Reykjavíkurborg
Fjármála- og áhættustýringarsvið

FAS25010008
27. mars 2025

Borgarráð

Tillaga um ábyrgðargjald Orkuveitu Reykjavíkur á árinu 2025

Óskað er eftir að borgarráð samþykki að haga álagningu ábyrgðargjalds á Orkuveitu Reykjavíkur á árinu 2025 þannig að 0,69% ábyrgðargjald verði lagt á lán sem tekin hafa verið vegna samkeppnisrekstrar fyrirtækisins og 0,92% á lán vegna sérleyfisrekstrar.

Greinargerð:

Tillagan byggir á mati Summu ehf. á hæfilegu ábyrgðargjaldi á lán vegna samkeppnisrekstrar OR annars vegar og mati á hæfilegu ábyrgðargjaldi vegna lána vegna sérleyfisrekstrar hins vegar. Mat Summu var framkvæmt í samræmi við ákvörðun borgarráðs 29. september 2011 og fyrirmæli ESA. Skipting lána milli samkeppnisrekstrar og sérleyfisrekstrar byggir á gögnum frá OR. Niðurstaða Summu ehf. var sú að til að eyða ívilnun sem Orkuveitan nýtur vegna ábyrgðar eigenda þyrftu lán sem tekin eru með ábyrgð borgarsjóðs vegna samkeppnisrekstrar að bera 0,69% ábyrgðargjald (var 0,66% 2024) og lán sem tekin eru með ábyrgð borgarsjóðs vegna sérleyfisrekstrar að bera 0,92% ábyrgðargjald (var 0,86% 2024).

Tekjur borgarsjóðs (93,539% eign) af ábyrgðargjald á árinu 2025 eru áætlaðar eftirfarandi:

Lán með ábyrgð 2025	Eftirstöðvar ma.kr. (meðalstaða)	Ábyrgðar-gjald %	Áætlað ábyrgðargjald*
Lán vegna samkeppnisrekstrar	22,4	0,69%	149.393.008
Önnur lán með ábyrgð	23,0	0,92%	197.928.524
Samtals lán með ábyrgð	45,5		347.321.532

* Lán vegna virkjana reiknast með 90% ábyrgðargjald vegna samkeppni og 10% ábyrgðargjald vegna sérleyfa.
Lán vegna sérleyfisreksturs reiknast með 100% ábyrgðargjald vegna sérleyfa.

Við álagningu ábyrgðargjalds þurfa eigendur að horfa til tveggja sjónarmiða. Annars vegar skal álagning ábyrgðargjalds miðast við að afnema að fullu þá ívilnun sem Orkuveitan nýtur í formi hagstæðari lánskjara vegna ábyrgðar eigenda á lánum til verkefna í samkeppnishluta fyrirtækisins. Hins vegar ber eigendum að gæta þess að álagning gjaldsins taki mið af meðalhófi þannig að vægasta úrræði sé valið í anda góðrar stjórnsýslu og til að standa vörð um hagsmuni fyrirtækisins.

Halldóra Káradóttir,
Sviðsstjóri fjármála- og áhættustýringarsviðs

Hjálagt:
Skýrsla Summu, dags. í mars 2025: Premium for guarantees granted to Orkuveita Reykjavíkur

PREMIUM FOR GUARANTEES GRANTED TO ORKUVEITA REYKJAVÍKUR

REPORT MADE FOR THE FOR THE CITY OF REYKJAVÍK

BY SUMMA EHF – MARCH 2025

Contents

1 Introduction

This report is an update of a report that was made in March 2024 on premium for guarantees at Orkuveita Reykjavíkur. Previous reports contain more detailed descriptions of the methodology that is applied and should therefore also be taken into consideration.

1.1 About Orkuveita Reykjavíkur

Orkuveita Reykjavíkur provides electricity, geothermal water and cold water for consumption in over 20 communities, the largest being Reykjavík, the capital of Iceland. It was founded in 1999 with the merger of Rafmagnsveita Reykjavíkur (1921) and Hitaveita Reykjavíkur (1943). In 2000, Vatnsveita Reykjavíkur (1909) was merged with Orkuveita Reykjavíkur. Since 2000, several smaller district heating utilities have merged with Orkuveita Reykjavíkur. Orkuveita Reykjavíkur owns and operates geothermal plants for district heating and electricity production[1].

Orkuveita Reykjavíkur is owned by the City of Reykjavík (93.5%), Akranesbær (5.5%) and Borgarbyggð (1%) that guarantee some of its loans. The subject of this report is to estimate an appropriate guarantee premium that OR should pay its guarantors in turn for the guarantees. This is done in order to eliminate the advantage OR enjoys due to the guarantees. The analysis is twofold as the premium is estimated separately for 1) the loans of OR that have been granted to finance power plants and related structures and 2) for other loans of OR that are within the public sector, such as district heating networks, cold water networks, electricity grid for conventional customers, sewage systems etc. and for general financing needs.

Orkuveita Reykjavíkur will be referred to as OR in this report.

1.2 EFTA Surveillance Authority Decision

On the 8th of July 2009 the EFTA Surveillance Authority (ESA) issued Decision No: 302/09/COL[2] *to propose appropriate measures with regard to state aid granted to Landsvirkjun and Orkuveita Reykjavíkur*. As detailed in the decision, it is a result of a complaint that was lodged with ESA in 2002 alleging that Landsvirkjun received state-aid as defined in the EEA Agreement. In 2004 the Authority extended the scope to cover all publicly owned electricity undertakings active in Iceland, including OR. The final decision was a product of a process that involved information gathering, reviews and correspondence between stakeholders.

In the context of this report the views of ESA regarding the premium associated with credit guarantees are most relevant, e.g. (p. 5):

> *The state guarantee in favour of the undertakings addressed in this decision constitutes an advantage within the meaning of the state aid rules. The security which a state guarantee represents improves the creditworthiness of the companies, thereby enabling the undertakings in question to obtain a more favourable credit rating. This in turn entails that the undertakings benefit from more favourable funding terms than they otherwise would have obtained.*
>
> *As mentioned above, the State carries the risk associated with the guarantee. This risk should normally be counter-balanced by the payment of an appropriate premium. Where the State foregoes such a premium, there is not only a drain on the resources of the State but also a benefit for the undertaking, which puts up with less costs than it would have carried in the normal course of business.*

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1 For further information on Orkuveita Reykjavíkur see the website of the company http://www.or.is/English/. Websites that are referenced in this report were accessed in December 2012 and the links provided may become obsolete or the information that the websites contain change.

2 See http://www.eftasurv.int/fieldsofwork/fieldstateaid/stateaidregistry/sadecice09/302_09_col.pdf.

Even if no payments are ever made by the State under a guarantee, there is nevertheless state aid within the meaning of Article 61(1) of the EEA Agreement. This is because the aid is granted at the moment when the guarantee is given, and not the moment at which the guarantee is invoked or payments are made under its terms.

Article 1 of the decision further states (p. 9):

... the Authority proposes that the Icelandic authorities shall take any legislative, administrative and other measures necessary to eliminate any incompatible aid resulting from the unlimited state guarantees granted to Landsvirkjun and Orkuveita Reykjavíkur. Any such aid measures should be abolished with effect from 1 January 2010.

1.3 Current premium, funding and guarantees in light of the decision

As stated in Article 1 of Act 139/2001 the owners of OR guarantee all its debt in proportion to their ownership[3]. Previously, the guarantee premium was fixed at 25bp but in order to comply with ESA ruling the laws changed and in the fall of 2009 an independent consultant estimated the premium at 48bp[4]. Additionally the terms regarding the guarantee were changed such that the owners will only guarantee up to 80% of the financing of any new project. However, these changes only became effective after the laws came into effect on January 1st 2011 and do not change the guarantee for older loans in any way. Furthermore, the guarantee provided by the owners is a guarantee of collection, which means that it will only become effective after reasonable collection efforts have been pursued. The premium was last revaluated by an independent consultant in March 2024. The premium for power plants was estimated 66bp, premium for other loans 86bp and premium for all loans with guarantee from owners was estimated 76bp[5].

Nonetheless, it is clear that current funding will continue to benefit from the guarantee that was effective when the loans were issued. According to the rules of the Agreement on the European Economic Area (EEA) on state-aid guarantees[6] it is admissible to provide state-aid guarantee to companies. However, the benefitting companies must pay an appropriate premium for such a guarantee. The price for the state-aid guarantee should be reflected by the difference between the lending spread of a company with – and one without – the state guarantee.

Therefore, in order to *eliminate any incompatible aid* and comply with the EEA agreement it is necessary that OR pays a premium that is equivalent to the difference in the interest rates obtained with and without state-aid guarantee to its owners, in proportion to the equity stake they hold, as a compensation for the guarantee. Summa, an independent consultant, was contracted to evaluate what premium is in line with market prices and to compare it to the current premium. The evaluation is to be based on present borrowings that OR has acquired in the domestic and international markets during the last years. Summa received data from OR regarding the loans but did not independently verify the data.

Furthermore, the estimation is based on the ESA guidelines regarding *State Aid Guidelines*[7] that are frequently referenced in this report.

1.4 Self-financing condition

Calculating and applying an appropriate premium is not the only condition that guarantee scheme must meet. In order to be admissible the premium that is paid for the guarantee needs to meet the self-financing condition

3 See legislation regarding OR, http://www.althingi.is/lagas/nuna/2001139.html (in Icelandic).

4 http://www.althingi.is/altext/139/s/0222.html

5 Premium for guarantees granted to Orkuveita Reykjavíkur, March 2024, Summa ehf.

6 See Chapter 2, Articles 61-63 in the EEA agreement, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:1994:001:FULL&from=DE.

7 See http://www.eftasurv.int/state-aid/legal-framework/state-aid-guidelines/ *State guarantees* in particular, which is the first document under Part V *Specific aid instruments*.

criteria as laid out in the ESA guidelines[8]. The self-financing condition entails that the premiums collected from OR must be high enough to compensate for the scheme, i.e. it must be an economically viable decision to grant these guarantees.

1.5 Structure of the report

This report is an update of a report that was written in March 2024. For discussion on the foundation and methodology employed reference is made to chapter 2 in previous report[9]. For discussion on stand-alone and relative rating and calculation of spread for the loans reference is made to chapter 5 and 6 respectively in previous report[10].

In chapter 2 of current report the data on loans is analysed, in terms of timing, purpose and composition. In chapter 3 the relative spread is applied to the current loans of OR. The self-financing condition is estimated in chapter 4 and finally in chapter 5 the results are presented.

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[8] See paragraph 3.4(d) of *State guarantees.*

[9] Premium for guarantees granted to Orkuveita Reykjavíkur, January 2013, Summa ehf.

[10] Premium for guarantees granted to Orkuveita Reykjavíkur, January 2013, Summa ehf.

2 Data on loans

OR provided data for the 110 relevant bonds and loans that the company has borrowed in the domestic and international markets and were still outstanding at the end of December 2024. The main characteristics of the loans are shown in figure 1. The loans date as far back as year-end 2001 and will mature during the next 30 years.

Most of the funding is in ISK, around 69% and 31% in foreign currencies, thereof 23% of the loans are in USD and the rest of the foreign currency loans are mainly in EUR and CHF. Most of the funding has fixed interest rates, 76% but the rest has floating interest rates, 24%.

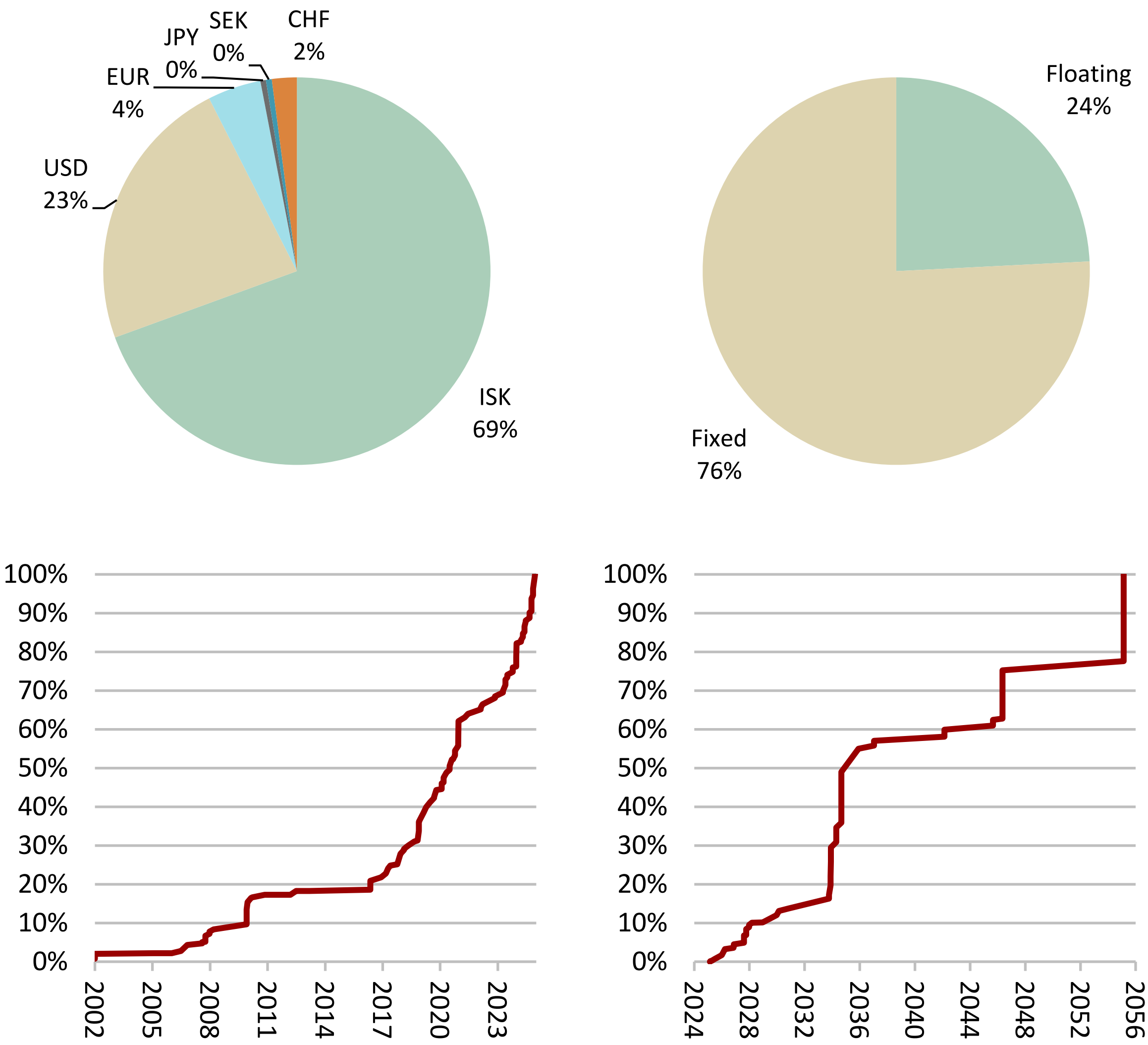

Figure 1 Attributes of outstanding loans as of December 31st, 2024. By currency (top left). By type of interest rates (top right). Cumulative outstanding of loans by date of issue in percentages (bottom left). Cumulative outstanding of loans by maturity in percentages (bottom right).

2.1 Timing of loans

In some instances, loan agreements are signed some time before the loans are paid out. This is for example best practice when constructing power plants. Before the construction starts the whole financing is secured and paid out as phases are finished and new stages in the construction are started. The same applies to committed loan facilities; the terms may be agreed way ahead of withdrawals. In this sense Summa has looked toward the signing of initial loan agreement rather than the timing of the distribution of funds, withdrawals from committed lines or insignificant changes of loan terms.

2.2 Purpose of Loans

Along with the loan attributes the purpose of the loans were listed in the data received from OR. The total amount of the loans was 184,5 bn ISK at the end of December 2024. Loans with guarantees from owners are, 45,4 bn ISK or 24,6% of all loans. Thereof 22,4 bn ISK or 12,2% were labelled as power plant financing, 23,0 bn ISK or 12,4% were categorized as being for other needs. Loans without guarantee from owners amounted to 139,0 bn ISK or 75,4% of loans.

Figure 2 illustrates the division according to the purpose of the loans as well as distribution along issue dates across year intervals.

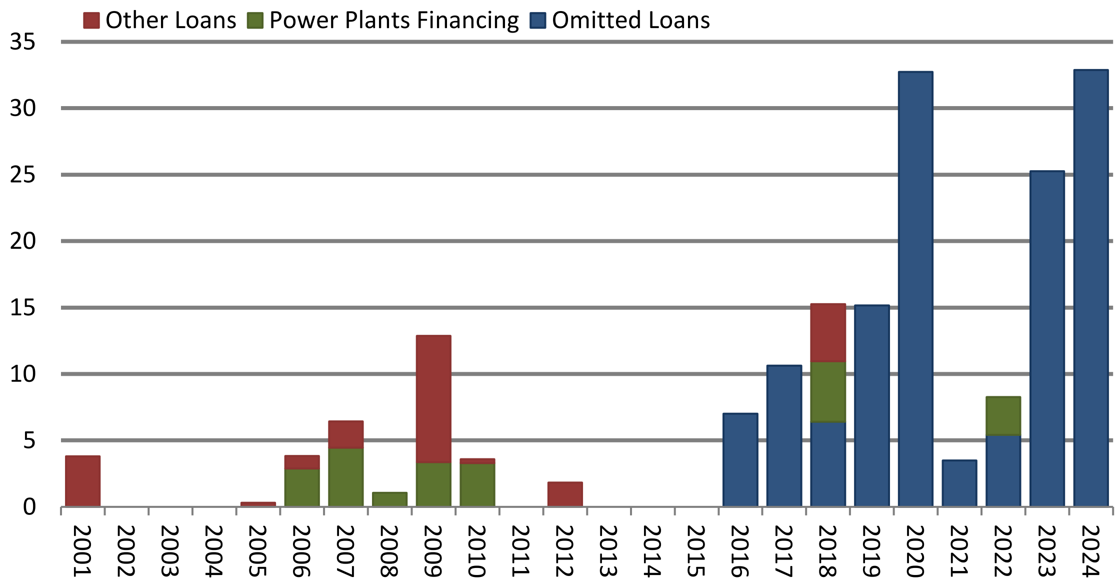

Figure 2 Distribution of loans in bn ISK as of December 31st, 2024 by distributed by issue date across half-year intervals. Red part of columns indicates power plant financing and green shows loans for other purposes. The blue column shows the loans without guarantee.

As it usually takes a few days to prepare loan documentation after negotiation the average difference for the month prior or to the signature date is applied to each loan. The results are robust in this regard and the changes from using the spread on the exact date are small. The resulting curve for the spread that estimates the appropriate premium from the analysis is shown in Figure 3.

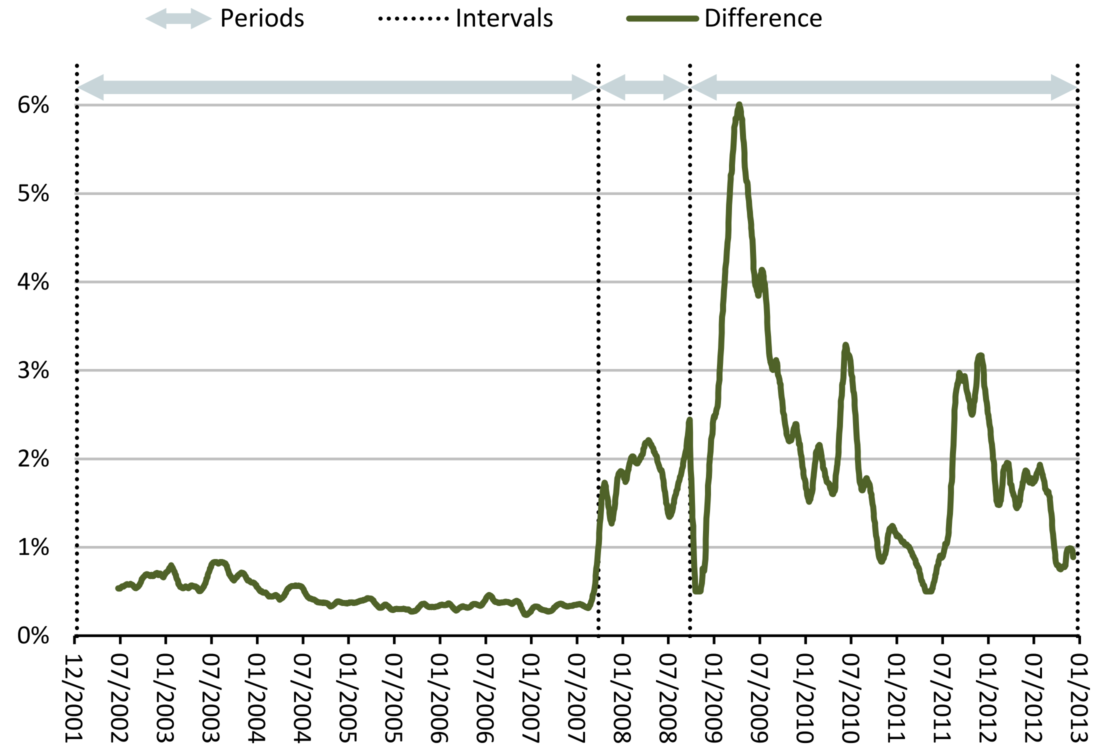

Figure 3 Spread difference between OR and the City of Reykjavík according to the model. Three periods and intervals are also indicated as before.

The spread difference was in the range 0.4% to 0.8% during 2002 to 2004. This was followed by a benign period where the spread difference was at historical low in the range 0.25% to 0.50% from 2004 to 2007. During the transition period the spread was close to 2%. Post collapse the spread drops very low but then rises sharply. This is the result from the large and sometimes contradictory swings in the credit markets during those days. With regard to the loans of OR these swings immediately following the events in September and October 2008 are not important as no new loan agreements were signed in second half of 2008 or first half of 2009. Less than 2% of the loans were issued at the very end of 2001 or the beginning 2002. For these loans a premium of 0.5% is used, which is close to the first calculated spread that was effective a few months later.

When the historic spread has been calculated it can be applied to each and every loan according to the date of origination. The calculation of the average spread is based on the weighted average spread of the remaining principal of the loans:

$$\bar{S} = \frac{\sum_{i=1}^{N}(S_i^c - S_i^s)P_i}{\sum_{i=1}^{N} P_i}$$

Where $\bar{S}$ is the average spread difference between the corporate and the sovereign borrowings, S_i^c is the credit spread for corporate borrowing *i*, S_i^s is the credit spread for sovereign borrowing *i* and P_i is the remaining principal of borrowing *i* and *N* is the number of loans.

Table 1 below summarizes the findings. The spread is calculated for the total loan mass, as well as total loan mass excluding the loans from owners and loans without guarantee. Furthermore, the spread is calculated for three sub-portfolios as previously discussed and indicated in the table.

Type of loan	Amount [bn ISK]	Premium [bp]
All loans	45,4	80
Sub-portfolio – *Power Plants*	22,4	69
Sub-portfolio – *Other Loans*	23,0	92

Table 1 Results for estimated premium for different portfolios.

On average the premium for all loans should be 80 bp. Regarding the sub-portfolios the premium for loans for power plants is 69 bp premium of other loans are 92 bp. The difference in premium for power plants and for other loans is due to different timing of the loans.

3 Self-financing condition

3.1 The self-financing condition

Up until here, this report has focused on estimating an appropriate premium for the loans of OR, i.e. a premium that eliminates the competitive advantage of OR due to the guarantee. However, this is not the only condition that the premium that the government collects needs to meet as the scheme also needs to be self-financing. The self-financing condition entails that the premiums collected from OR must be high enough to compensate for the scheme, i.e. it must be an economically viable decision to grant these guarantees.

The subject of this part of the report is to estimate the minimum compensation needed for running the scheme according to the guidelines by ESA. Section 3.4 of the ESA Guidelines on State Guarantees[11] lists conditions that need to be fulfilled in order to rule out the presence of state aid. Subsection d) of section 3.4 calls for that

> *[t]he terms of the scheme are based on a realistic assessment of the risk so that the premiums paid by the beneficiaries make it, in all probability, self-financing. The self-financing nature of the scheme and the proper risk orientation are viewed by the EFTA Surveillance Authority as indications that the guarantee premiums charged under the scheme are in line with market prices.*

Sub-section f) gives further information regarding calculation methods:

> *In order to be viewed as being in line with market prices, the premiums charged have to cover the normal risks associated with granting the guarantee, the administrative costs of the scheme, and a yearly remuneration of an adequate capital, even if the latter is not at all or only partially constituted.*
>
> *As regards administrative costs, these should include at least the specific initial risk assessment as well as the risk monitoring and risk management costs linked to the granting and administration of the guarantee.*
>
> *As regards the remuneration of the capital, the EFTA Surveillance Authority observes that usual guarantors are subject to capital requirement rules […]. State guarantee schemes are normally not subject to these rules and thus do not need to constitute such reserves. […] In order to avoid this disparity and to remunerate the State for the risk it is taking, the EFTA Surveillance Authority considers that the guarantee premiums have to cover the remuneration of an adequate capital.*

3.2 Methodology

In short – the self-financing condition means that premiums collected need to be at or above the sum of:

i. the price associated with the risk of granting the guarantee
ii. the administrative costs of operating the scheme
iii. remuneration of an adequate capital.

The guidelines can be interpreted as a straightforward model for the pricing of guarantees or loans at financial institutions. It consists of three basic elements that are in parallel with the list above.

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11 See http://www.eftasurv.int/state-aid/legal-framework/state-aid-guidelines/ for the State aid guidelines and page 10 of *State guarantees* for the quoted text, which is the first document under Part V *Specific aid instruments*.

1. Expected Loss (EL)

Expected loss is the credit loss that is expected to take place on average, usually over a period of one year. It is a direct estimate of the risk associated with the guarantee. It is most often expressed in the terms of *Probability of Default* (PD), *Loss Given Default* (LGD) and *Exposure at Default* (EAD)[12].

The PD is the likelihood of a default event of the obligor over some horizon, usually a year. The LGD is the loss suffered by the grantor of the loan or guarantee in the case of a default, expressed in percentage of the outstanding loan or guarantee. The EAD is the relevant exposure at the time of default to which LGD should be applied.[13]

Having established these three quantities the EL is calculated as follows:

$$EL = PD \cdot LGD \cdot EAD$$

2. Cost (C)

Cost is the relevant costs incurred by the grantor due to the guarantee on an annual basis.

3. Return on capital (ROC)

The financial institution is required to hold capital against the loan or guarantee due to unexpected loss and will furthermore be required by investors to show return on this capital. The ROC is linked to the necessary spread increase on the loan, referred to here as the risk premium (RP), through the capital binding of the loan. Under normal circumstances RP varies according to the risk associated with the loan, i.e. higher the risk – the higher the risk premium. If the capital binding associated with loan is 8% then:

$$RP = 8\% \cdot ROC$$

Added together these three elements give a simple formula for a relevant minimum price (P) of a guarantee:

$$P = EL + C + RP$$

As said before, the guidelines align with above formula and the methodology in this report follows it. The three parts of the equation will be estimated separately and then added together and compared to the premium established previously.

3.3 Determination of Expected Loss

Loss Given Default

In the absence of further information, it is standard practice within financial markets to assume that recovery is 40%, i.e. LGD is 60%. This is for example true about pricing of CDS's, CDO's and most other credit related derivatives. In some sense, this market convention is a choice of convenience. It is the expected loss that is important and as LGD is inseparable from PD in quoted market prices it can be convenient to translate all changes in market prices of said derivatives to implied changes in PD, rather than some mixture of PD and LGD.

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12 The references for this kind of setup around expected loss are numerous. The most extensive documentation is the Basel II framework, the calculations of PD, EAD and LGD are at the heart of credit modelling under the framework, see www.bis.org for further information.

13 In the context of this report EAD is assumed to be 100% as total loans are not assumed to change significantly in the course of one year.

By international conventions, OR would be categorized as belonging to the utilities sector. Generally, the utility sector consists of privately and publicly owned establishments that generate, transmit, distribute, or sell resources such as electricity, gas, hot and cold water etc.

At first notion a 40% recovery rate seems very low for a utilities company, which is built into the infra-structure, with producing power plants, long term contracts and a steady cash-flow. This perception is confirmed by studies on recovery rates. Such studies are not numerous but the earliest study found that addresses the subject was published by *Altman and Kishore* in 1996[14]. In their sector specific study the authors found that the creditors of defaulted public utility companies do fare better than other creditors during default. They show that the average recovery rate is around 70.5% and median recovery rate 79.1% for the 56 default observations within the public utility sector they had in their data set. This is both the highest recovery observed within any sector and the lowest variance within any sector, i.e. the recoveries are high and stable compared to other sectors.

In a more recent study from *Acharyaa, Bharathb and Srinivasan* from 2007[15] the older results are confirmed:

> *Consistent with the evidence of Altman and Kishore (1996) […] we find recoveries are the highest for the Utility sector. The mean (median) recovery at emergence is 74.49 (76.94). These levels are statistically different from mean recoveries for other industries*

In a study performed by Moody's in 2007[16], the recovery rate in the utility sector is estimated to be around 85%. The study is based on 3500 loans and bonds of over 720 non-financial corporate default events during the years 1987 to 2006. This study is based on more recent data and larger data set than the two studies mentioned earlier.

Based on these studies and referencing the median and mean recovery rate in the more recent study it is concluded that using recovery rate of 85% which corresponds to LGD of 15% is a fair assessment for OR.

Default Probability

Previously in this report, the appropriate guarantee premium was found using ratings or shadow-ratings for the guarantor and OR. To estimate the appropriate PD it is most straightforward to use default studies by the credit rating agencies that link the credit ratings to default probabilities.

Recently, the three major credit rating agencies, *Moody's*[17], *Standard and Poor's*[18] and *Fitch*[19], have all issued updated historical overviews of credit defaults. The studies are directly applicable as – along with other results – they use the commonly quoted letter grading and link it to observed defaults. The observation periods end in 2010.

Figure 4 shows the results from the three large rating agencies along with the best exponential fit through the available data. The observation periods in all cases include 2010 and look back 20 to 30 years. The data set therefore include the recent tumultuous times when relatively several companies with good ratings have gone bankrupt. In that sense it is conservative to favour these recent findings rather than looking up older or longer

[14] Altman, E.I., Kishore, V.M., 1996. *Almost everything you wanted to know about recoveries on defaulted bonds.* Financial Analysts Journal November/December 57–64.

[15] Acharyaa, V.V., Bharathb, S.T., Srinivasan A., 2007. *Does industry-wide distress affect defaulted firms? Evidence from creditor recoveries.* Journal of Financial Economics, Vol. 85, Issue 3, September 2007, Pages 787-821.

[16] Moody's Ultimate Recovery Database, April 2007, Page 9.

[17] Moody's Investors Service. Corporate Default and Recovery Rates, 1920-2010. February 2011. Default data taken from exhibit 30: Average One-Year Alphanumeric Rating Migration Rates, 1983-2010.

[18] Standard & Poor's. Default, Transition, and Recovery: 2010 Annual Global Corporate Default Study And Rating Transitions. March 2011. Default data taken from table 23: Average One-Year Transition Rates For Global Corporates By Rating Modifier (1981-2010).

[19] Fitch Ratings Global Corporate Finance 2010 Transition and Default Study. March 2011. Data taken from table in appendix: Fitch Global Corporate Finance Transition Rates: 1990–2010.

periods. Moreover, it is considered to be a cautious choice to select the best fit as representative for the default probabilities at each grade.

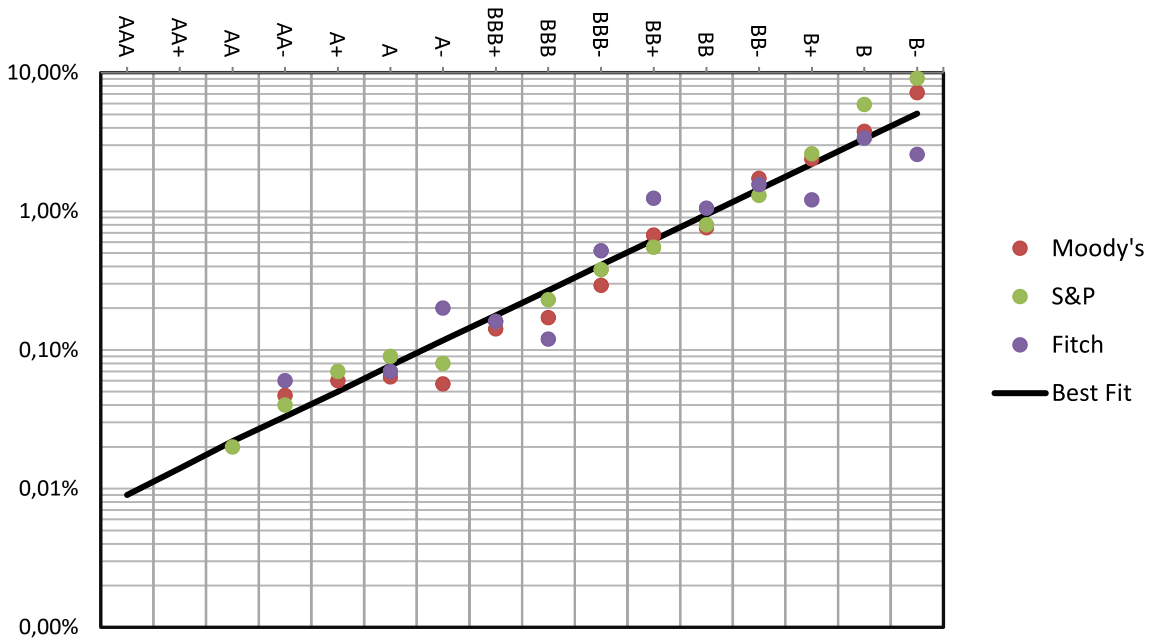

Figure 4 The horizontal axis shows grades according to the Moody's scale. The vertical axis shows one year default probabilities on a logarithmic scale. The red, green and purple dots show default probabilities according to Moody's, S&P and Fitch according to grade, respectively. The black line shows the best fit through the points. While calculating the best fit missing values are not used.

As commonly observed with default probabilities and rating schemes of some sort the default probabilities are close to being exponentially related to the grades, i.e. are close to a line on a logarithmic scale.

The table below shows the default probabilities for each of the providers and the average for available data points at each grade, but the average is used in subsequent calculations.

Grade	Moody's	S&P	Fitch	Best fit
AAA				*0,009%*
Aa1				*0,014%*
Aa2		0,020%		*0,022%*
Aa3	0,047%	0,040%	0,070%	*0,033%*
A1	0,060%	0,070%		*0,050%*
A2	0,064%	0,090%	0,070%	*0,077%*
A3	0,057%	0,080%	0,210%	*0,117%*
Baa1	0,142%	0,160%	0,170%	*0,177%*
Baa2	0,171%	0,230%	0,130%	*0,269%*
Baa3	0,292%	0,380%	0,550%	*0,410%*
Ba1	0,674%	0,550%	1,360%	*0,623%*
Ba2	0,760%	0,800%	1,150%	*0,947%*
Ba3	1,729%	1,300%	1,740%	*1,440%*
B1	2,381%	2,600%	1,310%	*2,189%*
B2	3,775%	5,880%	3,710%	*3,329%*
B3	7,158%	9,120%	2,800%	*5,061%*

Table 2 Default probabilities according to grade. The table shows the default probabilities according to letter grade in the referenced studies and the best fit through available data. Empty cells indicate no or inadmissible data points and are not used while calculating the best fit.

3.4 Risk Premium

According to the guidelines on state charges from the EFTA guidelines the risk premium is straightforward to calculate. The capital binding is considered to be 8% but for entities with high ratings there is a discount, from A3 to A1 the ratio is 4% and from Aa3 to AAA 2% is required. The relevant return on equity is 400 bp.

The Risk Premium is consequently 8 bp, 16 bp and 32 bp for capital binding ratio of 2%, 4% and 8% respectively.

3.5 Cost

Cost is different from Expected Loss and Risk Premium as it cannot be directly estimated in basis points. Rather it has to be estimated in real terms and then converted to basis points using the outstanding remaining principal of the loan guarantees. The cost is twofold:

1. Assessment of the appropriate loan guarantee cost

   The cost of an annual estimate is estimated to be 1 mn ISK, which is conservative in the sense that this should cover the cost.

2. Administration and other cost

   According to information from the City of Reykjavík the cost is approximately 2 mn ISK for overseeing the guarantee scheme on their behalf.

3.6 Minimum Guarantee Premium

Apart from the cost, the model that has been built here is specific down to a credit grade – up to here nothing has been assumed regarding the loans to OR.

By applying the model to the distribution of remaining principal of loans over ratings that prevailed at the date of issue according to the model presented in the previous chapters the results are found in a straightforward way. Table 3 shows these distributions for loans along with calculations of expected loss and risk premium for each grade as outlined before.

	Risk Premium			Expected Loss				Main Results	Weights diff. porf.	
Grade	CR	ROC	RP	DP	LGD	EL	RP+EL	All loans	Power Plants	Other
AAA	2%	400 bp	8 bp	0,009%	15%		8,0 bp	–	–	–
AA+	2%	400 bp	8 bp	0,014%	15%		8,0 bp	–	–	–
AA	2%	400 bp	8 bp	0,02%	15%	0,3 bp	8,3 bp	–	–	–
AA-	2%	400 bp	8 bp	0,03%	15%	0,5 bp	8,5 bp	–	–	–
A+	4%	400 bp	16 bp	0,05%	15%	0,8 bp	16,8 bp	–	–	–
A	4%	400 bp	16 bp	0,08%	15%	1,2 bp	17,2 bp	–	–	–
A-	4%	400 bp	16 bp	0,12%	15%	1,8 bp	17,8 bp	–	–	–
BBB+	8%	400 bp	32 bp	0,18%	15%	2,7 bp	34,7 bp	–	–	–
BBB	8%	400 bp	32 bp	0,27%	15%	4,0 bp	36,0 bp	–	–	–
BBB-	8%	400 bp	32 bp	0,41%	15%	6,2 bp	38,2 bp	36,4%	51,0%	22,1%
BB+	8%	400 bp	32 bp	0,62%	15%	9,3 bp	41,3 bp	–	–	–
BB	8%	400 bp	32 bp	0,95%	15%	14,2 bp	46,2 bp	19,5%	20,2%	18,7%
BB-	8%	400 bp	32 bp	1,44%	15%	21,6 bp	53,6 bp	6,7%	4,7%	8,6%
B+	8%	400 bp	32 bp	2,19%	15%	32,8 bp	64,8 bp	–	–	–
B	8%	400 bp	32 bp	3,33%	15%	49,9 bp	81,9 bp	–	–	–
B-	8%	400 bp	32 bp	5,06%	15%	75,9 bp	107,9 bp	37,5%	24,1%	50,6%
							Self-financing without cost:	66,9 bp	57,3 bp	76,3 bp
							Total loans [bn ISK]:	45,4	22,4	23,0
							Total cost [mn ISK]:	3,0	1,5	1,5
							Basis points due to cost:	0,7 bp	0,7 bp	0,7 bp
							Self-financing:	67,6 bp	58,0 bp	76,9 bp

Table 3 The table shows the Capital Requirement (CR), the required Return on Capital (ROC) along with resulting Risk Premium (RP) for each grade. Also shown is the estimated Default Probability (DP), Loss Given Default (LGD) and the resulting Expected Loss (EL) for each grade. Finally, the distribution of loans of OR across grades is shown as further explained in the text.

As is to be expected, both the Risk Premium and expected loss increase with lower grades, but the latter much more rapidly. Regarding the distribution, the loans are concentrated in the BBB- with around 36,4% of the loan mass and corresponding to the *stable period* as previously defined. The rest is distributed in grades BB about 19,5%, BB- about 6,7% and B- around 37,5% that correspond to the *transition period* and in the *post collapse.*

To arrive at a single value for the estimates of a minimum appropriate premium a weighted average of the quantities in the previous table must be calculated and cost estimates added as shown in the table.

4 Results

4.1 Fair premium and self-financing

Table 4 summarizes the findings in this report in 2025 and in previous report from 2024.

Type of loan – 2025	Amount [bn ISK]	Premium [bp]	Self Fin. [bp]	Difference [bp]
Main Results – 2025				
All loans	45,4	80	68	12
Sub-Portfolios – 2025				
Power Plants	22,4	69	58	11
Other Loans	23,0	92	77	15

Type of loan – 2024	Amount [bn ISK]	Premium [bp]	Self Fin. [bp]	Difference [bp]
Main Results – 2024				
All loans	56,9	76	67	9
Sub-Portfolios – 2024				
Power Plants	28,4	66	56	10
Other Loans	28,4	86	77	9

Table 4 Results for estimated premium and self-financing needs for the loan mass in whole and for different portfolios in years 2025 and 2024.

Comparing the self-financing needs of all loans shows that the self-financing condition is met. In fact, the premium is around 12bp above the required minimum. When looking at the different sub-portfolios the condition is also met for *other loans* – the self-financing is 15bp lower. For loans to *power plants* the fair premium and the self-financing condition is met with the latter being 11bp lower.

Comparing the results in 2024 and 2025 shows that the overall premium is 6bp lower in 2025 than in 2024. The spread on the sub-portfolio power plants is 3bp lower and the spread on sub-portfolio other loans increased by 6bp. The total loan mass that has a guarantee is reduced from 56,9 bn ISK to 45,4 bn ISK.

4.2 Conclusion

The guarantee premium for 2025 is 80bp on a loan amount of 45,4 bn ISK. The guarantee premium is at similar level as in 2024, which was 76bp.

The OR loans with guarantee from owners have been decreasing over recent years. At year end 2015 the loans with guarantee from owners were 147,1 bn ISK. At year end 2024 the loans with guarantee from owners amounted to 45,4 bn ISK. In ten years, the guaranteed loan amount by owners has decreased by ISK 101,7 bn.

In recent years OR has been borrowing without guarantee from owners. At year end, 2024, 24,6% of OR loan portfolio had guarantee from owners and 75,4% are without guarantee from owners.

In the view of Summa, the premiums obtained in this report are a fair assessment and meet the self-financing condition.