructure project to society.

A little bit of history

The origins of partnerships between the state and private enterprise can be traced back two millennia to the Roman Empire. At that time public bodies put out to tender projects that private bodies could bid for to build and manage rest facilities on the Imperial network of roads. This system disappeared with the Roman Empire and did not reappear until the middle ages in France.

By the time of the industrial revolution, large-scale programmes to enlarge urban areas were in progress as well as substantial investment in public transport, such as rail networks. The majority of these were financed and constructed by private entities under concession agreements with the state. This has been referred to as the golden age of private finance in infrastructure investment in Europe.

In the 20th century the state took on significantly heavier burdens during war years, both making wartime arrangements and handling the consequences and necessary reconstruction following conflicts. After the First World War investments in infrastructure were almost entirely in state hands. The exceptions were building of roads in France and Spain, constructed and run by private entities in return for road tolls. The increasing trend of state financing resulted in a heavy state debt burden and a deficit for successive years.

Historically, pension funds and insurance companies were the main providers of debt in infrastructure investment. It can be argued that this changed under the Thatcher administration in the UK during the 1990s with privatisation and a more relaxed regulatory environment aimed at reducing state borrowing. In 1992 the UK government began paying specific subsidies to private entities that fulfilled pre-set criteria for infrastructure requirements, the Private Finance Initiative.

This UK approach to infrastructure investment has since become standard practice in Australia and Canada. Now many other countries, including Spain, France, Germany, the USA, Italy, Nordic countries and others have also taken the same approach to introducing private finance to infrastructure.

Source: PPIAF – Public Private Infrastructure Advisory Facility

In general, the experience of private input into infrastructure investments has been positive with the chief advantages being:

A. Greater flexibility.
B. Projects are generally concluded at or below estimated costs.
C. Due to greater flexibility and faster decision making private enterprises can often initiate infrastructure projects that that would begin much later if they were funded publicly.

There are numerous examples of co-operation between private entities and the public sector in the Nordic countries. Norway and Finland are good examples where numerous PPP road projects have been successful over the last few years. Those projects include the Hamina-Vaalimaa section of the E18 highway in Finland and the Grimstad-Kristianstad road in Norway. In Sweden the new Karolinska Solna hospital was financed as a PPP project and is considered a success.

Icelandic investors have also recently looked towards their neighbours in Greenland with regards to potential infrastructure investments as well as in relation to positive experiences in private financing. The new national port of Greenland, Sikuki Harbour, was very successfully privately placed in the US, and currently there are plans in Greenland to build a number of new airports and hydro-electric dams, at an estimated cost of over USD 500mn. *The Arctic Journal* states that; "A deal, reached on December 2, outlining terms of an agreement between the parties making up the governing coalition, recognises the size of both tasks." The construction, it states, will require "... major investments that cannot be funded solely by infrastructure funding in the national budget." Instead, the best way to come up with the money, it suggests, is by operating as many of the projects as possible

The different options of Public-Private Partnerships

Project-linked financing has increased rapidly in recent years and made way for different options in infrastructure investment. All of these variants can be said to come under the Public-Private Partnerships (PPP) umbrella, as shown in the table on page 27:

BT (build-transfer).
BOT (build-operate-transfer).
ROT (rehabilitate-operate-transfer).
BOOT (build-own-operate-transfer).
ROOT (rehabilitate-own-operate-transfer).
BOO (build-own-operate).
ROO (rehabilitate-own-operate).

Version	Characteristics	Associated risks	Role of private finance	Ownership
BT/RT	A private entity manages the construction. As the construction finsishes the ownership passes to a public entity which pays a predetermined fee.	The private entity bears only the construction risk. Public body bears operational and shareholder risk.	The construction is privately financed.	Public ownership
BOT/ROT	A private entity manages the construction. The private entity manages the asset after construction for a fee through a concession. As the concession finishes a public entity takes over management.	The private entity bears the construction and operational risks. Public entitiy bears shareholder risk.	Construction and operations privately financed until concession runs out.	Public ownership
BOOT/ROOT	As BOT/ROT except private entity has ownership of asset during concession and collects all/part of operational profits.	The private entity bears the construction, operational and ownership risks during concession. Public body bears shareholder risk only after concession runs out.	Construction and operations privately financed until concession runs out.	Mixed
BOO/ROO	As BOOT/ROOT except ownership is never transferred to public entity.	The private entity bears all risk.	Entirely privately financed.	Private

Source: PPIAF – Public Private Infrastructure Advisory Facility

as “public-private partnerships, a form of joint investment that gives a privately run firm the right to provide a public service in exchange for an initial investment.”

At least three major airport projects have been identified by experts as viable options for public-private partnerships, expansion of airports at Nuuk, Ilulissat and Qaqortoq, as well as a hydro-electric dam near Disko Bay.

The dig for success – The Hvalfjörður Tunnel

The 5,770 meters long underwater tunnel under Hvalfjörður was not seen by the Government as neither a priority nor a suitable project. However, interested parties kept lobbying for the project. In the end an agreement was reached with the state that Spölur ehf, a SPV formed by the interested parties, was handed a concession to construct and operate the tunnel.

Today it is seen as one of the most successful transportation projects in Icelandic history. All minimum goals for traffic, yield or other relevant economic contributions, are way beyond what was expected 20 years ago. The Hvalfjörður tunnel is a clear example of what can be achieved in public-private partnership. If it hadn’t been for the private parties no one knows when, or if, the tunnel would have become a reality. Already, preparation has begun on doubling the tunnel. The costs for the new tunnel is estimated to be in the region of USD 65mn.

As the number of these initiatives increases and the body of experience grows, the easier the process becomes which reduces the costs of preparing, managing and participating in public bidding process. Also, when investors and lenders become more accustomed to such projects, the result is less uncertainty and lower financing costs.

Source: Spölur – spolur.is

INFRASTRUCTURE INVESTMENT OPPORTUNITIES IN ICELAND

Several large Icelandic infrastructure projects are currently pressing and economically viable. Given the recent positive developments in the overall economy, such as the dramatic expansion of tourism industry and the turnaround in the construction industry, infrastructure investments plays a more important role than ever before.

A grand road interlink within Reykjavík City to the North (The Sundabraut Link), expansion of the main international airport (Keflavík Airport) and a new modernised hospital are just few examples of large upcoming infrastructure projects in the country.

In addition to the large projects that are detailed in this chapter there are a great number of smaller ventures that could be embarked on at short notice if agreement could be reached on the participation of private entities. These include e.g. improvements of Reykjanesbraut, the highway linking Reykjavík and the airport at Keflavík, enlarging the existing Hvalfjörður Tunnel and upgrading smaller harbours and airports around the country.

In view of the growth of the tourism industry in Iceland, a strong case can be made for investing in smaller airports around the country to make more places in Iceland easily accessible for tourists. A part of such a strategy might include direct domestic flights to select locations from Keflavik International Airport, enabling visitors to visit smaller places around Iceland without having to travel via Reykjavik. An example of a small airport which is now closed but could be re-opened is the airport in the northernmost town in Iceland, Siglufjörður, which has seen great local investment in tourism infrastructure in recent years and would benefit greatly from direct flight access.

Reykjanesbraut
– A Simple Road Constructions

A rather simple project would be the improvement of Reykjanesbraut, the highway linking Reykjavik and the international airport at Keflavik. Through minor improvements it would be possible to increase the speed limit from 90 to 120kph with two lanes running in each direction. It would be possible to involve private entities in such a venture, allowing them to handle financing, construction and management in return for those taking advantage of the higher speed limit paying a toll.

General principles of public procurement law

TThe Icelandic Act No 84/2007 on Public Procurement applies to public contracts offered by bodies that are governed by public law. The state, and other government institutions, are obligated to offer public contracts through tender procedures, or other competitive processes, in Iceland if the contract‘s value exceeds a certain threshold (domestic thresholds). In the case of supply contracts the value has to exceed the equivalent of USD 100,000, USD 125,000 in the case of service contracts and USD 250,000 for works contracts. Government institutions are obligated to advertise the procurement within the

European Economic Area if the value exceeds the equivalent of USD 175,000 in the case of service and supply contracts. This amount is substantially higher in the case of work contracts, or USD 6.7mn (EEA thresholds).

It should be noted that the obligation to publicly offer contracts is more limited in the case of municipalities and their institutions. They are only obligated to advertise agreements that reach EEA thresholds. In the case of municipalities, the EEA threshold for supply and service contracts is the equivalent of USD 270.000, but USD 6.7mn for work contracts. Accordingly, municipalities' work contracts are rarely advertised within the European Economic Area.

When contracting authorities offer public contracts they are, as a general rule, obligated to use the open or restricted tender procedures. In open procedures, any interested party may submit a tender. In restricted procedures, any interested party can request to participate in the tender procedure, but only parties invited by the contracting authority may submit a tender. The contracting authorities can resort to other procedures, such as competitive dialogues or negotiated procedures. However, these procedures are rarely used, because they are only allowed under special or complex circumstances.

Ríkiskaup is the Icelandic central purchasing body and is responsible for procurements on behalf of the state and other government institutions. Ríkiskaup advertises procurements on their website (www.rikiskaup.is), coordinates the procedure and provides assistance and instructions to contracting authorities and tenderers. Tenderers can usually access all tender documents at Ríkiskaup's website. It should be noted that municipalities generally advertise and administer public procurements on their own.

Public procurements are advertised prominently and publicly, so any interested party is able to participate. As previously mentioned, anyone can submit a tender in an open procedure. However, in the case of restricted procedures, competitive dialogues and negotiated procedures, the contracting authority initially publishes a notice where tenderers are offered to request to participate in the procurement. When a procurement is advertised domestically, the deadline to submit tenders or requests to participate is at least 15 days. These deadlines are longer when the procurement is advertised in the European Economic Area. For instance, the deadline to submit a tender in an open procedure in the EEA is 52 days.

Tenderers are allowed to be present when the contracting authority opens the received tend ers, and are entitled to information about the name of every tenderer, the price of their offer and whether any offer is a variant. Finally, the contract is awarded to a tenderer that fulfils all qualifications, and submitted the most advantageous tender, which is either the tender with the lowest price or the tender that received the highest score according to award criteria specified in the tender documents.

The above briefly describes some general aspects of the current legislative framework governing Icelandic public procurement law, in particular Act No. 84/2007 on Public Procurement, which is largely based on the European Union's Directive No 2004/18/EC. In 2014, the EU adopted a new Directive No 2014/24/EU on public procurement, and Iceland is obligated, as an EEA Member state, to implement this Directive into law. A bill for a new Act on Public Procurement has been proposed in Iceland and is under parliamentary procedure. Thus, Icelandic public procurement laws may change in the recent future. The thresholds discussed have been converted into the equivalent amount in USD for the reader's convenience at an exchange rate of 120 ISK per USD which may change in the future.

The Sundabraut Link

Type: Road – Bridge/Tunnel	Total investment: USD 260-380mn	Likelihood of private participation: High
Start of construction: 2-4 years out	Likely Setup: BOOT	Construction time: 24-30 months

The proposed Sundabraut Link is a bridge or tunnel highway connecting commuters in Reykjavik to the north. It is perhaps the most obvious transport initiative that would be highly suitable for private funding. This is the largest anticipated road initiative in the capital region and would have a similar or greater positive effect than the Hvalfjörður-tunnel. GAMMA estimates the economic loss relating to the failure to embark on this initiative ten years ago, to be over USD 200mn.

In the subsequent two decades since preparatory work began, there have been number of reports on the environmental effects and the technical side of the project, as well as studies into the economic aspects of the various project layout options.

The various potential versions of the Sundabraut Link have been discussed over the years and it is seen as a two phase project. The first phase being a bridge or a tunnel from Sæbraut high-way to Gufunes and the second phase being a highway with bridges to Route 1.

The estimated cost of the initiative is between USD 260-380mn, depending on which layout is selected. If the state chooses to allow a private entity to handle the initiative, design and construction could begin right away.

GAMMA has led a private group of interested parties for the last 12 months with the aim of co-ordinating key stakeholders, updating cost estimations and moving the Sundabraut project forward. Others in the group are e.g. engineering firm Efla and Lex Legal Advisory. The informal group and its members have written reports on the subject, held workshops and met with authorities and stakeholders.

A project financed entirely by tolls

In March 2014 a working group was set up by the then Minister of the Interior to examine the role of private entities in transport initiatives, either acting solely, or in co-operation with public bodies.

The conclusions indicated that if the whole Sundabraut Link project is build, the road could be financed entirely by tolls. If only the first part were to be embarked on, there is a strong likelihood that the state would need to contribute funds for the project to be viable.

The working group's findings were that there are three private initiative options for the Sundabraut Link.

a) Availability payments

State provides payments to the private entity, regardless of demand for the service provided and irrelevant of the number of vehicles using the Sundabraut Link. An arrangement based on regular payments from the date of the road's opening.

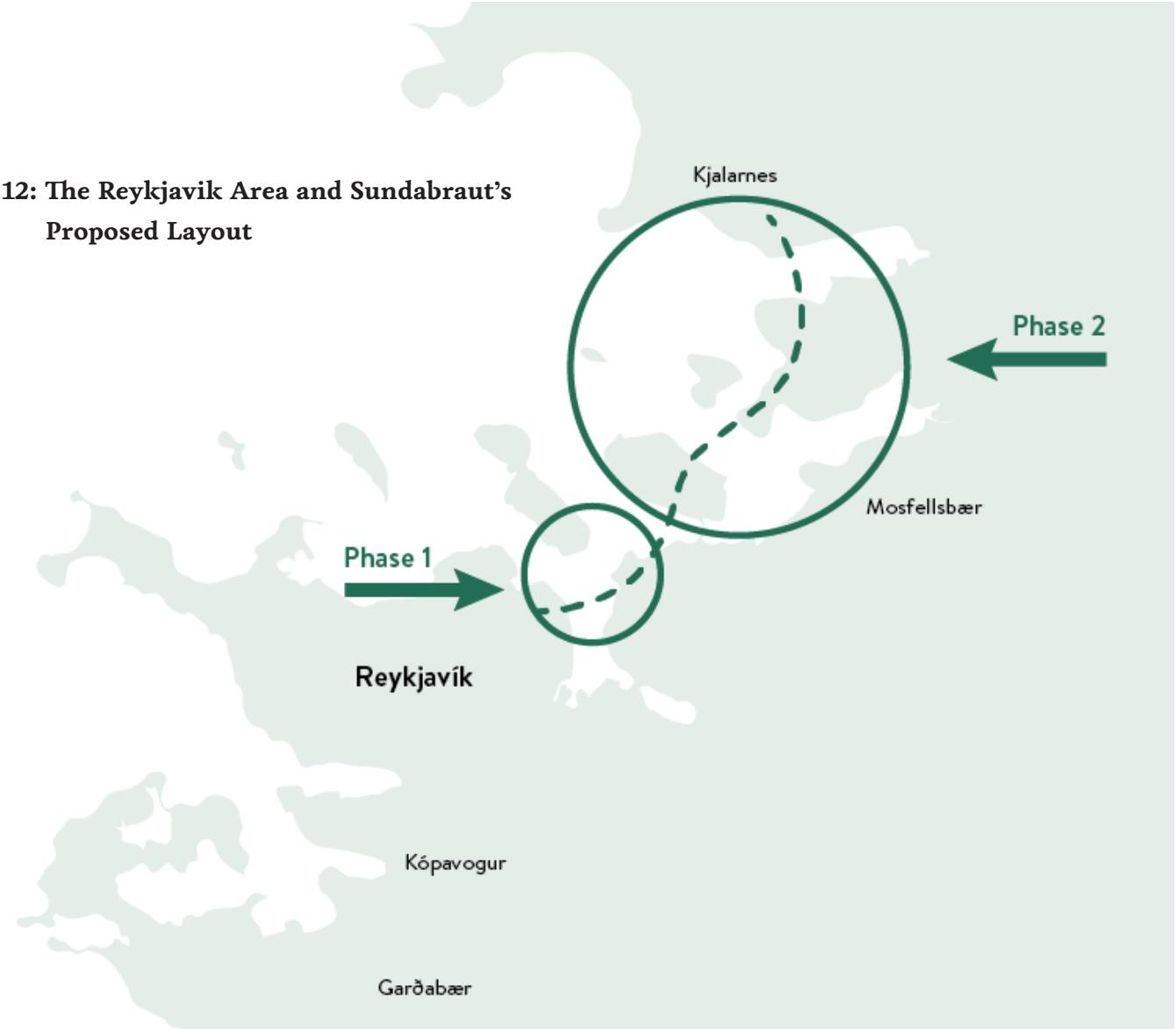
a) Straightforward private management.

The owner of the land (the state or the city), leases the land to the private entity to construct and run transport facilities for a specified period. The state would take no part in the construction costs, management or maintenance, and would have no say in tolls charged (for some decades). The owner of the construction would levy tolls for its use, using toll gates, cameras or other suitable technology.

c) A mixture of the two.

To begin with, the state would ensure fixed annual payments to the owners of the construction, regardless of traffic volumes and tolls. Secondly, the state would guarantee minimum revenue from tolls levied as the construction is taken into use. Thirdly, the state would contribute a fixed amount at the outset, and would have the right to part of the proceeds in excess of the minimum set revenue for a set period, or until the initial outlay had been repaid.

Figure 12: The Reykjavik Area and Sundabraut's Proposed Layout



The Keflavik International Airport

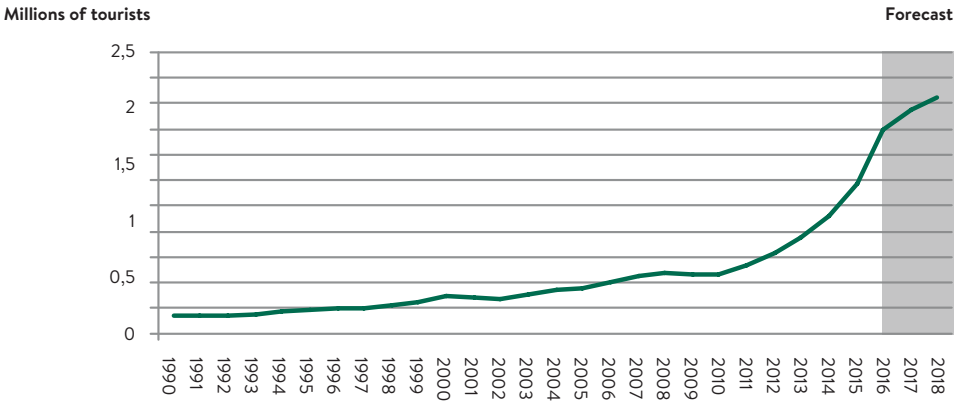
Type: International airport	Total investment: USD 1.2-1.5bn	Likelihood of private participation: Medium
Start of construction: 0-7 years out	Likely Setup: BOOT	Construction time: 18-84 months

Tourism in Iceland has grown exponentially in the last years, with over 20% annual growth in visitors since 2010. An estimated 1.7 million tourists are expected to visit Iceland in 2016. In 1990 there were 140.000 visitors, a third of this years' growth on last year. The overall number of passenger passing through Keflavik airport in 2016 is estimated to be 6.9 million, up from 4.9 million last year as domestic appetite for travel swells and transfer passengers arrive in ever larger numbers.

The two local carriers, Icelandair and WOW are by far the largest users of the airport, both calling it home base and hub in their systems to each side of the Atlantic. Icelandair serves well over half of the passengers while WOW Air serves a fifth of passengers. Next in line are EasyJet, AirBerlin and SAS with a combined share of less than 10%. All in all, 14 carriers will be operating at the airport in winter 2016-17, serving 57 destinations.

Keflavik international airport (KEF), opened in 1987, is run by ISAVIA, the state owned operator of Iceland's airports, international and domestic. As the sole gateway for international air travel, KEF is the constricting bottle neck for Iceland's booming tourism industry. Keeping up with the growing demand has been a challenge for ISAVIA. Both the ever growing volumes of passengers and dealing with multiple operators in what used to be a simple, single airline terminal is a transmutation with a whole set of new problems, many unsolved. During the peak months KEF has been bursting at the seams. Investment is sorely needed to keep up.

Figure 13: The Development of Tourism in Iceland



Source: Statistics Iceland and GAMMA Calculations

ISAVIA's Masterplan

ISAVIA has laid out a development framework for the airport and nearby areas: Keflavik International Airport - Masterplan 2015 -2040. The document was made public in late 2015 and sets out a vision for future development of the airport in three phases. The most impending investment needs can be read through the headlines.

Gates and stands

With a highly seasonal industry where traffic soars in the summer months and pulses through two times a day, KEF struggles with providing access for planes at peak hours.

New passenger terminal and terminal development

A fluid situation at Europe's borders and a mix of EU and Non EU destinations provides some complexity at a growing airport and opportunities for expanding retail and concessions sale. To accommodate the new gates a new terminal may be needed.

Access facilities

Land for parking and other access facilities is being consumed fast with the need for more durable and efficient investments such as high capacity transport and parking structures.

Airport related development

ISAVIA and neighbouring municipalities have set aside land to be developed for businesses that may benefit from the proximity to the airport and ancillary services. Landside operations need to grow with the volume of passengers. Other businesses such as logistics and production centres are ripe for development.

A growing market segment is air-freight. Iceland's primary industry, the fisheries with fresh caught and farmed fish is dependent on air freight for rapid access to markets for their sensitive goods. Cargo tonnage has a healthy growth of over 4% annually over the last 5 years. Investment in both airside and landside facilities have been neglected and would benefit from investment, spurring growth or efficiency if not both.

The current government has been keen to find projects suitable to private investment. An entirely new terminal could provide the platform for outside investors to approach the project. Experience with airport development management would be a valuable asset for ISAVIA.

The estimated cost of the first phase is put at USD 600-650 million, phase 2 USD 115-150mn, and the overall cost is set to reach USD 1.2-1.5bn.

Many argue that the Icelandic state should not take any part in the management of Keflavík airport, and if that

Table 2: Ownership of Europe's Ten Largest Airports	
Heathrow Airport	Privately held
Paris Charles de Gaulle Airport	Part state and part privately held
Frankfurt Airport	Part state and part privately held
Istanbul Atatürk Airport	Part state and part privately held
Amsterdam Airport Schiphol	Part state and part privately held
Adolfo Suárez Madrid – Barajas Airport	State held
Munich Airport	State held
Fiumicino – Leonardo da Vinci International Airport	Part state and part privately held
Gatwick Airport	Privately held
Barcelona-El Prat Airport	State held

Source: Airports Council International

were not the case, with the airport privately run, there is every likelihood that this much-needed expansion would have already begun. The table below shows Europe's ten largest airports, and as can be seen, only three are in wholly public ownership.

Members of the current government have said publicly that they would like to see private entities take part in the continuing development of the airport area.

There are at least four factors that could prove beneficial for the state with the involvement of private entities.

A. The risks of running and managing the airport properly would be shouldered by private investors.
B. The state would be less exposed to risk of lower tourist traffic than anticipated.
C. The state and the taxpayer would save interest costs.
D. Private entities would almost certainly speed up the development process.

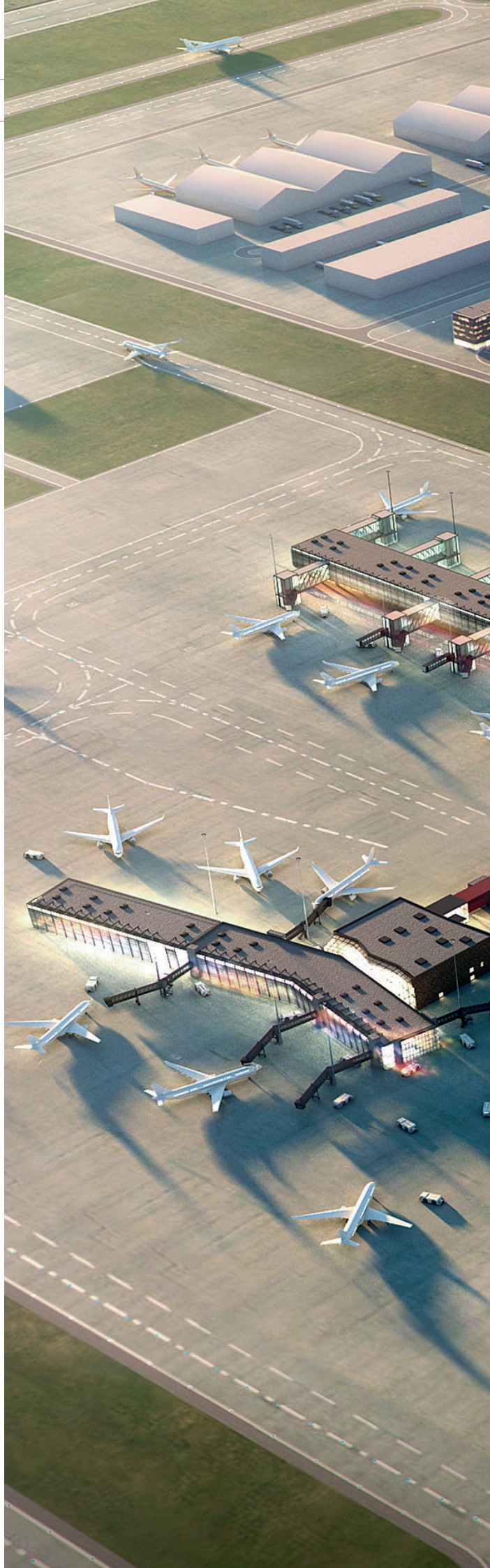


Figure 14: Keflavik Airport in 2040 according to ISAVIA's Master Plan

The Keflavik-Reykjavik Express Train

Type: Express train	Total investment: USD 650-950mn	Likelihood of private participation: High
Start of construction: 2-5 years out	Likely Setup: BOOT	Construction time: 48-60 months

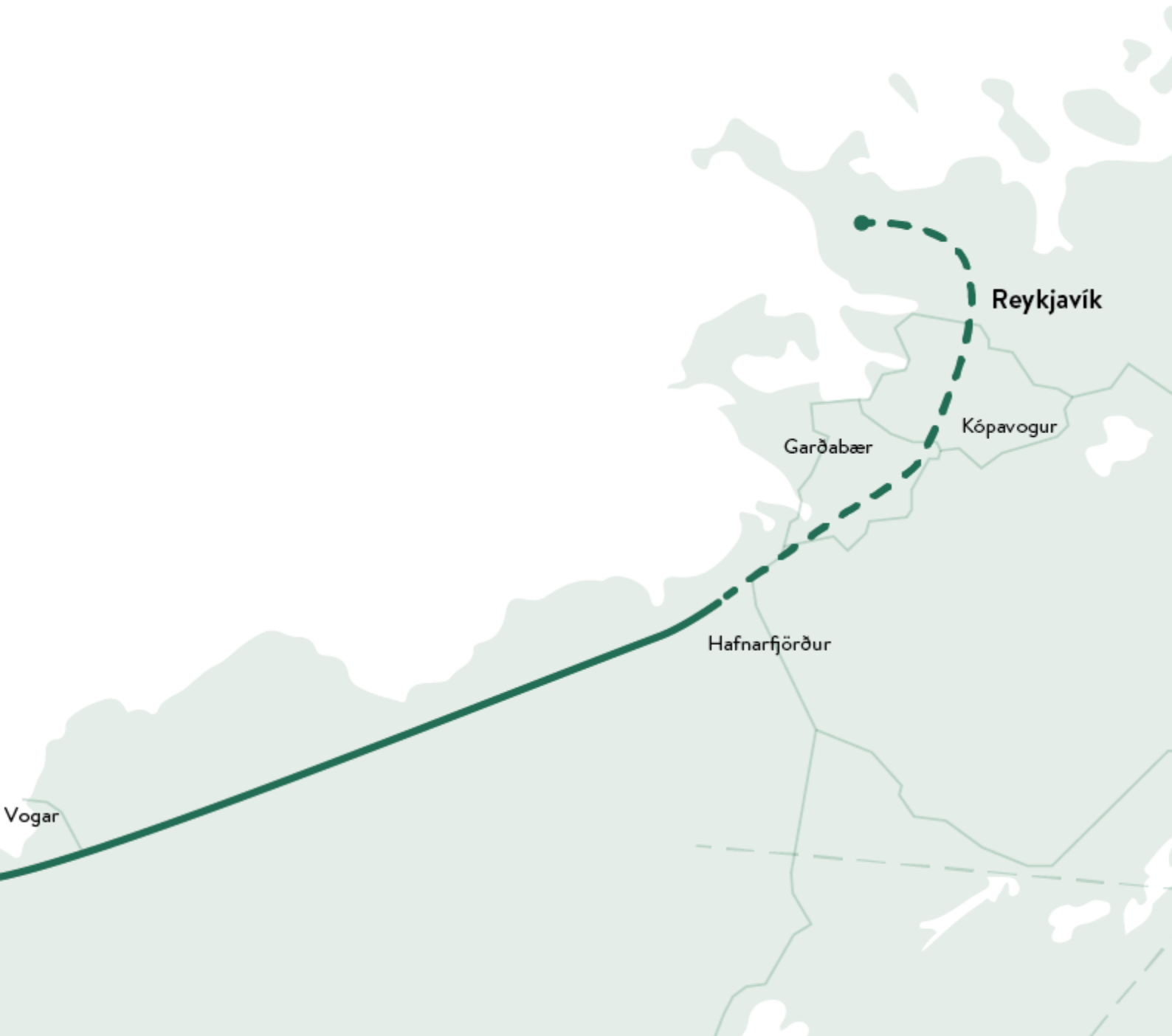
Increased traffic at the Keflavik International Airport Case is making a Keflavik-Reykjavik Express train a more viable project. The idea is not a new one. Back in 2002, Reykjavik Energy did a feasibility study on an electric train. No technical barriers were found but the project was not considered profitable due to insufficient expected revenues. Other reports have been published throughout the years and fairly recently advocates for the project have argued that it is becoming economically sustainable.

The route length is 49km, where of 14km within the Reykjavik Area are a tunnel shown with the dotted line in Figure 15. The proposed design is a single track inside tunnels and double tracks above ground. The average speed of the train will be 180kph with a maximum speed of 250kph resulting in a travel time of 15-18 minutes compared with a travel time of 40-50 minutes in a private car or a taxi.

A feasibility study, done by a group of Icelandic companies led by the advisory firm RRV Consulting in July 2014, found the case to be profitable with an expected project IRR of above 8% even if the tourism does not increase at all from current levels.

The estimated cost of the train project is USD 650-950mn with positive cash flow and pre-tax profits expected from year one in operation. The feasibility study was e.g. based on operational and financial information from Flytoget and the Airport Express Train in Oslo. The study was reviewed by North Star Consultancy which approved the construction-, start-up and operational costs as well as the market share estimated by comparing it with similar projects.

Figure 15: Proposed Location of the Keflavik-Reykjavik Express Train Route



The Reykjavik City Line

Type: Light Rail / Public Transportation	Total investment: USD 500-1,000mn	Likelihood of private participation: High
Start of construction: 2-4 years out	Likely Setup: BOOT	Construction time: 24-36 months

In 2015 the municipalities that form the Reykjavik Capital Area agreed to cooperate on developing and building a new light rail or high standard bus rapid transit public transportation system connecting all of the municipalities' main development hot spots. Collectively the municipalities form the Association of Municipalities in the Capital Area (referred to as SSH in Iceland). SSH has been at the forefront of the planning and developing of the Reykjavik City Line and expects the project to be ready for tender in 2018.

SSH (and its members) have stated publicly that they are looking at the City Line as some variation of a PPP project. The engineering firm Mannvit has, on behalf of SSH, written an extensive report on how public transportation projects have been funded around the world over the last years and what financing possibilities are best suited for the Reykjavik City Line. It has been strongly hinted that the project will be done in a similar manner to the way public transportation projects have been financed in Canada, i.e., the Viva Rapid Transit system in the York region and the Canada Line in Vancouver. This is a variation of the BOOT method where the private party has built and will operate the transportation system for 30 years in exchange for a mixture of availability payments and performance fees.

The initial investment cost of the whole system is estimated to be around USD 500-1,000mn. Estimated investment cost of the first stage of the system is USD 350-450mn and construction time most likely 2-3 years.

Figure 16: Current Route Network under Consideration

The UK – Iceland Interconnector

Type: Submarine power cable	Total investment: USD 3-4bn	Likelihood of private participation: High
Start of construction: 5-10 years out	Likely Setup: BOO/BOOT	Construction time: 48-60 months

The possibility of a subsea interconnector link between Iceland and the UK is closer than ever to becoming a reality. In 2015, the Prime Ministers of both the UK and Iceland, set up a working group to examine its viability and structure.

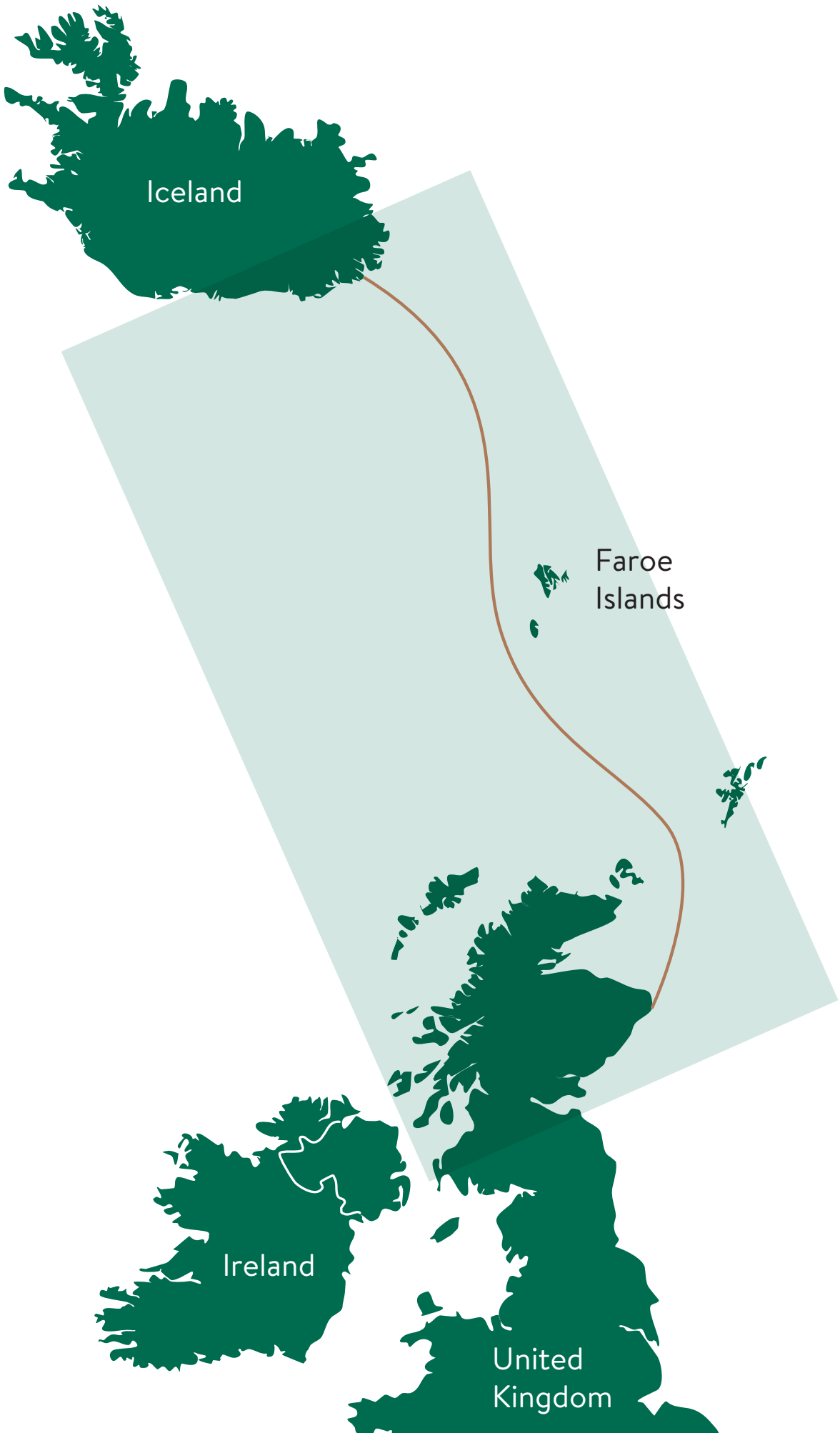
GAMMA has published two reports commissioned by The Nation Power Company of Iceland (i. Landsvirkjun) with focus on the potential submarine interconnector. The first report, from 2011, Landsvirkjun's Renewable Energy Potential, can be found on www.gamma.is. In a report from 2013 GAMMA examined the effects of such an interconnector on the domestic economy and households. Its conclusions were resoundingly to the effect that sales of electrical power to Europe via an interconnector would be positive for the nation as a whole, with the proviso that public entities in Iceland would bear only a limited share of the risks involved in its construction and financial operations. Furthermore the subsea interconnector would improve energy security and efficiency. An interconnector would also aid European countries in achieving political goals of increased share of renewable energy use by the year 2020.

An interconnector was laid between Norway and Holland in 2008. The experience from that interconnector was so successful that Norway entered into agreements with British and German counterparts, to lay 1,400MW cables to Britain and Germany. Both projects are now in phase three of development and are expected to be finished in 2021 and 2019 respectively. An interconnector between the UK and Iceland would make Iceland a net exporter of energy, as Norway is. It would also make it possible to import energy to the Icelandic network if an energy shortage were to occur.

A recent report on the project written on behalf of the Ministry of Industries and Innovation in Iceland concludes that in order for the project's returns to be sufficient, taking the risks into account, public contributions have to be made from Britain. This can be done via contracts for difference, enabled through UK's Electricity Market Reform programme, or a Cap and Floor model.

Estimates put the cost of the interconnector at USD 3-4bn. The construction and laying of the subsea interconnector could take 4-5 years.

Figure 17: A Possible Cable Location



The New State Hospital

Type: Health care	Total investment: USD 400-600mn	Likelihood of private participation: Low
Start of construction: 1-3 years out	Likely Setup: BOOT	Construction time: 60-84 months

The National University Hospital (NUH) was formed when several medical institutions were merged at the start of the millennium. The hospital functions are still quite dispersed around the city and for a dozen years the plan has been to aggregate all functions to one location and upgrade the facilities. Since 2010 a public corporation has been tasked with the project of commissioning new facilities based on a masterplan conceived in an architectural competition in 2012.

In comparison with OECD countries, the health care system in Iceland is well above average to average in efficiency. Yet the system is also characterised by high levels of unmet care needs and waiting lists. As with other developed countries, Iceland has to keep up with an aging population and demographic shifts. A high fertility rate and population growth from immigration are raising demand in all age groups. In the coming years, The National University Hospital will have to be greatly modified in order to meet the forthcoming change in demographics. As was shown in Figure 9, the ratio of people aged 65 and higher to the total population will more than double in the next 50 years.

Although public opinion is overwhelmingly in favour of a publicly funded and run system, reality diverges from this ideal. Funding for medical equipment is often in the hands of charities or private donors. The children´s hospital ward is for instance named after the charity that funded and built it in 2003 and some of the predecessors of the NUH were built and run by Catholic nuns. Private practice is also prevalent with specialist doctors. Gaining access to projects may therefore be a question of framing the proposals, educating the general public on the benefits of PPP and seeking what the general public sees as benign participation.

As is often the case with public projects, this one has taken far too long. Countless hours have been spent in the Parliament and committees fighting over tiny details and the project has never made it to the state's budget. The point has been that this could be an ideal PPP project but unfortunately private participation in social infrastructure projects (at least in the operational phase) is met with scepticism by a large portion of the Icelandic population.

In order for this project to be seriously considered as a PPP project, interested parties have to focus on increasing the understanding of the population on

how social infrastructure PPP projects work. As an example, there are numerous examples of hospitals and health centres in neighbouring countries that have been financed, built and managed by private entities making contracts with the state, thus releasing the state from a share of the associated financial risks.

Construction is set to take place in the next 5-10 years on the basis of a masterplan for the site. The next projects are as follows.

Hotel

The construction project commenced with a hospital hotel that is to be delivered mid-year 2017.

Treatment facility

The next project phase is the core treatment facility to be built in the years 2017-2021. Seeking to increase efficiency and provide more advanced procedures a new treatment facility is at the core of the project

Research facility

The new building will house laboratories that are currently in several locations to conduct tests and research in clinical microbiology, clinical chemistry, haematology and more. This facility has not been funded.

University building

The University of Iceland's School of Health Science is planned at the hospital campus. The university is unlikely to be able to fund their part of the project as of today. Promising a turnkey facility to be completed in 2021 along with the treatment facility may prove to be very popular with the University.

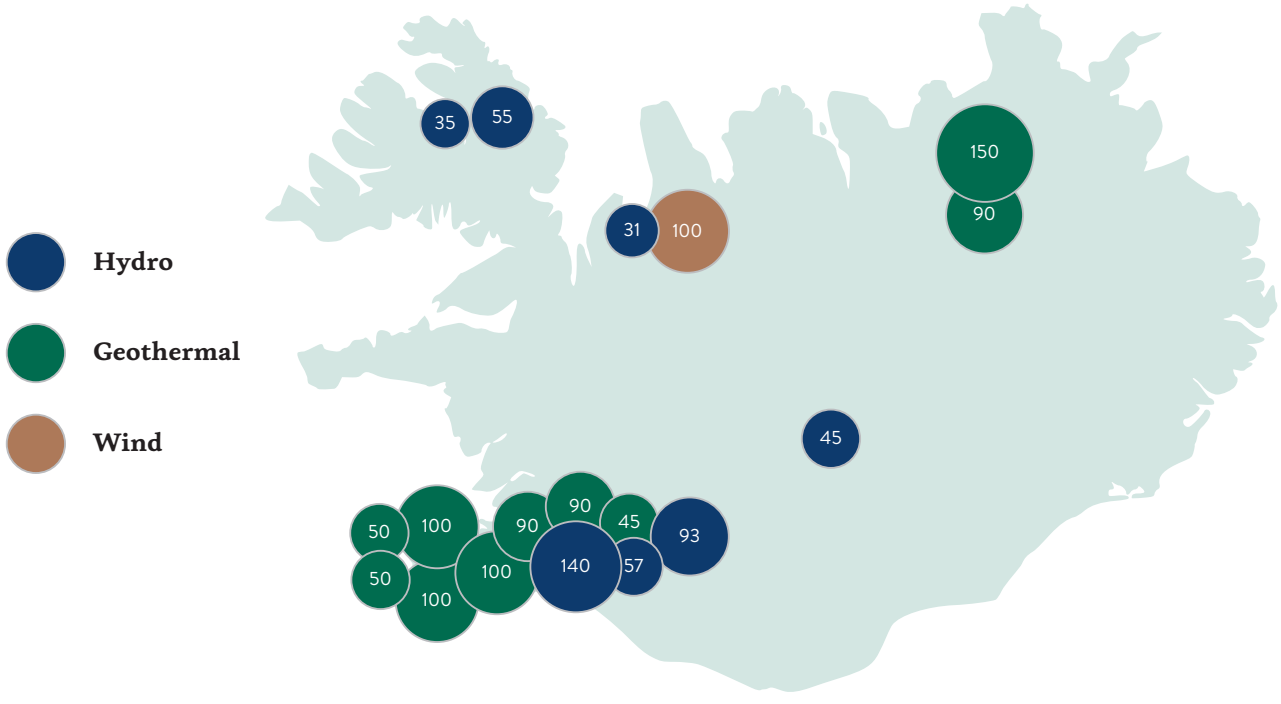
Figure 18: A Possible Layout of a New National University Hospital

The Energy Investment Outlook in Iceland

The Parliament of Iceland passed a legislation in 2011 which states that a Master Plan shall be kept that categorizes possible power plant options into three different categories; Energy Utilization Category, On Hold Category or Protection Category. In order to have a power plant option taken up for consideration one has to submit an application to The National Energy Authority (NEA) petitioning the Master Plan steering committee. The NEA then assesses whether the documentation supporting the application is sufficient for the steering committee to assess the option.

Currently there are 18 power plant options in the Energy Utilization Category (EUC) with a combined capacity of roughly 1.4GW. The current capacity of the Icelandic power plants is 2.8GW which puts the EUC at 50% of the current capacity. The majority of the power plants in the EUC are geothermal power plants, or 865MW, 456MW are hydro and the rest, 100MW, is wind. The total estimated cost of these power plants is USD 4-5bn.

The 18: Power Plant Options in the Energy Utilisation Category and Their Capacity in MWs



Source: National Energy Authority

Sales Of Shares in Infrastructure Companies

Most infrastructure companies in Iceland are publicly held, but with a wider debate taking place and with successful involvement of private entities in other ventures, the sale of shares held by public bodies would be a logical next step. However, in some cases legislation changes would need to be made in order for private investors to become shareholders. The next few pages will cover Iceland's largest infrastructure companies briefly.

Iceland's largest infrastructure companies

- Míla – Telecommunications Network Operator
- Landsvirkjun – National Power Company
- Orkuveita Reykjavíkur – Reykjavik Energy
- Landsnet – Electric Grid Operator
- HS Orka – Energy Corporation

Míla – Telecommunications Network Operator

Ownership	Revenues	EBITDA	Assets	Equity
Private	53	27	174	52

All figures are in USD mn

Established in 2007, with over 100 years of experience, Míla owns and manages equipment, the copper, fiber-optic and UHF networks that reach the majority of households, companies and institutions in Iceland, covering the entire country. Míla's role is to enhance and manage communication infrastructure on a national basis with other communications companies linking to this in a variety of ways. Míla is today 100% owned by Síminn hf., a company registered on the Icelandic stock market. Although Síminn does not have any plans to sell Míla interested parties would not meet any legal barriers were they to acquire Míla's activities from the Síminn group

Míla is provider of more than 80% of network connections in Iceland. And market share of 65-75% percent in all sectors of internet connections.

Income statement	2015	2014	Balance sheet	2015	2014
Revenues	52.535	46.615	Non-current assets	163.378	162.082
Cost of goods sold	-27.038	-22.544	Current assets	10.227	10.859
Gross profit	**27.512**	**26.085**	**Total assets**	**173.606**	**172.941**
Other operating income	130	532	Non-current liabilities	107.458	113.217
Operating expenses	-13.518	-12.127	Current liabilities	13.924	10.793
EBIT	**14.124**	**14.490**	**Total liabilities**	**121.381**	**124.010**
Net finince cost	-7.943	-12.685	**Equity**	**52.224**	**48.931**
Profits before taxes	**6.181**	**1.805**	NIBD/EBITDA	4,1	4,4
Income tax	-873	7	NIBD/EBIT	7,9	7,8
Net profit	**5.308**	**1.812**			

All figures are in USD thousands

Landsvirkjun – National Power Company

Ownership	Revenues	EBITDA	Assets	Equity
Public	421	322	4,285	1,917

All figures are in USD mn

Landsvirkjun, the National Power Company, is the largest producer of electrical energy and is in state ownership. Landsvirkjun provides its electrical energy only with renewable energy, it operates fourteen hydro-electric facilities, two geothermal installations around the country and a small windmill park. It produces approximately 13 TWh annually. 80% of its production is sold to heavy industries and 20% to corporation and homes via the Landsnet electric grid. Landsvirkjun is fully owned by the Icelandic state. A sale of equity, assets or operations would require an amendment in law.

Landsvirkjun is committed to offering competitive electricity contracts, based on the European electricity market, by offering long-term agreements, favourable prices and an unparalleled security of supply. It has offered 12 year power contracts, with a headline rate of 43 USD/MWh, since 2011.

Landsvirkjun is one of Iceland's largest companies with yearly revenues of over USD 400mn.

Income statement	2015	2014	Balance sheet	2015	2014
Operating revenues	421,452	438,284	Non-current assets	4,066,668	3,976,169
Operating expenses	-215,486	-220,171	Current assets	218,035	293,929
Operating profit	**205,966**	**218,113**	**Total assets**	**4,284,703**	**4,270,098**
Net financial cost	-82,141	-107,896	Non-current liabilities	2,052,749	2,204,723
Profit before tax	**123,825**	**110,217**	Current liabilities	315,320	360,651
Income tax	-39,652	-31,797	**Total liabilities**	**2,368,069**	**2,565,374**
Net profit	**84,173**	**78,420**	**Equity**	**1,916,634**	**1,704,724**
			NIBD/EBITDA	6.2	6.6
			NIBD/EBIT	9.6	10.0

All figures are in USD thousands

Orkuveita Reykjavíkur – Reykjavik Energy

Ownership	Revenues	EBITDA	Assets	Equity
Public	348	217	2,681	989

All figures are in USD mn

Reykjavik energy is an energy producer and distribution company serving the capital region, the south and west of Iceland, providing water, electricity, sewage removal and data services. Its operation is deviated into three different sectors, Veitur Utilities, ON Power and Reykjavik Fiber Network.

Veitur Utilities provides electrical supply, district heating, water distribution and water waste for homes and businesses. ON Power owns and operates three power plants. The combined output of their operations is 450MW of electrical power and 1100MW of thermal energy. Reykjavík Fiber Network is second largest network provider in Iceland and biggest fiber provider with more than 30.000 connections.

The company is 94% owned by the City of Reykjavík, 5% by the municipality of Akranes and 1% by the municipality of Borgarbyggð.

Income statement	2015	2014	Balance sheet	2015	2014
Operating revenues	347,904	332,120	Non-current assets	2,487,502	2,433,120
Operating expenses	-130,885	-117,940	Current assets	193,443	154,830
EBITDA	**217,019**	**214,180**	**Total assets**	**2,680,944**	**2,587,950**
Depreciations	-92,643	-78,899	Non-current liabilities	1,447,627	1,499,661
EBIT	**124,376**	**135,280**	Current liabilities	243,910	228,397
Net financial cost	-93,442	-41,533	**Total liabilities**	**1,691,537**	**1,728,059**
Profit before tax	**-93,442**	**-41,533**	**Equity**	**989,407**	**859,892**
Income tax	5,063	-17,277	NIBD/EBITDA	5.6	6.3
Net profit	**-88,379**	**-58,810**	NIBD/EBIT	9.8	9.9

All figures are in USD thousands

Landsnet – Electric Grid Operator

Ownership	Revenues	EBITDA	Assets	Equity
Public	140	90	888	362

All figures are in USD mn

Landsnet's Ownership			
The National Power Company	64.73%	The State Electric Power Works RARIK	22.51%
Reykjavik Energy	6.78%	The Westfjord Power Company	5.98%

Landsnet operates under the current legal framework that requires that a single company should handle electricity distribution and network management. According to the present legislation, this company's majority ownership must be made up of the state, local authorities and/or companies wholly in their ownership. Landsnet is today fully owned by public entities but, as was stated above, current legislation only states that Landsnet has to majority owned by public bodies so the current owners could sell a minority stake without a change in legislation. However, in order to acquire Landsnet as a whole changes would have to be made. Both the Minister of Industries and Innovation and Landsnet's former chairman mentioned in their speeches at Landsnet's annual general meeting in 2016 that they think Landsnet's ownership has to change in the coming years.

Landsnet owns and operates all major electricity transmission lines in Iceland. The bulk transmission system ("the grid") consists of power lines with voltages of 66 kV and higher, some 33 kV lines and all major substations in the country. The grid supplies electricity to distribution system operators at 57 locations and to power-intensive industries at four locations around the country. The distributors then transmit the power onwards via their own networks to the consumer.

Income statement	2015	2014	Balance sheet	2015	2014
Operating revenues	139,506	123,710	Non-current assets	792,953	575,687
Operating expenses	-74,927	-70,485	Current assets	94,749	129,999
Operating profit	**64,579**	**53,225**	**Total assets**	**887,702**	**705,685**
Net financial cost	-21,401	-12,765	Non-current liabilities	486,938	504,276
Profit before tax	**43,178**	**40,460**	Current liabilities	39,077	35,819
Income tax	-8,610	-8,027	**Total liabilities**	**526,015**	**540,095**
Net profit	**34,567**	**32,433**	**Equity**	**361,687**	**165,590**
			NIBD/EBITDA	3,0	3,7
			NIBD/EBIT	4,2	5,4

All figures are in USD thousands

HS Orka – Energy Corporation

Ownership	Revenues	EBITDA	Assets	Equity
Private	63	24	425	249

All figures are in USD mn

HS Orka's Ownership			
Magma Energy Sweden A.B. (Alterra Power Corp.)	66.60%	Jarðvarmi slhf (Icelandic Pension Funds)	33.40%

HS Orka is a privately owned energy company located on the south-west corner of Iceland. Initially, the company was publicly owned but in 2007 the Icelandic state, and other public entities, sold their shares to a private investor, Geysir Green Energy. Today the company has two shareholders, Magma Energy Sweden, which is owned by the Alterra Power Corporation, and Jarðvarmi slhf, which is owned by 14 Icelandic pension funds. HS Orka can therefore be acquired, partly or fully, without any legislation changes.

HS Orka supplies both hot water for usage and district heating, also it supplies electricity. HS Orka owns and operates two power plants which both are built upon renewable energy. The combined output of their operations is 175MW of electrical power. HS Orka has been working towards building up more plants, they currently have four different power plants under consideration, of which all are in the Energy Utilization Category. Combined capacity of these plants is around 400MW.

Income statement	2015	2014	Balance sheet	2015	2014
2015	2014	123,710	Non-current assets	381,856	331,245
Revenues	63,358	64,473	Current assets	43,108	51,367
Cost of goods sold	**-46,302**	**-48,471**	**Total assets**	**424,964**	**382,612**
Other operating expenses	-5,349	-4,194	Non-current liabilities	128,217	120,215
EBIT	**11,707**	**11,807**	Current liabilities	47,598	34,122
Net financial cost	-16,910	-5,147	**Total liabilities**	**175,815**	**154,337**
Operational profit before tax	**-5,203**	**6,661**	**Equity**	**249,149**	**228,275**
Income tax	3,073	-318	NIBD/EBITDA	3.1	3.2
Operational net profit	**-2,130**	**6,343**	NIBD/EBIT	6.3	6.3
Non-operating profits	24,826	-489			
Total net profits	**22,696**	**5,854**			

All figures are in USD thousands

Closing Remarks

The infrastructure projects that have been covered in the previous chapters amount to a staggering USD 6-8bn, excluding the investments in new power plants, or roughly 35-45% of GDP. Including the power plants options that have been put in the Energy Utilization Category, the number rises to USD 10-13bn, or 55-75% of GDP. Focussing only on the projects that are the most likely to happen in the next 1-5 years, excluding power plants, the amount still stands at USD 3-4bn, or 15-25% of GDP.

GAMMA Capital Management is an expert on the Icelandic economy and the infrastructure projects ahead. In addition GAMMA has a strong relationship with other stakeholders such as the engineering firms responsible for the projects, legal advisors, and local authorities. Through GAMMA's offices in London and Reykjavik, GAMMA is able to assist interested investors in analysing the projects and hopefully investing when the time comes. GAMMA has the knowledge, experience and capacity to act as a partner in Iceland on these projects, either as an advisor or co-investor.

> ***GAMMA Capital Management is an expert on the Icelandic economy and the infrastructure projects ahead.***

References

Airports Council International: The Ownership of Europe‘s Airports 2016

Arctic Journal, 6.1.2016: http://arcticjournal.com/business/2070/limited-partnerships

Iceland Chamber of Commerce: Einkaframkvæmd, samkeppni á nýjum sviðum. Report on private participation in infrastructure, issued in February 2004.

Isavia: http://www.isavia.is/vidskiptavinir/keflavikurflugvollur/throunaraaetlun-til-2040/

Isavia: http://www.isavia.is/frettir/625-milljon-farthegar-um-keflavikurflugvoll-arid-2016/467

Ministry of Finance and Economic Affairs: Einkaframkvæmd, skýrsla nefndar fjármálaráðherra.
Report on public participations in Iceland, issued in June 1998.

Ministry of the Interior: Enikaframkvæmd í samgöngum.
Report on private participation in transport projects, issued in December 2006.

Ministry of the Interior: Fjármögnun stærri framkvæmda, skýrsla starfshóps um aðkomu einkaaðila að samgönguverkefnum. Report on upcoming transport projects suitable for private participation, issued in March 2015.

Morgunblaðið, Icelandic newspaper:
http://www.mbl.is/vidskipti/frettir/2015/10/13/70_90_milljardar_i_fyrsta_hluta/

Morgunblaðið, Icelandic newspaper:
http://www.mbl.is/vidskipti/frettir/2015/12/07/skoda_flutning_a_hluta_wow_ur_landi/

National Power Company of Iceland: http://www.landsvirkjun.com/productsservices/valueproposition

Public-Private Infrastructure Advisory Facility (PPIAF): http://www.ppiaf.org/sites/ppiaf.org/files/documents/toolkits/highwaystoolkit/6/toolkit_files/index.html

Prime Minister's Office:
https://www.forsaetisraduneyti.is/frettir/tvihlidafundur-sigmundar-davids-gunnlaugssonar-og-davids-cameron

Spítalinn okkar, enthusiasts' organization for the building of a new national hospital:
http://www.spitalinnokkar.is/is/spurt-og-svarad.

The Icelandic National Audit Office: Hvalfjarðargöngin og Sundabraut, mat á kostum og göllum einkaframkvæmdar. Report on the claims for and against private participation in transport projects, issued in June 2006.

The Icelandic National Broadcasting
Service: http://www.ruv.is/frett/spa-hatt-i-thridjungs-aukningu-ferdamanna

The Icelandic Parliament: http://www.althingi.is/altext/145/s/0772.html

The Post and Telecom Administration in Iceland:
https://www.pfs.is/library/Skrar/Markadsgreining/M6/%C3%81kv_PFS_nr.8_2014_M6_Vi%C3%B0auki%20B.pdf

Viðskiptablaðið, Icelandic business paper:
http://vb.is/frettir/bjarni-saestrengurinn-er-ahugaverdur-kostur/121006/

Viðskiptablaðið, Icelandic business paper: http://www.vb.is/frettir/staekkunin-ekki-naegjanleg/109398/

Viðskiptablaðið, Icelandic business paper: http://www.vb.is/frettir/vilja-selja-landsnet/126767/

GAMMA

GAMMA Capital Management Limited | London | 25 Upper Brook Street | W1K 7QD
London | United Kingdom | +44 (0) 207 429 2200 | gcm@gcm.co.uk | www.gcm.co.uk