



Brussels, **XXX**
[...](2017) **XXX** draft

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the document

Commission Delegated Regulation (EU) .../...

amending Delegated Regulation (EU) 2015/35 concerning the calculation of regulatory capital requirements for certain categories of assets held by insurance and reinsurance undertakings (infrastructure corporates)

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1. Introduction

The **Investment Plan for Europe**¹ focuses on removing obstacles to investment, providing visibility and technical assistance to investment projects and making smarter use of new and existing financial resources. The Investment Plan is active in supporting investment in the real economy and creating an investment-friendly environment. In particular, the third pillar of the Investment Plan is based on removing barriers to investment and providing greater regulatory predictability in order to keep Europe attractive for investments. Other initiatives related to the Investment Plan include the Digital Single Market, Energy Union and **Capital Markets Union (CMU)**.

The CMU objective² is to "mobilise capital in Europe and channel it to, among others, infrastructure projects that need it to expand and create jobs". By linking savings with growth, CMU will offer new opportunities for savers and investors. One of the categories of potential investors is insurance companies, in particular life insurers, which alongside pension funds and asset managers are among the largest institutional investors in Europe, with the ability to provide equity as well as debt funding to long term infrastructure.

On 14 September 2016, in response to the European Council's call for swift and determined progress, the Commission announced³ "To further facilitate investments in infrastructure assets by institutional investors, the Commission will adopt an amendment to the Solvency II Delegated Act to reduce the capital charges attached to investments by insurance companies in infrastructure corporates."

Under the Solvency II prudential framework, EU insurers are required to hold capital towards investment risk in all investments including infrastructure investments. The Solvency II Directive⁴ contains delegation of powers from the co-legislators to the European Commission to adopt Delegated Acts⁵ prescribing inter alia the risk calibrations to be used when calculating the solvency capital requirement (see Box 1).

Box 1

Difference between "risk calibrations" and capital requirements

The term "risk calibration" used in this document refers to the risk measurement against investment assets in the Delegated Act. The actual capital requirement for insurers is lower and depends on how insurers match their assets and liabilities. This method of determining capital charges for assets is different from that used for banks under the Capital Requirements Regulation (see Annex 2).

¹ Commission communication on the Investment Plan dated 26.11.2014. Link: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2014:903:FIN>

² Commission communication on the CMU dated 30.9.2015. Link: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015DC0468&from=EN>

³ Commission communication "Capital Markets Union - Accelerating Reform" (COM(2016)601 final)

⁴ Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II), as amended by Directive 2014/51/EU of the European Parliament and of the Council of 16 April 2014 (known as "Omnibus II").

⁵ Article 111(1) (c) of the Solvency II Directive.

The Solvency II prudential regime entered into application on 1 January 2016. The Commission Delegated Regulation laying down inter alia risk calibrations for different categories of assets⁶ was adopted on 10 October 2014, and entered into force on 15 January 2015, after European Parliament and Council scrutiny. The Commission adoption of that Delegated Regulation was based on detailed advice and five Quantitative Impact Studies made by the European Insurance and Occupational Pensions Authority (EIOPA⁷) between 2006 and 2013.

However, EIOPA's technical advice on the risk calibrations, on which the 2014 Delegated Regulation was based, did not distinguish infrastructure investments from other categories of investments by insurers, and therefore the risk calibrations for all infrastructure debt and equity investments (including projects and corporates) contained in that Delegated Regulation were the same as for other corporate debt and equity. According to Recital 60 of the "Omnibus II" Directive⁸ and Recital 150 of the Delegated Regulation⁹ the Commission is bound to review the standard formula for calculating the solvency capital requirement for insurers under Solvency II, with specific reference to infrastructure as a possible priority area. Following up on these commitments, on 19 December 2014, the European Parliament Committee on Monetary and Economic Affairs called on the Commission for an earlier review of the calibration of infrastructure investments¹⁰.

The Commission requested technical advice on infrastructure from the European Insurance and Occupational Pensions Authority (EIOPA) in February 2015¹¹. EIOPA's advice, delivered on 29 September 2015¹², contained technical advice only on infrastructure projects (See Box 2 on the next page). On 30 September 2015 the Commission adopted an amendment to the Delegated Regulation to reduce the capital requirement for insurers' investments in qualifying infrastructure projects based on the available technical advice¹³.

Insurers and key stakeholders from investment associations and some member states broadly welcomed¹⁴ the Commission's amendment to the Delegated Regulation on infrastructure projects and acknowledged its important contribution towards the CMU and the Investment Plan for Europe.

⁶ Commission Delegated Regulation (EU) 2015/35, accompanied by an impact assessment, available at [this link](#).

⁷ References to EIOPA in this document include its predecessor CEIOPS (Committee of European Insurance and Occupational Pensions Supervisors). EIOPA and CEIOPS studies and advice to the Commission are available on its website, at [this link](#).

⁸ Recital 60 of the Omnibus II Directive (Directive 2014/51/EU) is available at this [link](#).

⁹ Recital 150 of the Delegated Regulation is available at this [link](#).

¹⁰ Letter from Roberto Gualtieri to Lord Hill is available [at this link](#).

¹¹ The call for advice is available at [this link](#).

¹² Available at [this link](#).

¹³ Commission Delegated Regulation (EU) 2016/467 of 30 September 2015 amending Commission Delegated Regulation (EU) 2015/35 concerning the calculation of regulatory capital requirements for several categories of assets held by insurance and reinsurance undertakings. The Commission's Secretariat General exempted DG FISMA from doing an impact assessment for the amendment to the Delegated Act for infrastructure projects.

¹⁴ Responses to the public consultation at [this link](#) (See also Annexes III and IV)

In response to a further request for advice¹⁵, relating specifically to infrastructure corporates, EIOPA delivered a second technical advice on 30 June 2016¹⁶. This technical advice is summarised in Section 2.1.3. below.

While the advice contains a number of useful prudential recommendations, in two specific areas the Commission is considering possible deviations, to effectively facilitate insurers' investments in long term infrastructure, and thereby fulfil its commitment on long term infrastructure and support the Investment Plan for Europe. These two issues, which are the subject of the present impact assessment, are:

- Sectoral limitation of "infrastructure corporates", which is in the technical advice based on a list of sectors within infrastructure.
- Appropriateness of the risk calibration for debt investment in qualifying infrastructure corporates, including unrated debt investment.

Box 2

What are infrastructure, infrastructure projects and infrastructure corporates?

Infrastructure refers to the fundamental facilities serving a country, city, or area, including the services and facilities necessary for its economy to function. Infrastructure assets includes physical assets, structures or facilities, systems and networks that provide or support essential public services. Electricity generation, transmission, distribution to public are the most common examples. Social infrastructure includes infrastructure for public use supported by a government or a similar authority. (E.g. Courts, public libraries, etc.). More examples of various types of infrastructure are included in Annex 8.

The terms "infrastructure projects" and "infrastructure corporates" used in this document refer to different phases of investment in infrastructure. Infrastructure projects are entities that typically set up a new project which involves the construction phase of an infrastructure. Infrastructure corporates are entities that have matured into the operational phase beyond the construction phase. In some instances, an infrastructure corporate may undertake new projects (e.g. for expansion or modernisation) and in such cases it will still be recognised as an infrastructure corporate.

The main difference in the qualifying criteria is that lenders to infrastructure projects usually benefit from a security charge on the assets of the borrower, whereas in the case of infrastructure corporates the lending is usually unsecured. As a consequence, the infrastructure corporate category is slightly riskier than infrastructure projects.

Infrastructure projects and corporates usually have different legal and financing structures. Their underlying specific features include control rights in favour of investors. Special purpose vehicles are typically used in project finance structures. Another distinguishing feature is the non-limited lifetime that infrastructure corporates usually have versus limited lifespan of infrastructure projects.

¹⁵ The call for advice is available at [this link](#)

¹⁶ The advice is available at [this link](#).

2. Policy context, problem definition and subsidiarity

2.1. Background and context

2.1.1. Nature and size of the market concerned

The insurance sector and infrastructure

The European insurance market is the largest in the world, making up around 32% of the total premiums written globally in 2015. The second and third largest markets are North America and Asia, which are very similar in size with 31% and 30% of global premiums respectively. Total European gross written premiums amounted to more than €1 200bn in 2015 (1.3% increase over 2014).¹⁷

Around 3 700 insurance companies were operating in Europe in 2015. The majority were joint stock companies and mutual insurers, but they can also be public institutions, cooperatives, etc. The European insurance industry employs more than 975 000 people directly. There are also around 1 million outsourced employees and intermediaries.

The insurance sector has the largest pool of investments in the European Union, with almost €9 800bn invested in the global economy in 2015. This is equal to 61% of the GDP of the EU. The insurance sector is a key source of the investment needed to support growth in the economy and it is the largest institutional investor in Europe.

However, investment by insurers in infrastructure is under €50 billion¹⁸ (less than 0.5% of their total assets). This low level of investment is due to a historical factor. As government bond yields were higher in the past, insurers did not find it necessary to invest in infrastructure to generate long term cashflows. An insurance sector body claims that with an appropriate calibration of the risk charges for infrastructure investments, insurers may increase their allocation at least by 100% over the next decade¹⁹. Pension funds and asset managers (of certain types of funds) are also important investors in infrastructure, but are not subject to regulatory capital by EU law. Capital requirements for pension funds are set at national level. Asset managers are subject to certain rules, both at EU and national level, but not including capital requirements, as they do not provide a capital guarantee to their clients. Finally banks especially before the financial crisis of 2008, used to be active lenders in infrastructure, but due to pressures on de-leveraging their balance sheet and minimise the maturity transformation risk, banks have been less active in this asset class and reduced their exposures to infrastructure²⁰.

¹⁷ Insurance Europe report 2016 is available at this link. Insurance & Pensions Europe article on assets under management is available at this link.

¹⁸ Source: Insurance Europe statistics no. 50 (page 35).

¹⁹ Source: Long Term Infrastructure Investors Association. LTIIA website. Link: <http://www.ltiaa.org/investors>

²⁰ To support this asset class also in the banking sector, in the CRR2 package adopted in November 2016, the Commission proposed to lower credit risk capital requirements for banks' investments in infrastructure which fulfil a set of criteria. Complying with this set of criteria reduces significantly their risk profile. Capital requirements for credit risk on exposures to entities that operate or finance physical

Infrastructure investment needs and spending

In a recent study²¹, McKinsey Global Institute estimated that from 2016 through 2030 the worldwide investment needs in economic infrastructure just to support expected rates of growth are about 3.8% of GDP, or an average of US\$3.3 trillion a year. As the total world expenditure in transport, power, water, and telecom (including digital) is estimated at US\$2.5 trillion a year, the current yearly financing gap is projected at around US\$800 billion a year. The cumulative worldwide infrastructure investment needs over the period 2016 – 2030 are estimated at US\$49.1 trillion of which 16%²² for Europe, i.e. just below US\$8 trillion.

Somewhat older projections from the European Investment Bank²³ for infrastructure investment needs from 2013 through 2030 are broadly comparable with McKinsey's. Based on a rather conservative assumption (i.e. a constant share of infrastructure spending of 2.6%²⁴ of GDP) the EU was projected to need infrastructure investments of around €0.5 trillion a year with a total investment need of over €8.4 trillion until 2030, whereas on the most ambitious scenario (4.5% of GDP) the figure would go up to €800bn yearly and €14.6 trillion in total until 2030 (all figures in 2011 prices and as from 2013).

Since the financial crisis however, infrastructure investment has actually declined as a share of GDP in 11 of the G20 economies: the decrease of the investment rate in the European Union is estimated at 0.4% of GDP between 2008 and 2013, mostly due to reduction in road and telecom infrastructure spending. A declining trend can also be observed in terms of government spending into infrastructure due to limited fiscal space leaving the institutional investors (mainly banks, investment companies, insurance companies and pension funds²⁵) to fill the gap.

2.1.2. Overview of legislative framework

- The relevant legislative framework includes the directives and regulation in the table below.

Short Title	Reference	Recital(s) / Article(s)	Comment
Solvency II Directive	Directive 2009/138/EC	Article 111(1)(c)	Empowerment regarding risk calibrations.

assets that provide or support essential public services would be multiplied by the factor 0.75 provided they comply with the criteria mentioned above.

²¹ Bridging global infrastructure gaps – June 2016

²² Bridging global infrastructure gaps – June 2016: 12% Western Europe and 4% Eastern Europe

²³ See EIB working paper, 2013/02, *Private Infrastructure Finance and Investment in Europe*, page 11.

²⁴ The world annual average spending on infrastructure between 1992 and 2013 in the world was 3.5% of GDP against 2.5% and 4.1% of GDP for respectively Western Europe and Eastern Europe

²⁵ Although relatively small to these institutional investors, the unlisted infrastructure fund market is growing fast. According to Prequin’s 2016 “Global Infrastructure Report” assets under management stood at \$309bn as at year end 2015 (from \$1bn at year end 2004)

Short Title	Reference	Recital(s) / Article(s)	Comment
Omnibus II Directive	Directive 2014/51/EU	Recital 60	Prioritisation of the risk calibrations for long term infrastructure.
Solvency II Delegated Act	Commission Delegated Regulation (EU) 2015/35	Recital 150 Article 164a	As amended effective 2 April 2016 for infrastructure projects.

The current legislative framework does not contain any risk calibrations for infrastructure corporates distinct from the risk calibrations for all corporate debt and equity. The risk calibrations for infrastructure projects adopted by the Commission on 30 September 2015 entered into application on 2 April 2016. As a result, Solvency II framework now has a distinct asset class for infrastructure projects. Tables 1 and 2 below show the risk calibrations for investment in equity and debt of qualifying infrastructure projects, respectively.

Table 1

Qualifying Infrastructure Projects - Equity Risk Calibration

Comparison	Equity Risk Calibration	Reduction for Projects
Type 1 (i.e. Listed Equity)	39%	-23%
Type 2 (i.e. Unlisted Equity)	49%	-39%
Qualifying Infrastructure Projects	30%	

(Source: Commission Delegated Regulation (EU) 2015/35 as amended effective 2 April 2016)

As shown in the Table 1, the risk calibration for unlisted equity investment in a qualifying infrastructure project is 30%, which is a reduction of 39% compared to non-infrastructure unlisted equity investments.

Table 2

Qualifying Infrastructure Projects - Debt Risk Calibration

Comparison	AAA	AA	A	BBB	Unrated
Standard Formula	7%	8.40%	10.50%	20.00%	23.50%
Qualifying Infra Projects	5.00%	6.05%	7.50%	13.35%	13.35%
Reduction	-29%	-28%	-29%	-33%	-43%

(Illustrative example: 10 year debt)

(Source: Commission Delegated Regulation (EU) 2015/35 as amended effective 2 April 2016)

As shown in Table 2, the risk calibration for "A" rated 10-year debt investment in a qualifying infrastructure project is 7.5%, which is a reduction of 29% compared to non-infrastructure debt investments of the same rating and term.

2.1.3. Analytical overview of the EIOPA technical advice

The technical advice of 30 June 2016 includes some amendments to the previous technical advice on infrastructure projects in addition to providing advice on infrastructure corporates.

a) Infrastructure projects²⁶ (amendments to the previous advice)

The EIOPA technical advice of 29 September 2015 contained proposals for the qualifying criteria for infrastructure projects and calibrations for investments in infrastructure projects. The EIOPA technical advice of 30 June 2016²⁷ covers, inter alia, the qualifying criteria²⁸ and calibrations for investments in infrastructure corporates. The technical advice should be read in conjunction with the EIOPA Consultation Paper No. CP-16-005²⁹ (hereafter "Consultation Paper") which provides more details on the rationale for some parts of the advice.³⁰

The technical advice of 30 June 2016 includes some changes to the previous technical advice on infrastructure projects (although this was not a part of the request for advice from the Commission).

²⁶ This section is included in this report for the sake of completeness, although the topic of infrastructure projects is outside the scope of the Impact Assessment. The Commission intends to follow this EIOPA advice on infrastructure projects (including its extension to "project like corporates" and it is not analysed further in this impact assessment report.

²⁷ Letter dated 30.6.2016 ([link](#)) and Final Report reference EIOPA-16-490 ([link](#)).

²⁸ Qualifying criteria in the technical advice comprise of the definition of infrastructure assets (linked to essential public services), where the entity or corporate group derives a substantial majority of its revenues from such infrastructure assets, a credit quality step of at least 3 or an operational history of 3 years, revenue predictability and financial structure).

²⁹ EIOPA Consultation Paper No. CP-16-005 ([link](#))

³⁰ See section 1.13 of EIOPA's technical advice

b) Extension of preferential calibrations for infrastructure projects to "project like corporates"

EIOPA's advice of September 2015 on infrastructure projects contained the following highly restrictive criteria as a result of which very few project investments would qualify for lower calibrations:

- The use of a single legal entity.
- The entity cannot earn any ancillary revenues other than infrastructure.
- Lenders must have a fully secured charge on all assets and contracts .

Whilst the above conditions can be fulfilled by "public private partnership" (PPP) projects in some Member States, other safe infrastructure investments are excluded for the following reasons:

- The need to use multiple legal entities (example – multi asset infrastructure business where the individual assets have separate operating licences or revenue mechanisms)
- Infrastructure companies with ancillary revenues (example – domestic gas supplier earning ancillary revenue from emergency gas boiler repair activity)
- Infrastructure companies that lease some assets from a third party (e.g. land leased from third parties where a solar electricity project is installed)

To avoid such exclusions EIOPA has proposed to extend the existing definition of "projects" to include "project like corporates" and allowed for example, multiple entity structure that have similar risk characteristics. The risk calibrations for infrastructure projects will also apply to "project like corporates" as there is no significant change in the level of risk involved. The Commission agrees with this analysis and as stated previously does not intend to deviate from the technical advice on this part.

b) Infrastructure corporates (new advice)

i) Definition based on a list of sectors within infrastructure³¹

The definitions in EIOPA's first advice of September 2015 on infrastructure projects did not enlist any sector within infrastructure. The relevant definitions were as follows.

“Infrastructure assets” means physical structures or facilities, systems and networks that provide or support essential public services.

“Infrastructure project entity” means an entity which is not permitted to perform any other function than owning, financing, developing or operating infrastructure assets, where the primary source of payments to debt providers and equity investors is the income generated by the assets being financed.

It was assumed that the safety of insurers' investment in qualifying projects can be demonstrated through prudential criteria such as revenue predictability. It contained the

³¹ Technical advice of 30 June 2016, page 20, para 1.86. "Definition"

principles to be observed in assessing the safety of the risk of investment in individual project, regardless of the type of infrastructure sector to which an infrastructure project entity would belong.

However, EIOPA's technical advice on infrastructure corporates departs from this approach and limits itself to a list of sectors. The list is only relevant to equity investments for which EIOPA recommends a reduced calibration. The definition is not relevant to debt investments for which EIOPA did not recommend a reduced calibration. (The debt analysis from EIOPA was split by ratings and not by sectors). The proposed definition of infrastructure corporates is as follows:

‘Infrastructure corporate’ means an entity or corporate group which derives the substantial majority of its revenues from owning, financing, developing, or operating infrastructure assets in the EEA or OECD in the following lines of business:

- generation, transmission or distribution of electrical or thermal energy;
- distribution or transmission of natural or petroleum gas;
- provision of water or wastewater services;
- waste management or recycling services;
- transport networks or the operation of transport assets;
- social infrastructure.

By including a list of sectors in the definition, EIOPA limits the application of lower equity risk calibration (proposed at 36% as mentioned in sub-section iv) to a lower number of investments by insurance companies. Table 3 below contains the detailed breakdown of the number of equities used by EIOPA for each sector.

Table 3
EIOPA Advice - Breakdown by equities data by sector

Sector	Number of Equities	Percentage
Utilities	36	51%
Water	8	11%
Gas	8	11%
Commercial services	6	8%
Energy	5	7%
Engineering and Construction	4	6%
Transport	3	4%
<u>Environmental</u>	<u>1</u>	1%
Total	71	100%

(Source: EIOPA-CP-16-005, page 22, Table A)

ii) Eligibility criteria for infrastructure corporates³²

EIOPA has proposed to have fewer eligibility criteria for infrastructure corporates as compared to projects, as regards sponsor requirements, stress testing requirements and security for three main reasons:

- Infrastructure corporates are typically mature companies with an established record.
- The role of stress testing (e.g. efficiency of a power plant) is more relevant at the project stage, whereas corporates already have track record of their performance.
- The data on corporates used by EIOPA did not distinguish between secured and unsecured debt. Therefore, it would have been arbitrary to insist on security requirements for all corporates.

The Commission agrees with the eligibility criteria and as stated previously does not intend to deviate on this part of the advice.

iii) Infrastructure corporate debt – risk calibration

EIOPA found that on a relative basis, AA rated infrastructure corporate debt is less risky than non-infrastructure by 25%. However, EIOPA considers that the data shows that the calibration of the Standard Formula for all corporates in the Commission Delegated Regulation is too low, and that the lower risk profile of infrastructure corporates only corresponds to the calibration which is already in the standard formula. Therefore EIOPA does not recommend reducing the calibration for infrastructure corporate debt below the standard formula. EIOPA advice is silent on unrated debt, as it did not find any data for analysis.

iv) Qualifying infrastructure corporate equity³³ – risk calibration

EIOPA recommends a calibration of 36% for all infrastructure corporate equities, listed and unlisted, compared with 30% for infrastructure projects in the 2016 amendment to the Delegated Act. This is based on substantial data for listed infrastructure corporates.

The technical advice of EIOPA recommends a reduction of the standard calibration from the existing level of 39% (or 49%) to 36% for all infrastructure corporate equities, listed and unlisted. This compares with 30% for infrastructure projects in the 2016 amendment to the Solvency II Delegated Act. This recommendation includes unlisted equity.

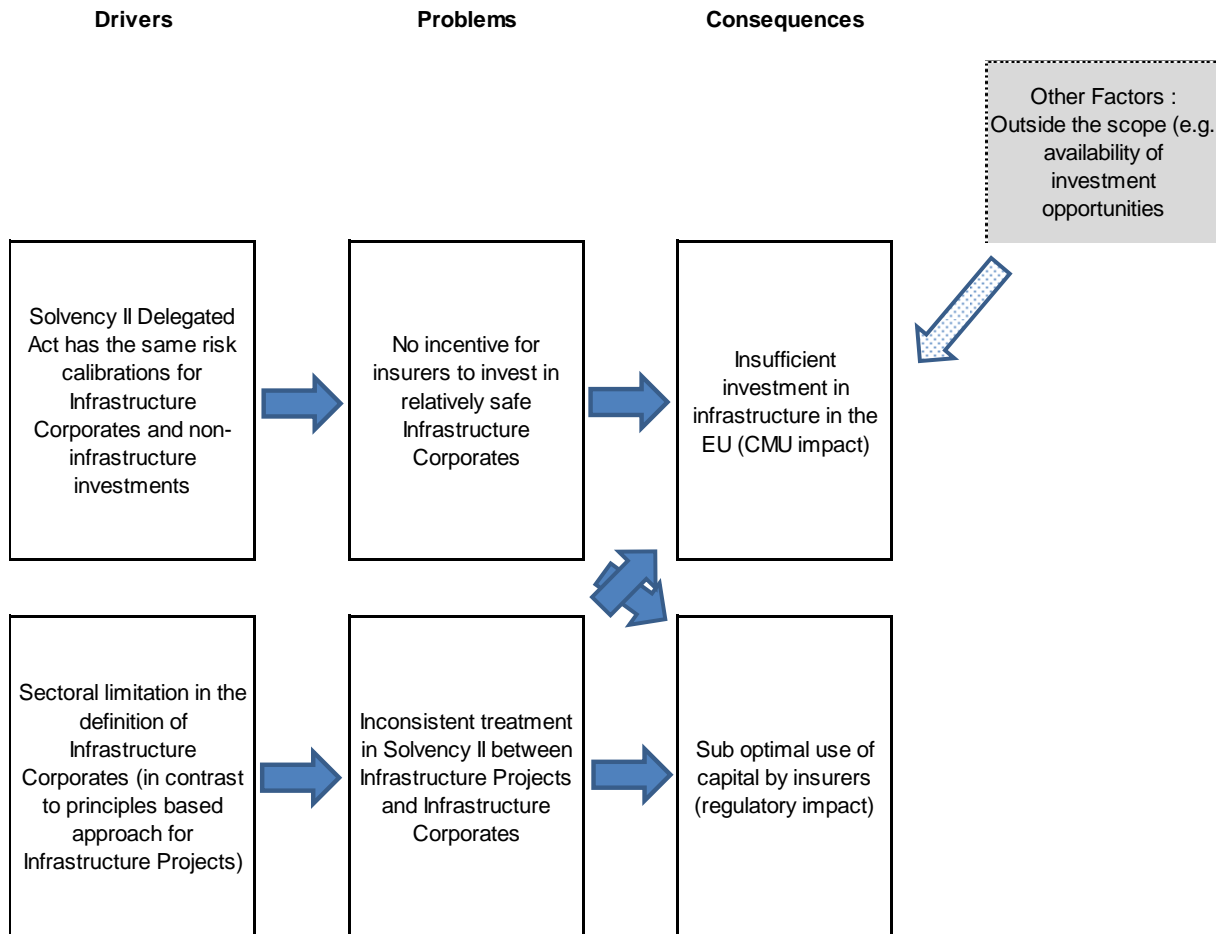
The Commission agrees with the equity risk calibration proposed and as stated previously does not intend to deviate on this calibration.

³² Comparison between the criteria for infrastructure corporates (page 21) and infrastructure projects (pages 21 to 25) in the Technical Advice of 30 June 2016

³³ Technical advice of 30 June 2016, page 11, para 1.41

2.2. Problem definition

PROBLEM TREE



The problem defined in this sector currently relates to the low level of investments by insurance companies in infrastructure (approximately EUR 50 billion worth, representing only about 0.5% of the aggregate balance sheet) although evidence exists to demonstrate lower risk in infrastructure corporates compared to non-infrastructure corporates (see Annex 12 for details).

Risk calibrations in the Solvency II Delegated Regulation are expected to be proportionate to the investment risk borne by insurance companies. Before the amendment to the Delegated Regulation adopted on 30 September 2015, the regulatory framework, i.e. Solvency II and its Delegated Regulation, was not sufficiently granular and incorporated all infrastructure investments (projects and corporates) into a wider asset class of equity and debt (see picture below).

	Before 30.9.2015	Preferred Granularity	Comment
Equity	Type 1 (Listed)	Type 1 (Listed)	No change
	Type 2 (Unlisted)	Type 2 (Unlisted)	No change
		Infrastructure Projects*	Amendment adopted 30 September 2015.
		Infrastructure Corporates*	After this Impact Assessment.
Debt	Sovereign	Sovereign	No change
	All Other Debt	All Other Debt	No change
		Infrastructure Projects*	Amendment adopted 30 September 2015.
		Infrastructure Corporates*	After this Impact Assessment.

*Long term investments that can be considered safe, if they meet prudent qualifying criteria.

(Source: Omnibus II Directive Recital 60)

EIOPA's technical advice on infrastructure projects partially addressed this issue, however, in the absence of specific advice for infrastructure corporates, the imperfections in the regulatory framework remained. The current position is that Solvency II Delegated Act has the same risk calibrations for infrastructure corporates and non-infrastructure investments.

As a resultant problem, there is no specific incentive for insurance companies to invest in infrastructure corporates despite their relatively lower riskiness. For example, an insurance company that wishes to maximise its interest income in a low interest rate environment (detailed in Annex 7), will not have a specific incentive to invest in infrastructure debt assets. This is an adverse selection problem.

Within the infrastructure sector, infrastructure corporates³⁴ have more economic importance than infrastructure projects. Capital expenditure by infrastructure corporates far exceeds that delivered by infrastructure project finance transactions, including Public Private Partnerships. According to Moody's the relevant multiple was more than four times in Europe over 2012-2014³⁵.

The high level consequence of this problem is insufficient investment in infrastructure in the EU and resulting insufficient growth and employment, as the construction and operation of infrastructure in itself generates growth and employment, and the existence of infrastructure can facilitate the operation of non-infrastructure businesses. This is the same general problem which the Investment plan for Europe intends to address.

Linked to this, the overall capital requirement for infrastructure corporates is higher than the appropriate level for the risk level of the asset category, leading to sub-optimal use of capital by insurers.

³⁴ The scope of the initiative is limited to non-project- like infrastructure corporates. A precise breakdown between non-project like infrastructure corporates within wider infrastructure corporate category is however not available due to differences in the classification. It is clear from the technical advice that the risk calibrations for infrastructure projects are relevant to "project like corporates" whereas the complementary analysis is focussed on infrastructure corporates alone.

³⁵ Moody's report entitled "Infrastructure Renewal and Investment - Bridging \$1 trillion infrastructure gap needs multi-pronged approach". The report can be access through this [link](#).

The definition of infrastructure projects in the Solvency II Delegated Act was not based on a list of sectors. In contrast, the technical advice on infrastructure corporates contains a list of sectors.

This creates the problem of an inconstent treatment in Solvency II between infrastructure projects and infrastructure corporates. Whilst an insurance company will have uniform risk calibrations for all qualifying infrastructure projects, some of its investments in infrastructure corporates (belonging to some sectors) will qualify for dedicated risk calibrations. In addition, insurance companies will be exposed to a "cliff edge effect" due to increase in risk calibrations, when an infrastructure project entity matures into an infrastructure corporate. The "cliff edge effect" is illustrated in Box 3 below.

	"Cliff Edge Effect"	
	Qualifying	Non Qualifying due to Sector Definition
Qualifying Infrastructure Project Equity	30%	Not Appl
Unlisted Infrastructure Corporate Equity Investment	36%	49%
Increase in risk calibration	20%	63%

(Source: Commission Delegated Regulation (EU) 2015/35 as amended; Commission analysis)

As a qualifying infrastructure project entity (with equity risk calibration of 30%) matures into an infrastructure corporate, the increase in equity risk calibration for entities in some sectors (those included by EIOPA) will be only 20%, and 63% in the remaining sectors (those excluded by EIOPA in the definition).

This creates a a disincentive for insurance companies that invest in infrastructure projects in some sectors, as they may wish to avoid the possibility of an increase in risk charges and increases concentration in their investment portfolio.

Box 4 below gives an illustrative example of investment in an infrastructure corporate that would not meet the sector-based qualifying criteria in the technical advice. Annex 4 contains examples of infrastructure projects and infrastructure corporates (including some projects that have matured into a corporate).

Box 4

Example of an infrastructure corporate

Axione - <http://www.axione.fr/> - An operator of broadband networks in French rural regions which receives both regulated income stream and also has some market risk exposure. The company has signed a number of concession contracts with local authorities in order to design, build, finance, operate, commercialise and maintain high-speed broadband networks. Later on these projects were grouped together in a dedicated holding company, which in 2014 benefitted from credit enhancement in the first broadband project bond in France, under the EC-EIB Project Bond Initiative (<http://www.axione.fr/en/issue-first-ever-super-fast-broadband-project-bond-france-and-eu>).

Source: European Commission - DG CNECT/DG ECFIN

The higher regulatory capital requirement for infrastructure corporates has a high level of consequence of sub-optimal use and allocation of capital by insurers.

2.3. Subsidiarity

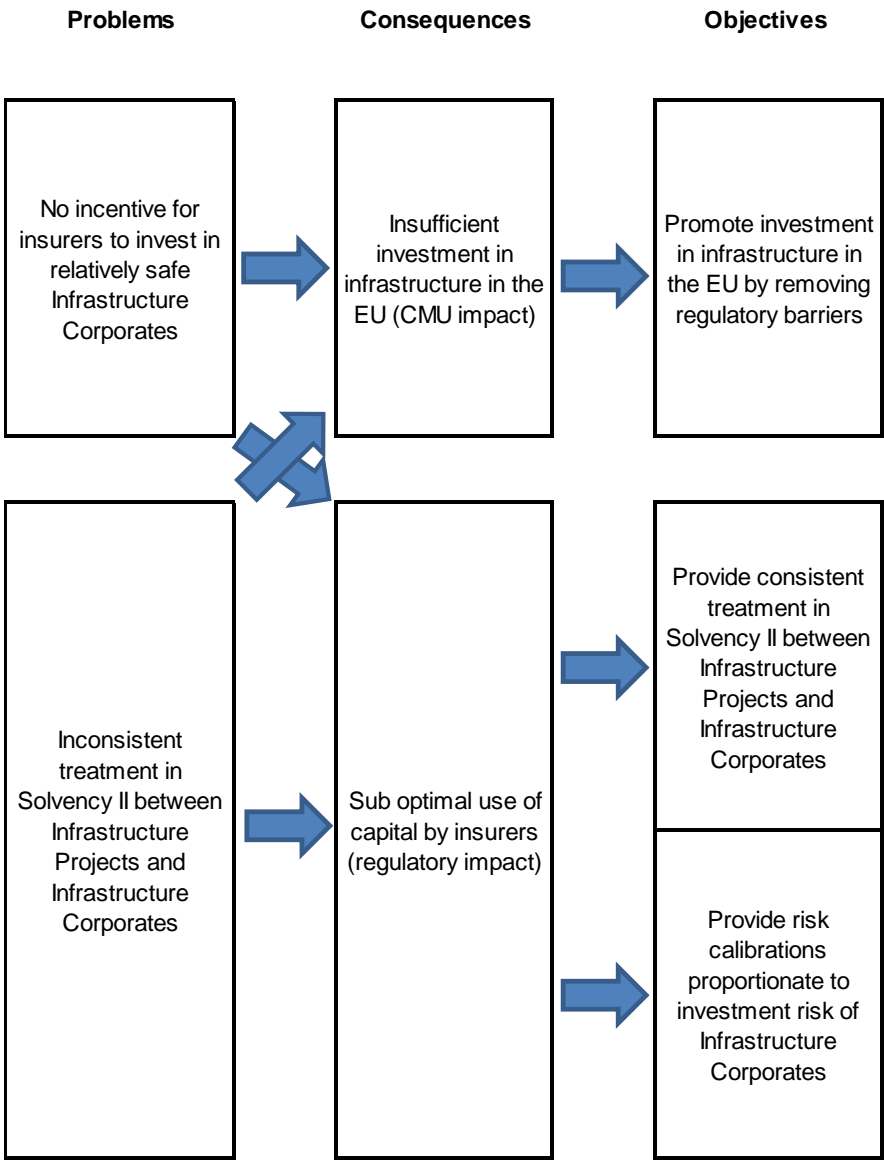
The compliance with the subsidiarity principle was already demonstrated in the impact assessments for the Solvency II Directive and the Delegated Regulation 2014. It was considered that the general and specific problems and problem drivers identified in the area of insurance regulation and supervision could only be effectively resolved via a maximum harmonizing approach at EU level. This was confirmed by the legislator in 2009, when the Directive was adopted.

Hence, Solvency II is a maximum harmonisation directive and the risk calibrations prescribed under the Delegated Act are legally binding on all EU insurers that are in the scope of the Directive. Action solely at Member State level would not be able to effectively or efficiently address these issues given the cross-border nature of financial markets. It would lead to further fragmentation of the Single market with differing rules in place in different Member States with regard to the qualifying criteria and the risk calibrations which would clearly go against the letter and spirit of the Directive. Differing national risk calibrations would have a negative impact on the level playing field of insurers in the Single Market. It is therefore not advisable for individual Member States to take regulatory or supervisory measures and prescribe the qualifying criteria and risk calibrations for infrastructure corporates. The Commission will therefore need to adopt an amendment to the Delegated Act and introduce the necessary articles for infrastructure corporates and amend the existing articles for infrastructure projects.

3. Objectives

The high-level objectives of the European Commission are "Jobs, Growth and Investment". The Commission intends to remove regulatory barriers and to promote investment in infrastructure within the European Union. Furthermore the Capital Markets Union (CMU) Action Plan was launched to help build a true single market for capital across the Member States. The CMU action plan aims to tackle investment shortages head-on by increasing and diversifying the funding sources for Europe’s businesses and long-term projects.

The problems identified in the problem definition section, unless addressed, will conflict with the above high-level objectives.



The two specific objectives of this impact assessment are therefore as follows:

1. To ensure that the risk calibrations for infrastructure corporate investments are appropriate to the risks in the asset class and thereby to incentivise investment in infrastructure corporates; and

2. to ensure consistency of treatment between infrastructure projects and infrastructure corporates (and to avoid a cliff edge effect arising from a reclassification risk).

These objectives will help insurance undertakings play their important role in a diversified, robust financial sector and to secure financial stability.

The general objective of the initiative is to promote investments in infrastructure and thereby to contribute to the Investment Plan for Europe and the Capital Market Union Action Plan.

4. Policy options

This section will develop the options relating to the two identified issues in EIOPA advice. It does not further consider other aspects of the EIOPA advice, which do not raise issues³⁶ requiring option analysis.

In the presentation of these options and the evaluation of their impact (Section 5), two additional reports³⁷ provided by Moody's on 20 February 2017 and the clarifications provided at a conference call on 17 February 2017 have been taken into account. In addition, Moody's report "Infrastructure Default and Recovery Rates, 1983-2015", which was published after the publication of the technical advice by EIOPA has been taken into account.³⁸

Issue 1 – Sectoral limitations in infrastructure corporates

As mentioned in Section 2.1.3 the definition of "infrastructure corporates" in the technical advice of EIOPA contains a list of specific sectors so that reduced risk calibrations can be used for qualifying infrastructure corporate equity investments³⁹.

Other infrastructure sectors including telecoms would not benefit of specific risk calibrations as per the advice. This narrow definition cannot accommodate future infrastructure developments such as the 5G core infrastructure. However all of those sectors not covered in the list of sectors retained in the technical advice are important and necessary to support growth and investment in the European Union.

In response to the EIOPA public consultation many stakeholders reacted particularly strongly to the exclusion of telecoms from the list, which is a major concern as a driver of economic growth⁴⁰. In their responses to the consultation, as well as at a Roundtable⁴¹ organised by EIOPA and in individual conference calls, stakeholders have pointed to the need for

³⁶ No deviation is necessary on (1) the eligibility criteria other than sector issues, (2) the recommendation risk calibration of 36% for qualifying equity investment in infrastructure corporates and (3) extension of projects to include "project like corporates". The eligibility criteria ensure that only safer infrastructure corporates will qualify for lower risk calibration and the risk calibration for equity is justified by publicly available data, which is in line with EIOPA's mandate of financial stability.

³⁷ Moody's reports entitled (1) "Infrastructure Renewal and Investment Bridging \$1 trillion infrastructure gap needs multi-pronged approach" and (2) "Market Implied Ratings: Description, Methodology, and Analytical Applications".

³⁸ The report is available at this [link](#) (requires free registration).

³⁹ There is no recommendation of reduction in the calibration for debt investments; this is the subject of issue 2 below.

⁴⁰ For instance, mergers and acquisitions in the ICT infrastructure segment have steadily increased from 1 transaction in 2000 to 18 transactions closed in 2015. This appetite is also reflected in the investment strategies of infrastructure funds, where 29% of funds globally have telecom companies included as a sector focus. Most recent transactions closed in Europe are, inter alia, UK Shere Group acquisition by Cellnex Spain, TDF acquisition, 3i's investment in Wireless Infrastructure Group, the acquisition of Slovak Telecom by Macquarie and Infracapital's injection in rural broadband open access provider Gigaclear.

⁴¹ The roundtable was organised by EIOPA in February 2016 and had participants from insurance companies that are active in the field of infrastructure investments and their associations.

investment in other infrastructure sectors. Examples of exclusions from the list include satellites, defence infrastructure, EU strategic gas reserves, renewable energy, pan-European initiatives for rail and air traffic networks, urban regeneration, infrastructure necessary for provision of digital access to EU citizens and the core telecom infrastructure including (1) broadcast towers,(2) mobile telecom towers and other mobile infrastructure, (3) datacentres and (4) fibre-optic networks.

It is advisable to simplify the definition of "infrastructure corporates" by deleting references to infrastructure sectors while at the same time ensuring that the strict qualifying criteria are effective in all sectors within infrastructure. This simplification assures consistency with EIOPA's approach in their advice on infrastructure projects, which did not list any sector but contained principles to identify safer infrastructure investments.

Moreover, a definition without a list of certain sectors avoids an unequal treatment of supervisors due to interpretations if a certain infrastructure corporate does belong to a certain sector or not.

Finally, a definition based on sectors also conflicts with the political priorities of the Commission, namely to promote investment in infrastructure in all sectors. From a policy point of view it would be advisable to tackle the infrastructure sector as a whole.

To conclude, the aim of the first deviation is hence to simplify the definition of infrastructure corporates by leaving out the reference to certain sectors.

Issue 2 - Risk calibrations for insurers' investments in infrastructure corporate debt instruments

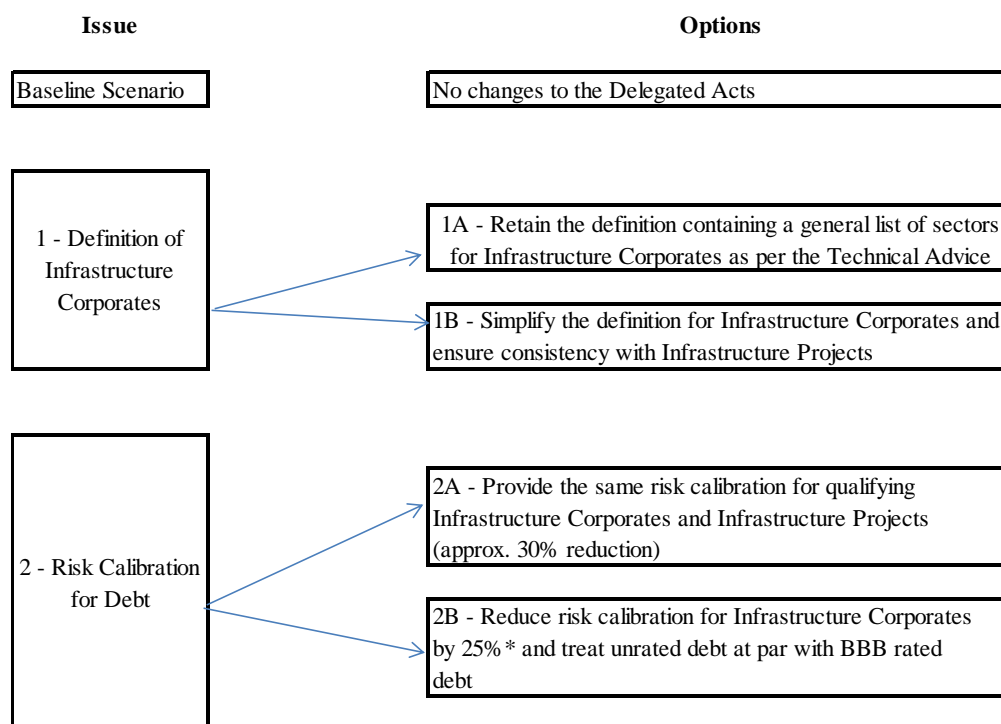
The technical advice does not recommend a reduction of the capital requirement for rated or unrated debt investment in infrastructure corporates, although the report itself concludes that such debt has a relatively lower risk profile than all corporate debt⁴²:

The reason for the second deviation from the technical advice is the availability of complementary evidence that is particularly relevant to long term investments such as infrastructure. The Commission intends to introduce a reduction for the risk calibrations for infrastructure corporate debt for the rating classes AAA, AA, A, BBB and (treat unrated debt at par with BBB rated debt), where the qualifying criteria are met.

This Impact Assessment is based on the analysis of the following options.

⁴² Technical Advice dated 30 June 2016, page 18, para 1.83. See footnote 23.

High Level Issues and Policy Options



** Note - Percentage reduction in the risk calibration compared to the standard risk calibration for non-infrastructure.*

Policy options – Baseline scenario

The baseline scenario involves making no further amendment to the Solvency II Delegated Regulation. In this scenario, the Commission would not use the available technical advice on infrastructure corporates, which recommends, inter alia, lower risk calibrations for equity investments in infrastructure corporates. It will also not make changes to infrastructure projects as per EIOPA advice.

In the baseline scenario, insurance companies that use the Standard Formula would be required to apply the same risk charges for infrastructure and non-infrastructure corporate equity (and debt) investments although infrastructure debt shows a lower risk profile. The risk calibrations in the Solvency II Delegated Regulation are expected to be proportionate to the risks borne by insurance companies. Thus by not providing for appropriate calibrations for infrastructure corporates equity (and debt), the baseline scenario creates a regulatory failure.

As mentioned in the problem definition section, capital expenditure by infrastructure corporates far exceeds that delivered by infrastructure project finance transactions, including public private partnerships (PPPs). Given this, the baseline scenario therefore does not address the need for an appropriate calibration for a significant proportion of investments in infrastructure as a whole.

As an economic consequence of the baseline scenario, up to EUR 50 billion of insurers' investment in infrastructure will bear inappropriate risk calibrations in Solvency II. The exact level of existing investments affected by the baseline scenario cannot be determined as it is

not possible to identify which existing infrastructure investments meet the respective qualifying criteria.

Available evidence indicates that with appropriate risk calibrations insurance companies are likely to expand their investment in infrastructure by at least 100%⁴³. The baseline scenario therefore affects up to EUR 100 billion of existing and potential investment in infrastructure.

As a direct consequence of the baseline scenario, the Commission will not be in a position to fulfil the commitment made at the time of the Omnibus II Directive.

The two policy alternatives on the definition of infrastructure corporates and two alternatives for risk calibration for infrastructure corporate debt are compared against this baseline scenario.

Policy options – Definition of infrastructure corporates

As regards the definition of infrastructure corporates, the Commission has explored the following two policy options for full analysis in this Impact Assessment.

1A. Retain the list of sectors in the definition of infrastructure corporates in the Technical Advice.

1B. Have the definition of infrastructure corporates without a list of specific sectors, i.e. pursue a "sector neutral" policy.

In the option 1A, the amendment to the Delegated Act for infrastructure corporates would use the definition of an infrastructure corporate in the technical advice. As mentioned in Section 2.1.3, the definition in the technical advice includes the names of certain sectors within infrastructure.

In the option 1B, the definition of infrastructure corporates will be simplified by removing the references to sectors in the definition. In this option, an amendment to the Delegated Act will allow investment in all infrastructure sectors to benefit from a lower risk calibration, provided of course they meet the other prudential criteria to ensure the safety of the investment.

Policy Options – Risk calibrations for rated and unrated debt

With the objective of promoting investment in infrastructure and providing risk calibrations that are proportionate to the investment risk, the Commission has assessed the following two policy options.

2A. Provide the same risk calibration for debt investment in qualifying infrastructure projects and infrastructure corporates.

In this option, the Delegated Act would need to be amended to include the qualifying criteria for infrastructure corporates debt. The risk calibrations for qualifying infrastructure project debt, as adopted on 30 September 2015, shall also apply to the qualifying infrastructure corporate debt.

2B. Reduce risk calibration for infrastructure corporates by 25% and treat unrated debt at par with BBB rated debt.

⁴³ Source: Long Term Infrastructure Investors Association. <http://www.ltiia.org/investors>

In this option, the risk calibration for infrastructure corporate debt will be reduced by 25% compared to the standard formula. It will treat qualifying unrated infrastructure corporate debt at par with BBB rated debt⁴⁴. In this option, the Delegated Act would need to be amended to include the qualifying criteria as well as a specific calibration for infrastructure corporate debt. The resultant risk calibration for infrastructure corporates would be at a level between those for infrastructure projects and non-infrastructure corporate debt.

Other policy considerations

The potential impact on SMEs has been taken into account in the choice of the retained policy options.

"Think Small First" principle – This would be relevant to insurers (as investors) as well as borrowers in the infrastructure sector. The Solvency II standard formula is used most by small and medium sized insurers. The bigger insurance undertakings tend to use their own internal models approved by the national supervisory authorities. The alternative policy options (particularly 2A and 2B) on risk calibration are expected to be favourable to small and medium insurers provided they are willing to make such investments and perform adequate due diligence to ensure policyholder protection. Stakeholder responses also indicate that it is not economical for small-medium borrowers to obtain credit ratings due to the limited size of their funding requirements. Options 2A and 2B aim to remove the burden on small/medium borrowers, whereas the due diligence done by insurers and the qualifying criteria would ensure policyholder protection.

Consequences for SMEs – Increased investment in infrastructure sectors are expected to bring benefit to SMEs in those infrastructure sectors. For example, the installation of broadband equipment, cellular masts and optical fibre cable is supported by the SME sectors. Policy options 1B in particular and options 2A/2B in general are considered beneficial to the SME segment.

Proportionality – The policy options examined above are proportionate to the problem analysed and do not go beyond the relevant asset class (e.g. infrastructure corporate debt) for which evidence of relatively lower risk exists.

RISK CALIBRATIONS - DEBT

(As per Recommended Option)

Illustration for a 10-year bond (Fully detailed calibrations are in Annex 9)

	AAA	AA	A	BBB	Unrated
Standard Formula	7%	8.4%	10.5%	20%	23.5%

⁴⁴ The treatment of unrated debt at par with BBB rated debt for infrastructure corporates is consistent with the same approach taken for infrastructure project debt in the Commission Delegated Regulation. Unrated debt that meets the qualifying criteria should be at least in the investment grade i.e. BBB. In some cases, it is indeed possible that some unrated debt may be equivalent to higher rated debt such as "A" rating. However, the higher rating cannot be prudentially justified for all investments.

Qualifying infrastructure corporates (<i>Proposal</i>)	5.2% (25% lower than SF)	6.3% (25% lower than SF)	7.9% (25% lower than SF)	15% (25% lower than SF)	15% (Same as BBB Infra corporates)
Qualifying infrastructure projects	5% (29% lower than SF)	6.05% (28% lower than SF)	7.5% (29% lower than SF)	13.35% (33% lower than SF)	13.35% (Same as BBB)

(Source: Commission Delegated Regulation (EU) 2015/35 as amended; Commission analysis)

5. Analysis of impacts

Stakeholder identification

The list of stakeholders and how they are affected is detailed in Annex 3. In this section, the impact of policy options from the perspective of the following principal categories of stakeholders is analysed:

1. Insurance companies– Investment risk-return objectives
2. Insurance supervisors – Prudential soundness objectives.
3. Corporate issuers of equity and debt in various infrastructure sectors including SMEs – Access to funding and removal of regulatory barriers thereto.

Furthermore, options are assessed against the following criteria reflecting to what extent the options reach the set specific objectives (effectiveness), what the related costs are compared to the benefits (efficiency) and coherence:

- to ensure that the risk calibrations for infrastructure corporate investments are appropriate to the risks in the asset class (implications in terms of prudential risks)
- to incentivise investment in qualifying infrastructure corporates
- to ensure consistency of treatment between infrastructure projects and infrastructure corporates (and to avoid a cliff edge effect arising from a reclassification risk)
- to take into account capital costs for insurers and administrative costs; and
- coherence with the financial regulatory framework.

The list of consultations is included in Annex 5 and the synopsis of consultations is included in Annex 6.

Since the EIOPA advice was adopted by insurance supervisors in the EIOPA Board of Supervisors, it can be assumed that the preference of insurance supervisors generally is for the Commission not to deviate from the advice in any way.

In addition to the above stakeholders, Member States were consulted on the EIOPA advice and possible deviations from it at the Expert Group Meeting on Banking, Payments and Insurance held on 18 October 2016⁴⁵.

Finally, consideration is given to a wider category of citizens including the employees of infrastructure companies and the users of infrastructure and concluded that their interests are generally aligned with the third category above (i.e. infrastructure corporates).

5.1 Impact assessment of options concerning the definition of infrastructure corporates

High level impact assessment summary

Options	Insurance Companies	Insurance Supervisors	Infrastructure Corporates
Baseline scenario	Very Negative	Positive	Very Negative
1A - Retain the definition containing a general list of sectors for Infrastructure Corporates as per the Technical Advice	Partly Negative	Partly Positive	Partly Negative
1B - Simplify the definition for Infrastructure Corporates and ensure consistency with Infrastructure Projects	Positive	Partly Negative	Positive

Baseline scenario – "no change" option

This option would not resolve any of the problems identified in section 2, nor achieve any of the objectives in section 3. Insurers will not be encouraged to invest in infrastructure corporates as their risk calibrations will not be different from non-infrastructure investments, despite the lower risk. Furthermore, insurers may even be discouraged to invest in infrastructure projects to avoid a risk that an infrastructure project may eventually mature into an infrastructure corporate and the applicable risk charges will increase significantly (e.g. from 30% for qualifying projects to 49% for non-qualifying unlisted equity, which is a jump of +63%).

For example, an infrastructure corporate that requires funding for expansion project (e.g. expansion of electricity generation capacity by 500MW) will be at a competitive disadvantage

⁴⁵ See annex 5.

compared to newer infrastructure projects for the same capacity of 500MW, due to higher funding costs demanded by investors.

In the baseline scenario, insurance companies will incur a higher cost of capital (up to 49% as opposed to 30%) depending on the type of investment and the nature of its asset-liability management. Infrastructure corporate borrowers will need to pay higher interest rates (by up to 1.2%⁴⁶) notwithstanding their better risk profile.

The available evidence however demonstrates that qualifying infrastructure corporate investments carry a lower risk. In effect, the baseline scenario will encourage insurers to go for alternative investments that may carry higher risk.

The overall impact of the baseline scenario on the EU objectives is assessed as very negative due to the impact on insurers as well as the infrastructure corporates.

Option 1A (Retain a list of sectors in the definition as per the technical advice)

The definition of infrastructure corporates in the technical advice contains a list of certain sectors which were delivered by the choice of the entities for the reference portfolio.

Infrastructure corporates that are classified within the list of sectors (e.g. electricity companies) may also find this policy option beneficial. However, infrastructure corporates that are outside the list (e.g. air traffic control, telecoms) will certainly be at a disadvantage.

Insurance companies may find the option 1A problematic for four reasons.

Firstly, the EIOPA technical advice on infrastructure projects was not based on a list of sectors. Insurers who invest in an infrastructure project (e.g. optical fibre backbone) and the borrower entity subsequently matures into a corporate (as optical fibre is not in the list of sectors in the technical advice) will be faced with a cliff edge effect (see section 2.2 above). In other words, the coherence between the risk calibration rules for infrastructure projects and for infrastructure corporates will be lower in case of option 1A than for option 1B.

Secondly, insurers may run a legal risk vis-à-vis their national supervisor who may decide whether a particular investment indeed falls within the list or not. For example, the technical advice uses the words "thermal energy" whereas in some parts of the EU, those investments are known as "district heating".

Thirdly, insurers in one Member State may need to apply a different risk calibration compared to insurers in other Member States.

Fourthly, many insurance companies have already spent a significant amount of money and resources in preparation for the Solvency II implementation and reporting. The existing reporting on infrastructure projects does not require a specific reporting on the infrastructure sector. Furthermore, the "industry codes" in the existing reporting templates cannot be directly compared to the list of sectors included in the definition of infrastructure corporates by EIOPA. In option 1A, insurers will be required to make modifications to their information

⁴⁶ 40% reduction in debt calibration x 50% capital factor x 6% cost of capital.

and reporting systems. Recipients of financial reports submitted by insurers i.e. national supervisors and EIOPA will also have to modify their systems for supervisory and monitoring purposes. The cost of changes to these systems is roughly estimated at € 21million⁴⁷.

Some insurance supervisors may favour option 1A as it reflects the technical advice. Other supervisors may not favour option 1A, as it may require them to verify insurance companies' investments in infrastructure with reference to the sectors in the definition.

In this option (assuming the Option 2B further below is upheld), only for the specified sectors, insurance companies will hold significantly lower capital against eligible infrastructure corporate investments. Risk calibrations will fall by approximately 27% (for equity) and 25% (for debt), depending on the credit rating and their balance sheets⁴⁸. Infrastructure borrowers in those sectors may benefit by up to 1.5% reduction on their borrowing costs (25% reduction x 6% cost of capital).

The EU objective of growth and investment in infrastructure aims at all segments within infrastructure that cannot fully be achieved through a complex and restrictive definition and **the overall impact of option 1A is considered partly negative.**

Option 1B (simplified definition)

The option 1B has several advantages. It overcomes the negative impact on the EU objectives pointed out in option 1A and avoids the legal risk faced by insurers in option 1A. It also establishes a level playing field for all infrastructure borrowers based on the strength of their own business models. Option 1B is forward looking and enables the inclusion of new and innovative infrastructure requirements in the EU. For example, EU has considered pan-European traffic control infrastructure in rail and air and such investments do not fall into the traditional classification of transportation infrastructure. The option 1B is favourable for SME borrowers (who may not have credit ratings) as well as larger infrastructure corporates. This option is also beneficial to the broader SME segment as their economic activity is associated with the relevant infrastructure as contractors, suppliers or users.

Although some supervisors may not favour option 1B, this option could facilitate and simplify the supervisory task. The Commission is of the view that the qualifying criteria are robust and sufficient to address prudential risk concerns.

Table 3 (page 11) shows differences between the data used for the equity calibration and the sectors included in the definition. EIOPA's rationale was that a list of sectors serves as a "filter" to ensure a certain similarity between qualifying infrastructure corporates and the entities in the calibration sample. However, there was no strong correspondence between the sectors and the entities used.

Further analysis show that some of the sectors in the data used by EIOPA (namely, environmental, engineering and construction, commercial services) are not included in the definition in the technical advice. The transportation sector has been included in the definition

⁴⁷ Rough estimate - 28 national supervisors + 400 insurers (assuming not all insurers invest in infrastructure) x €50,000 per IT system.

⁴⁸ See box 1 on p3 for the difference between risk calibrations and capital charges. We assume here that a reduction in risk calibrations by X% involves a reduction in capital charges of the same percentage.

based on extremely limited data (3 companies). Some of the sectors included in the definition are not represented by data on infrastructure corporates that specialise in that segment (namely, social infrastructure, thermal energy, waste treatment and recycling infrastructure).

EIOPA technical advice contains no fundamental analysis of business models of infrastructure corporates. It is therefore not possible to provide sufficient evidence that the sectors in the definition are safer (or otherwise).

The methodology in the technical advice considered data for listed corporates only, and listed before the 2008 crisis. As a consequence, many infrastructure corporates (especially unlisted, which are key to the telecom sector⁴⁹ and a driver of economic growth) could not be included in the assessment. In particular, the telecom sector is not included in the list of eligible business lines.

Indeed, even within an infrastructure sector, there can be differences between risky investments and safer investments. For example, some infrastructure corporates that sell the electricity they generate at the prevailing market rates (e.g. merchant power) may be more risky than infrastructure corporates that sell the electricity in a regulated market or based on a PPA (power purchase agreement). Therefore it would be inappropriate to rely on the general title "Electricity general" in a broad definition.

EIOPA consultation paper (Section 1.128.) confirms this observation.

"Some easily observable properties (e.g. the type of activities) may not be sufficient to separate lower and higher risk investments. For example, the risk of a corporate that generates power will depend largely on the mechanisms (contracts, markets, regulations) that determine prices and volumes, rather than the fact that it generates power."

In summary, there is no sufficient evidence to argue that the list of infrastructure sectors in the definition is a meaningful representation of safer investments in infrastructure. On the contrary the use of a restricted list of sectors in a definition may incorrectly imply that these sectors are by themselves less risky or that their choice was substantiated by data. This is not the case.

In this option (assuming the Option 2B further below is upheld), all sectors within infrastructure, not only the specified sectors, will benefit from the reductions in risk calibrations and consequently capital charges outlined in the previous section.

The recommended definition is complex and not considered to derive real prudential benefit for investment selection by insurers. As such the qualifying criteria are sufficient to identify ultimately safer investments within infrastructure.

Qualifying criteria

The qualifying criteria play an important role in the identification of safer infrastructure investments. Only those infrastructure corporate investments that meet the qualifying criteria will benefit from the lower calibration.

⁴⁹ For example, circa 30 infrastructure corporates in telecoms could not be included for an assessment under the methodology.

These criteria include (1) infrastructure revenues within the total revenues of the corporate, (2) geographical location of the revenues, (3) predictability of revenues, (4) diversification of revenues, (5) historical performance of 3 years or longer or investment grade quality (i.e. Credit Quality Step of 3 or better). Of these criteria, the one on predictability of revenues is crucial and requires investors to perform the necessary due diligence. These criteria are capable to mitigate the risk from an investor's point of view as they assure that the infrastructure corporate has a stable cash flow. This is important for the valuation of the corporate (equity perspective) but also for the potential servicing of debt (debt perspective).

The effectiveness of these criteria can be explained in the context of the "electricity generation" example above. Infrastructure corporates whose revenues are predictable (e.g. based on the applicable regulation or power purchase agreement) may qualify, whereas other infrastructure corporates whose revenues depend on the day to day pricing of electricity (i.e. so called 'merchant power') will be difficult to qualify under the revenue predictability criteria.

Comparison of policy options against effectiveness, efficiency and coherence criteria

EVALUATION OF OPTIONS ON DEFINITION OF INFRASTRUCTURE CORPORATES

Objectives Policy options	EFFECTIVENESS:			EFFICIENCY	COHERENCE
	Promote infrastructure investment	Ensure risk calibrations are appropriate to Infrastructure Corporates	Ensure consistent treatment between Infrastructure Projects and Infrastructure Corporates		
Baseline Scenario No change	--	-	-	0	0
Option 1A With a list of sectors	+	Not Relevant	+/-	+/-	--
Option 1B Simplified Definition	++	Not Relevant	++	++	++

(Symbols: "--" Very negative, "-" Negative, "0" Neutral, "+" Positive, "++" Very positive)

The baseline scenario (no change) does not address any of the problems identified in section 2.

Option 1A retains the definition based on a list of sectors as per the technical advice. It offers a more appropriate risk calibration only to certain sectors which involves some problems. As the technical advice of EIOPA in infrastructure projects was not based on a list of sectors this option is less coherent than option 1B (potential cliff edge effect). Furthermore, it is less effective concerning the overall policy objectives of the Commission as it excludes important sectors like telecoms. The inclusion of the list of sectors in the definition of infrastructure corporate is not appropriate.

The policy options for "definition" are not directly relevant to address the objective of providing proportionate risk calibrations within Solvency II and hence shown as "not relevant" in the above summary.

In comparison with option 1A, option 1B has no negative impact on the overall EU objectives. Furthermore it is more coherent compared to option 1A offering the insurance undertakings legal certainty once having invested in an infrastructure project under the sector neutral approach. There is no danger of being punished in future for having invested in an infrastructure project maturing in an infrastructure corporate.

Overall, based on the assessment of potential impact on insurers, infrastructure borrowers and the EU objectives, **option 1B is considered the most favourable.**

5.2 Analysis of impact – Risk calibration options

High level impact assessment summary

Options	Stakeholders -> Insurance Companies	Insurance Supervisors	Infrastructure Corporates
Baseline Scenario	Very Negative	Positive	Very Negative
2A - Provide the same risk calibration for qualifying Infrastructure Corporates and Infrastructure Projects	Positive	Very Negative	Positive on Corporates but Negative on Projects
2B - Reduce risk calibration for Infrastructure Corporates by 25% and treat unrated debt at par with BBB rated debt	Positive	Partly Negative	Neutral

Baseline Scenario

In the baseline scenario, the investment by insurers in infrastructure corporates debt will not be facilitated as their risk calibrations will not be different from non-infrastructure investments; despite the lower risk (Annex 12 has details).

Furthermore, insurers may even be discouraged from investing in infrastructure projects, in order to avoid a perceived risk that an infrastructure project may eventually mature into an infrastructure corporate and the applicable risk charges will increase significantly, thus undoing the benefits of the adapted risk calibrations for infrastructure projects carried out in 2015.

Infrastructure corporates that require funding for expansion projects will be at a disproportionate competitive disadvantage compared to newer infrastructure projects, due to higher funding costs demanded by investors. In particular, SME infrastructure corporates which do not have an independent credit rating will need to borrow at a very high funding cost. Indeed, under Solvency II, the risk calibrations are the highest for unrated debt, notwithstanding the safety features of qualifying infrastructure debt.

Insurance supervisors and EIOPA may partially support the baseline scenario (in the context of the debt risk calibration) and consider it to be prudent from a financial stability perspective, particularly as debt investments experienced some short-term volatility in the 2008 crisis. However, insurers are long-term investors in infrastructure and over a longer term horizon the default losses in infrastructure have been significantly lower than non-infrastructure. The consequences of the baseline scenario on the investment behaviour of insurers would be detrimental as it would encourage insurers to select alternative investments that may carry higher risk.

The overall impact of **the baseline scenario on the EU objectives is assessed as negative** due to the impact on insurers as well as the infrastructure corporates.

Option 2A (Same calibrations for infrastructure projects and infrastructure corporates)

Under this option, newer infrastructure projects that involve construction risk and require greater due diligence by investors would be at a disadvantage compared to existing infrastructure corporates. This would not be fully consistent with the Investment Plan for Europe and the option may not encourage investment in new projects despite the support by other EU institutions (e.g. EFSI supported project in which insurers can potentially invest). It would therefore not meet broad European Union objectives.

Insurance supervisors would not support any reduction in risk calibrations for infrastructure corporate debt. Indeed the historical data shows significant differences in recovery rates between secured and unsecured forms of lending whereas the security criteria in the technical advice only apply to projects (see table below shows the differences in recovery rates). Supervisors would almost certainly insist on a differentiated treatment between infrastructure corporates and projects.

The table below shows that in the event of a default, the average recovery in secured debt (which is a criteria for projects) is higher than the recovery in unsecured debt (and infrastructure corporate debt can be unsecured) by about 20 percentage points.

Average Recovery Rates ⁵⁰ for Defaulted Corporate Infrastructure & Project Finance Debt Securities, 1983-2015	
Senior secured	74%
Senior unsecured	56%

⁵⁰ Moody's, "Infrastructure Default and Recovery Rates, 1983-2015", page 22.

Whilst infrastructure corporates would benefit from this option (lower borrowing cost), infrastructure projects will find themselves at a disadvantage (higher borrowing cost, notwithstanding security over assets). This is because infrastructure project borrowers could need to borrow at rates similar to those for infrastructure corporates despite the fact that they provide security on assets.

In response to the EIOPA consultation some respondents asked for providing the same risk calibration for both infrastructure projects and infrastructure corporates. These responses were with reference to the 36% calibration for equities recommended by EIOPA in the consultation paper. As the stakeholders have not provided any evidence to support their demand, it is not advisable to agree to the demand for "same risk calibration" for equities.

The EIOPA consultation paper did not contain specific recommendations on debt and therefore the demand for "same calibration" was only relevant in the context of the equity risk calibration.

In the absence of robust evidence to support the option 2A, it would be received very negatively by insurance supervisors.

In this option, insurance companies' capital requirement against debt will be lower in the range of 30%-40% depending on the credit rating and duration. Infrastructure borrowers may be able to reduce their borrowing costs by upto 1.2%⁵¹.

The evidence and complementary analysis on infrastructure corporate debt do not support providing the same risk calibration as for infrastructure project debt and therefore the option 2A is inferior from a prudential perspective.

The overall impact of option 2A on the EU objectives is considered negative.

Option 2B (25% reduction in debt calibration and unrated debt treated at par with BBB rated debt.)

This option aims to provide risk calibrations that are proportionate to the risks of infrastructure corporate debt investment (relative to non-infrastructure debt).

The risk management requirements in the technical advice ensure that insurers who invest in qualifying infrastructure investments will be able to hold them to maturity. Therefore the ultimate risk faced by these investors is that of credit default losses over a longer term.

Infrastructure corporate debt is typically long term (circa 5 years in the US market and 10 years in the EU market). (This was confirmed at the DG FISMA conference call with Moody's on 17 February 2017). The performance of infrastructure should therefore be compared with non-infrastructure for a longer period (5-10 years). This is known as the credit risk approach. The two approaches (i.e. spread risk approach and the credit risk approach) are complementary. On 20 February 2017, Moody's shared with DG FISMA their methodology entitled "Moody's Market Implied Ratings: Description, Methodology, and Analytical Application", which takes into account both approaches and all information available for financial market instruments.

⁵¹ 40% reduction in risk calibration x 50% capital factor x 6% cost of capital.

EIOPA technical advice

The recommendation in the technical advice was based on limited historical price data of 128 bonds and the losses that insurance companies could incur over a 1 year period. This is known as the spread risk approach and it does not take into account or distinguish between long term performance of investments.

EIOPA's technical advice also showed that infrastructure corporate bonds by 25% less risky than corporate bonds for AA rated bonds, which represents the highest rated category in the portfolio. For other credit ratings i.e. A and BBB, EIOPA found that the spreads can be 50% less volatile (but statistical validity of this observation was limited).

EIOPA declines to recommend any reduction in risk calibrations for infrastructure corporate debt, despite its own findings, since in its view the risk calibration in the Solvency II Delegated Act for all corporate debt is too low. However, the risk calibration for corporate debt in general will be part of the 2018 revision of the Solvency II Delegated Act and is the subject of an ongoing Commission Call for Advice to EIOPA, and thus falls outside the scope of the present exercise.

Complementary assessment based on Moody's data

The credit risk approach clearly distinguishes the differences between infrastructure and non-infrastructure investments and its findings can be summarised as follows:

- Particularly over the investment period 5-10 years and beyond, the probability of default in infrastructure is significantly lower than that for non-infrastructure.
- In the event of a default, significant higher recoveries on infrastructure corporate debt by about 20 percentage points.
- The risk in unrated infrastructure corporate debt can be compared with that for BBB rated debt.
- Overall, the cumulative losses in infrastructure are significantly lower than that for non-infrastructure.

The data used for complementary analysis is based on the credit loss experience over 10 years (from respective dates of investment) on a population of over 1000 rated bonds in infrastructure for the period 1983-2015.

The analysis shows that the risk calibrations for infrastructure corporate debt should be lower than non-infrastructure by approximately 25% (to be precise 24%).

Complementary analysis of value at risk (VaR measure)

Further assessment was conducted on the Value at Risk results in EIOPA's final advice in the context of the actual data of corporate bonds held by EU insurers (for various ratings). The analysis shows that the VaR for infrastructure corporate debt should be lower than non-infrastructure by approximately 25% (to be precise 26%) on a portfolio basis. (Details in Annex 12)

Complementary assessment comparing infrastructure projects and infrastructure corporates

Comparison of expected losses based on historical data shows that the calibration for infrastructure projects should be lower by about 7% compared by infrastructure corporates. The result is consistent with the differences in the calibrations between these two categories in

the option 2B (i.e. 25% reduction for corporates compared to circa 30% reduction for projects).

Based on the above arguments, option 2B recommends a reduction in the risk calibration for qualifying infrastructure corporate debt by 25%.

Option 2B has several advantages for most categories of stakeholders. First, it would overcome the negative impact on the EU objectives pointed out in Options 2A and the baseline scenario.

By retaining a differential in the risk calibrations between projects and corporates, there would be an incentive to invest in new infrastructure projects.

The option significantly reduces potential friction between borrowers which are infrastructure projects and those which are infrastructure corporates, as borrowing costs would be proportionate to the risks involved rather than an artificial "one size fits all" risk calibration for projects and corporates together.

The incremental costs arising from option 2B will be significantly lower than that in option 2A. Such costs would be incurred only by those insurance companies that use the standard formula and wish to invest in infrastructure projects as well as infrastructure corporates and need to demonstrate the correct use of risk calibrations for respective categories. Box 5 below explains the difference between the incremental reporting costs (option 2A) and the administrative cost of the additional calibration (option 2B).

Box 5

Difference between costs of changes to reporting (option 2A) and cost of additional calibration (option 2B)

The additional calibrations can be easily included in Microsoft Excel or other calculations used by insurance undertakings without significant administrative cost.

As the calibrations in Solvency II are legally binding on insurers, the calibrations used do not need to be reported back to supervisors. Therefore no changes to IT reporting systems are required for the new calibrations.

Risk calibrations are at the heart of Solvency II Standard Formula and subject to periodic reviews. Insurance companies will need to incorporate the latest applicable calibrations in their Microsoft Excel or other tools for the purpose of computation of their capital requirement. The administrative cost of introducing new or amended risk calibrations is considered minimal compared to the benefit.

In this option, insurance companies' capital requirement will be lower by up to 27% (against infrastructure corporate equity investments). Infrastructure borrowers may be able to reduce their borrowing costs by upto 1.5% on debt, depending on the credit rating and duration.

Supervisors may still not support option 2B, particularly as the risk calibration for unrated debt is lowered. However, in the case of infrastructure projects unrated debt was treated at par with BBB rated debt due to the similarity of the borrower's business risk and supporting historical data.

Option 2B avoids imposing greater regulatory barriers on unrated SME infrastructure corporates, which business model may be as strong as that of another corporate with a credit

rating (e.g. some water supply companies in a Member State may not have a (public) credit rating on their own, but the investment risk would be the same under the same water regulation of the Member State).

Comparison of policy options against effectiveness, efficiency and coherence criteria

EVALUATION OF DEBT CALIBRATION OPTIONS

Objectives Policy options	EFFECTIVENESS:			EFFICIENCY	COHERENCE
	Promote infrastructure investment	Ensure risk calibrations are appropriate to Infrastructure Corporates	Ensure consistent treatment between Infrastructure Projects and Infrastructure Corporates		
Baseline scenario No change	--	-	Not Relevant	-	-
Option 2A Same calibrations for infrastructure projects and corporates	+/-	-	Not Relevant	+	-
Option 2B 25% reduction in debt calibration and unrated debt treated at par with BBB rated debt	++	++	Not Relevant	++	+

(Symbols: "--" Very negative, "-" Negative, "0" Neutral, "+" Positive, "++" Very positive)

The baseline scenario (no change) does not address any of the problems identified in section 2. This option leaves the insurance undertakings with an inappropriate risk calibration giving the wrong incentives of excessive risk taking by offering an inappropriate risk calibration.

Option 2A offers the same risk calibrations for infrastructure projects and infrastructure corporates. Newer infrastructure projects would be at disadvantage compared to existing infrastructure corporates. This option may not encourage investment in new projects despite the support by other EU institutions (e.g. EFSI supported project in which insurers can potentially invest). It would therefore not meet broad European Union objectives completely.

It is therefore expected that a reduction in risk calibrations for infrastructure corporates will be received negatively by some insurance supervisors. Other supervisors prefer that the calibrations for infrastructure corporates are albeit higher than those for infrastructure projects. The Commission considers that the qualifying criteria are robust to address any prudential concerns and the proposed reduction is backed by evidence in the complementary analysis.

Option 2B would overcome the negative impact on the EU objectives pointed out in options 2B and the baseline scenario. It treats infrastructure projects more advantageous. By retaining a differential in the risk calibrations between projects and corporates, there will be an incentive to invest in new infrastructure projects.

The table below quantifies the benefit of reduced own fund (i.e. capital) requirement.

	Sum invested	Own funds requirement as per standard formula	Own funds requirement as per recommended option
Equity investment in a qualifying infrastructure corporate entity (unlisted)	€100 K	€25 K	€18 K
10y loan or bond - qualifying infrastructure corporate entity (unrated)	€100 K	€10 K	€7.5 K
10y loan or bond – qualifying infrastructure investment (A rated)	€100 K	€5.25 K	€3.9 K

In the above example, insurance companies can invest additional 33.33% in 10 year infrastructure corporate debt with the new calibrations which replace the standard formula.

Impact on capital cost for insurers - The cost of capital in the Solvency II Delegated Regulation is currently prescribed as 6%. If the risk calibrations were not reduced by 25% (in this example for unrated bonds), the insurance companies will continue to incur an additional cost of 1.5% of their capital held against these bonds on an annual basis.

Impact on borrowing cost for infrastructure entities – The above additional cost for insurance companies can only be recovered by increasing the rate of interest rate on infrastructure debt (in the above example) by roughly 15 basis points per annum, if the risk calibrations were not reduced.

Overall, based on the assessment of potential impact on insurers, infrastructure borrowers and the EU objectives, option 2B is considered the most favourable.

6. Overall impact of the package

Taking into account the effect of individual options on all stakeholders, the Commission's preferred approach is based on a combination of Options 1B and 2B, which would impact as follows.

- It is consistent with the Investment Plan for Europe and the Capital Market Union Action Plan and encourages investment in all infrastructure sectors.
- It acknowledges the important role that insurers can play as long term investors in infrastructure and avoids any cliff-edge effect when an infrastructure project matures into a corporate.
- The recommended policy options are consistent with the "Think Small First" principle and avoid any specific negative impact on SME infrastructure corporates. The options 1B and 2B are considered beneficial to small and medium insurance companies as well as the wider SME segment related to infrastructure as providers and users.
- It respects the proportionality of risk calibrations in Solvency II by establishing debt calibrations that are supported by data demonstrating the relative difference between infrastructure corporates and non-infrastructure investments.
- It removes the regulatory barriers to insurers' investment in infrastructure corporates to provide ongoing benefit to EU insurers and EU infrastructure companies.

The Commission's operational objective (based on the recommended policy options 1B and 2B) is to create regulatory conditions so that the investment made by insurance companies in infrastructure doubles over a 10 year period.

Insurers which use the Solvency II standard formula and which choose to invest in infrastructure corporates will incur an extremely small extra reporting cost for those investments, which is far outweighed by the reduction in applicable capital charges.

Building on the Commission's amendment to the Solvency II Delegated Regulation on infrastructure projects, the policy options on infrastructure corporates offer an opportunity for continuous and consistent treatment of infrastructure investments in general. It is considered to best meet the interests of stakeholders in general.

7. Monitoring and evaluation

The amendment to the Delegated Regulation for infrastructure corporates shall be binding on EU insurance companies after its publication in the Official Journal and no transposition is required in Member States.

The Commission shall monitor the trend in infrastructure investment at two levels.

At a higher level (which includes all investor categories including insurers), the Commission is already monitoring the investment in infrastructure as a part of its European Financial Stability and Integration Review ("EFSIR"). The April 2016 issue of EFSIR is available at this [link](#) and the table below contains an extract.

Overview of main indicators ⁶⁰	Last 5-year average	Latest observation	Value
Infrastructure deals completed, value, global	USD 184 billion	2015	USD 143 billion
European project bond issuance, value	EUR 7.2 billion	2014	EUR 15.2 billion
European project loan issuance, value	EUR 42.2 billion	2014	EUR 50.8 billion
Public Private Partnership transactions, Europe	EUR 15.4 billion	2014	EUR 18 billion
Number of projects supported by EFSI	NA	15 Jan 2016	42
EIB financing for EFSI-supported projects	NA	15 Jan 2016	EUR 5.7 billion
Expected total investment in EFSI-supported projects	NA	15 Jan 2016	EUR 25 billion
ELTIFs, number	NA	2016	-
ELTIFs, assets under management	NA	2016	-
Green bonds issuance, global, value	EUR 19 billion	2015	EUR 42 billion

(Source: European Financial Stability and Integration Review, April 2016)

The Commission also plans to monitor infrastructure investments by insurers at a more granular level.

The Solvency II reporting framework already contains the necessary provisions for reporting of various investments including infrastructure projects and corporates. This information will be collected by the national supervisors as well as EIOPA as a part of the mandatory reporting under Solvency II. The Commission may obtain the aggregate data from EIOPA as a part of the annual report on Long Term Guarantee Measures⁵² and monitor the growth in infrastructure investment by insurers and its trend at a more granular level.

Prior to the Solvency II Directive, an equivalent reporting provision did not exist and the first consolidated reporting by insurance companies shall start from June 2017, thereby enabling additional monitoring by the Commission.

An ex-post evaluation of Solvency II is foreseen by Article 111(3) of the Solvency II Directive.⁵³

⁵² Article 77f of the Solvency II Directive "Review of long-term guarantees measures and measures on equity risk".

⁵³ "By 31 December 2020, the Commission shall make an assessment of the appropriateness of the methods, assumptions and standard parameters used when calculating the Solvency Capital Requirement standard formula. It shall in particular take into account the performance of any asset class and financial instruments, the behaviour of investors in those assets and financial instruments as well as developments in international standard setting in financial services."

Annex 1– Glossary

Capital Market Union (CMU)	A plan of the European Commission to mobilise capital in Europe. It will channel it to all companies, including SMEs, and infrastructure projects that need it to expand and create jobs. By linking savings with growth, it will offer new opportunities for savers and investors.
Debt	Borrowings in the form of loans or bonds.
Delegated Acts	Article 290 of the TFEU allows the EU legislator to delegate to the Commission the power to adopt non-legislative acts of general application that supplement or amend certain non-essential elements of a legislative act. For example, in Solvency II, the EU legislators have delegated the power to the Commission to prescribe the standard calibration.
Digital Single Market	A Digital Single Market (DSM) is one in which the free movement of persons, services and capital is ensured and where the individuals and businesses can seamlessly access and exercise online activities under conditions of fair competition, and a high level of consumer and personal data protection, irrespective of their nationality or place of residence. The European Commission has identified the completion of the Digital Single Market (DSM) as one of its 10 political priorities. Vice-President Andrus Ansip leads the project team "A Connected Digital Single Market".
Directive	A legislative act of the European Union, which requires Member States to achieve a particular result without dictating the means of achieving that result. A Directive therefore needs to be transposed into national law contrary to regulations that have direct applicability.
EIOPA	EIOPA is the European Insurance and Occupational Pensions Authority, which replaced CEIOPS on 1 January 2011 in the context of European System of Financial Supervision. It is an independent advisory body to the European Parliament, the Council of the European Union and the European Commission. EIOPA's core responsibilities are to support the stability of the financial system, transparency of markets and financial products as well as the protection of insurance policyholders, pension scheme members and beneficiaries.
Infrastructure	'Infrastructure assets' means physical assets, structures or facilities, systems and networks that provide or support essential public services.
Infrastructure projects	Infrastructure projects are entities that typically set up a new project which involves the construction phase of a project. These entities usually provide security over all assets to their lenders and do not earn any

	revenues from sources other than infrastructure.
Infrastructure corporates	Infrastructure corporates are entities that have matured into the operational phase beyond the construction phase. In some instances, an infrastructure corporate may undertake a new projects (e.g. for expansion or modernisation) and in such cases it will still be recognised as an infrastructure corporate.
Investment Plan for Europe	<p>First announced at the end of 2014, the Investment Plan for Europe aims to boost economic growth, jobs and investment. The plan comprises three pillars:</p> <p>(i) mobilising at least € 315 billion of investment over three years, , via the European Fund for Strategic Investments (EFSI);</p> <p>(ii) supporting investment in the real economy by providing visibility and technical assistance via the European Investment Advisory Hub (EIAH) and the European Investment Project Portal (EIPP); and</p> <p>(iii) improving the investment environment in the EU.</p> <p>In September 2016, the Commission proposed to increase the duration and financing capacity of EFSI to EUR 500 billion for the period until 2020.</p>
LTIIA	Founded in 2014 by investors and for investors, the Long Term Infrastructure Investors Association works with a wide range of stakeholders, including infrastructure investors, policy-makers and academia, on supporting long-term, responsible deployment of private capital to public infrastructure around the world. most of our members are institutional investors and fund managers with responsibilities over long-term and open-ended infrastructure investment mandates.
OECD	The Organisation for Economic Co-operation and Development is an international economic organisation of 34 countries founded in 1961 to stimulate economic progress and world trade.
Omnibus II	The original purpose of this directive proposed by the Commission in January 2011 ⁵⁴ was to operationalize the powers of the newly-created EIOPA, but the proposal was used to introduce substantive modifications to Solvency II. It took nearly three years of negotiations until a carefully balanced package of several measures was agreed in November 2013, in particular a package of measures to assist insurers to continue to provide insurance products with long-term guarantees, by avoiding artificial volatility on their balance sheet.
Regulation	A legislative act of the European Union which has direct legal effect in the Member States' regulatory order.

⁵⁴ COM/2011/38 final.

Risk Charge	<i>(See Standard Calibration)</i>
SCR	Solvency Capital Requirement. This is the main capital requirement for insurance and reinsurance undertaking under Solvency II. It is calibrated on a 99.5% value-at-risk benchmark (i.e. higher than the SCR) and can be calculated on the basis of a standard formula or internal models developed by undertakings and approved by supervisory authorities. Breach of the SCR is the first step of supervisory intervention (see article 100 and ff. and article 138 of Directive 2009/138/EC).
Solvency I	Solvency I is used as a general term to refer to the set of 14 directives currently applicable in the insurance and reinsurance sector (including a directive dating back to 1973). It was replaced by the Solvency II directive, as amended by Omnibus II, on 1 January 2016.
Solvency II	Solvency II is the name given to Directive 2009/138/EC, as modified by the Omnibus II directive. Solvency II introduced a modern risk-based prudential regime.
Spread	The spread on a debt instrument (bond or loan) is the difference in yield between this instrument and a risk-free interest rate, reflecting the credit risk faced by an investor buying this instrument. The spread therefore reflects the additional net yield an investor can earn from a security with more credit risk relative to one with less credit risk. The spread of a given debt instrument fluctuates over time, reflecting changes in liquidity and in investors' perception of credit risk.
Standard Calibration	Refers to the prescribes standards for the measurement of risk in Solvency II. For example, for unlisted equity investments the standard calibration is 49%. "Standard Calibration" is also known as "Risk Charge" or "Risk calibrations" in different reports.
Standard Parameter	<i>(See Standard Calibration)</i>
Value at Risk (VaR)	Value-at-risk is the risk measure prescribed in Solvency II. The SCR must be calibrated on the 99,5% VaR of own funds over a one year horizon, which means that the SCR is a buffer that can absorb the worst possible loss faced by an undertaking in any given year, with a 99,5% level of confidence.
Volatility	The change in value of a certain variable (price, interest rate...) in a period of time

Annex 2 – Risk calibrations in Solvency II and Capital charges for banks

It is important to ensure as much consistency as possible across financial sectors to favour the development of a new and resilient investor base while avoiding arbitrage opportunities.

First, it is desirable that definitions of asset classes are as consistent as possible in different sectoral regulations. For instance, the definition of simpler, more transparent securitisations referred to in question 3 above, is consistent with the definition set out in the implementing rules on banks' Liquidity Coverage Ratio (see [MEMO/14/579](#)).

Second, it is desirable that relative capital requirements on different asset classes are comparable across sectors, e.g. the relative ranking in terms of riskiness of equities versus corporate bonds should be as consistent as possible.

However, a strict alignment of capital requirements in banks and insurance would not be appropriate, as the risk measures are very different. Indeed, a direct comparison of the capital calibrations for market and credit risk is not meaningful for a number of reasons:

- Different risk measures are applied in arriving at the capital requirements applied under Solvency II and under the banking frameworks. Under Solvency II, capital requirements are determined on the basis of a 99.5% value-at-risk measure over one year, meaning that enough capital must be held to cover the market-consistent losses that may occur over the next year with a confidence level of 99.5%, resulting from changes in market values of assets held by insurers. By contrast, under CRR/CRDIV, the risk measure is a 99% value-at-risk measure over 10 days for the trading book, while risk weightings in the banking book capture credit risk, not market-consistent price fluctuations. The different risk measures applied mean that the resultant capital charges should in any event not be identical.
- In contrast to the risk weights applicable to the banking book, the risk factors in Solvency II do not translate directly into capital requirements. Risk factors in Solvency II are applied as stress scenarios on asset values, and the capital requirement is equal to the net impact on own funds, taking into account the entire balance sheet. Therefore:
 - Capital requirements in Solvency II depend on diversification between different sources of risk and the loss-absorbing effect of discretionary benefits and deferred taxes. These combined effects can reduce the capital charge resulting from the stress factors by about half.
 - Capital requirements in Solvency II depend on the liabilities of each undertaking. The better the asset proceeds match the liabilities of an undertaking in all the various stressed scenarios, the lower the final capital charge will be. A particular example of this is the interest rate stress, which is lowest when the timing of future asset and liability cash-flows are matched and remain matched under stress.

Annex 3 – Stakeholders (Who is affected and how)

1. Insurance companies

Insurance companies (particularly life insurance companies) require long term investments such as infrastructure investments to support their long term commitments to their policyholders. The capital required to be held by insurance companies is determined by their liabilities profile as well as risk calibrations on their investments. Under Solvency II the risk calibrations are specified in the Delegated Regulation and as a consequence, insurance companies are one of the stakeholders. These insurance companies are in a better position to fulfil their obligations to their policyholders through investments in safer infrastructure investments. The interest of the policyholders in this context are aligned to those of the insurance companies.

2. Infrastructure corporates (i.e.issuers of equity and borrowers of debt in infrastructure)

The work leading to the Investment Plan for Europe has already identified a significant requirement for investment in infrastructure. This investment is mainly in two classes of investment namely equity and debt. The cost of funding by infrastructure companies (projects as well as corporates) is influenced by the risk calibrations in the Delegated Regulation. Furthermore, a sector based approach in the technical advice could be unfavourable to infrastructure companies that are not in the list of sectors. Finally, smaller infrastructure companies that do not have a credit rating may be at a disadvantage. Therefore infrastructure companies are included as a stakeholder category.

3. Insurance supervisors

The interest of insurance supervisors is to ensure that the insurers which they supervise are financially sound and the policyholders are protected.

In discussions at the Board of Supervisors of EIOPA, some national supervisors observed that financial soundness is the main purpose of Solvency II and that in their view revisions to the risk calibrations to support the CMU are not warranted. Insurance Supervisors are included as one stakeholder category.

Annex 4 – Examples of infrastructure projects and corporates

Based on publicly available information⁵⁵ from various sources, here are some examples of infrastructure projects and infrastructure corporates in various sectors and Member States. The list is not exhaustive and a case-by-case evaluation will be required to determine if these investment meet the qualifying criteria.

Infrastructure projects

Member State(s)	Type of Infrastructure	Capacity / description	Investment size
France, Spain	High voltage electricity transmission lines	65 km of lines with 2 gigawatt capacity	Construction cost of € 700 million
Slovakia	Motorway	27 km of the motorway around Bratislava	Over €1 billion, of which the EIB facility is € 426 million
United Kingdom	Deep sea container terminal	Contain terminal at the Bristol Port	£600 million funded privately.
Germany	Motorway	Widening of a 25.5km section of the A6 motorway between Wiesloch-Rauenberg and Weinsberg - overall section of 47.1km including a viaduct of 1.3km.	Total cost (not disclosed) of which EIB financing is € 250 million
Poland	District Heating	About 500 companies* totalling 58 GW of installed capacity	Total cost not available
France	Core telecom infrastructure	Axione example - Over 22,000 km of networks to reduce disparities in access to digital services and has helped 143 local telecommunications companies to expand, thus indirectly contributing to creating 6,300 jobs	Cost varies by individual project (details not available)

*Some of these projects will be taken up by existing infrastructure companies and classified as "infrastructure corporates".

⁵⁵ The list is not exhaustive and a case-by-case evaluation will be required to determine if these investments meet the qualifying criteria.

Infrastructure corporates

Member State(s)	Type of Infrastructure	Name	Comments
Estonia	Airport	Talinn Airport	EIB loan of €30 million to finance expansion and modernisation
United Kingdom	Electricity and gas	National Grid plc	Established infrastructure corporate with largely stable cashflows in the UK.
Germany	Renewable Energy	Centrosolar#	In 2008, following 10 months of construction, Centrosolar opened a 47,000 square-meter, 150 MW solar module factory in Wismar, Germany. The €23 million facility has created 250 new jobs in Wismar.
Sweden	Core telecom infrastructure	AB Stokab#	Stokab leases fibre optic networks that telecom operators, businesses, local authorities and organisations use for digital communications. Leasing agreements are structured on favorable terms to encourage IT development and strong growth in the Stockholm region.

The entity is now an infrastructure corporate although it started as an infrastructure project.

Annex 5 - List of consultations

Extensive consultations have been held by the European Insurance and Occupational Pensions Authority (EIOPA) prior to the issue of technical advices on infrastructure investments and infrastructure corporates.

Date(s)	Nature of the consultation	Scope	Profile of respondents
2 July 2015 to 9 August 2015	Public Consultation	Infrastructure ⁵⁶	Experts and Investors
19 November 2015 to 10 December 2015	Call for Evidence	Infrastructure corporates	Investment Experts, Investors, Rating Agency
December 2015	Target Consultation	Infrastructure corporates	"Insurance and Reinsurance Stakeholder Group"
12 February 2016	Roundtable with Experts	Infrastructure corporates	Investment Experts, Investors, Rating Agency
15 April 2016 to 16 May 2016	Public Consultation	Infrastructure corporates	17 respondents including insurance companies, associations, rating agency and telecoms industry
7 June 2016	Presentation by EIOPA – Expert Group Discussion	Infrastructure corporates	Expert Group on Banking Payments and Insurance
18 October 2016	Presentation by Commission (DG FISMA) – Expert Group Discussion	Infrastructure corporates	Expert Group on Banking Payments and Insurance

In addition to the above, EIOPA held a number of conference calls with experts from rating agencies, academia, law firms, insurers and insurance associations.

⁵⁶ Although the technical advice of 29 September 2015 was available only for infrastructure projects due to timing constraints, the process of consultation covered all infrastructure investments including corporates.

Annex 6 – Synopsis of consultations

Extracts relating to sectors and debt risk calibration

Executive summary

Synopsis by stakeholder category:

Stakeholder category	Views on sectors	Views on calibration
Insurance companies	Preferred a wider list of eligible sectors and provided examples of sectors important from the European growth perspective that could be included.	Prefer the same calibrations for qualifying infrastructure projects and infrastructure corporates. Pointed out that a large number of infrastructure investments are unlisted and privately rated.
Infrastructure companies	Strongly opposed to the exclusion of Telecom companies. Pointed out that all essential public services in infrastructure carry similar (lower risk) due to the nature of their revenue model.	Pointed out that the data on listed companies is not representative of various safe investments in infrastructure.
Insurance supervisors	Prefer the list of sectors as per the Technical Advice based on data.	Prefer to retain the risk calibrations as per the Technical Advice.

Overall observations relating to sectors:

- A sector based approach would lead to the exclusion of telecom infrastructure, (including broadband networks that are part of essential public services, mobile tower companies, and satellite systems), utilities in the digital infrastructure, ports, strategic electrical or non-electrical energy storage facilities, district heating, and water irrigation systems.
- As the definition of qualifying infrastructure projects is not based on a list of sectors, the inclusion of a list of sectors for infrastructure corporates may create the issue of “organisational arbitrage” and “cliff edges” owners or as a consequence of the project being sold off to an entity that prefers the corporate set up.

- Respondents pointed out to the common feature of these infrastructure sectors i.e. "essential public service" nature.

Equity calibration – Demand for "same calibration":

- A number of respondents to pointed out to the "similar risk, similar calibration" principle and argued that the calibrations for infrastructure projects should be extended to infrastructure corporates. This referred to the 36% calibration recommended by EIOPA for infrastructure corporates equity investment (compared to 30% for infrastructure projects). EIOPA had not recommended a specific calibration for debt in the public consultation paper.

Debt calibration – Rated and unrated debt:

- All respondents pointed out to previous studies and research which demonstrates that infrastructure corporate investments are less risky than non-infrastructure investments. Infrastructure debt securities have lower probabilities of default, lower rating volatility and 20%-22% higher recover rates in the case of default.
- The credit rating agency Moody's has reviewed the credit defaults and recovery rates in infrastructure investments since 1983, which includes the global financial crisis of 2008-09. Their studies confirm that infrastructure investments carry a lower risk than non-infrastructure.

Specific points on unrated debt:

- Respondents considered that the qualifying criteria such as revenue predictability for unrated assets were sufficient to manage the investment risk.
- Some respondents also pointed out that in the interest of long term stability not to tie all criteria to ECAI ratings.
- Respondents pointed that the rating requirement is usually linked to the public debt issuance, whereas in the case of private debt it is not uncommon for lenders not to require a rating assessment.

Detailed extracts from responses to the public consultation

(All page numbers refer to the Annex VII of the Technical Advice)

Abbreviations (Respondents)

AFG	:	Association Française de la Gestion financière
AFME	:	Association for Financial Markets in Europe
Finance Norway:		Finans Norge
FIRIP	:	Fédération des Industriels des Réseaux d'Initiative Publique
FTTH	:	(Fibre To The Home) FTTH Council Europe
GDV	:	German Insurance Association
ICMA	:	International Capital Market Association
IRSG	:	International Regulatory Strategy Group
LTIIA	:	Long Term Infrastructure Investors Association
OPSG	:	Occupational Pensions Stakeholder Group
Stockab	:	AB Stockab, Stockholm
VAHTA	:	VAHTA Telekomunikacije in nove tehnologije, d.o.o

Respondent	Page Number(s)	Key points in the response
1. RESPONSES RELATING TO SECTORS		
AFG	Annex VII Page 77	We believe that the sectorial scope of infrastructure corporates should cover sectors such as telecom infrastructure, which in particular includes high speed broadband networks that are key in many EU members' national investment plans, part of essential public services and often developed within a framework that satisfies the eligibility criteria.
FIRIP	Page 79	<p>First of all we are quite surprised by your analysis of the Telecom Infrastructure risk based only on the high volatility of telecom sector shares.</p> <p>Second of all we would point that you have to consider separately the infrastructure from the service, such as any other Transport infrastructure.</p> <p>Third of all within the past ten years an open access model based on fibre optic cable have been developed with success all around the world and specifically in France, where we have applied the Concession model to the Telecom business for Local Authorities.</p>
Insurance Europe	Page 86	<p>It should be considered that, over time, an infrastructure project may become incorporated — either as the result of a decision by the entities used for analysis”</p> <p>Regarding the issue of “organisational arbitrage” and “cliff edges” owners or as a consequence of the project being sold off to an entity that prefers the corporate setup. It is very important to avoid “cliff edges”, where capital charges change from one day to the next simply because of a change in legal setup.</p>

Respondent	Page Number(s)	Key points in the response
The Investment Association	Page 89	<p>The current definition of “infrastructure corporate” would exclude:</p> <p>..</p> <ul style="list-style-type: none"> o Telecoms infrastructure, even where there is a strong social benefit and it is possible to separate infrastructure revenues from consumer goods revenues; o Energy storage facilities. <p>..</p>
Vahta	Page 96	<p>It should be noted, at list for some types of infrastructure, and more specifically those directly serving a big number of end users with services that are of vital importance for normal physical and social life on every day basis (like water, sewage, electricity, telecommunications, waste collection and similar) the risk of churn (a user disconnecting from the infrastructure service) is practically zero. This makes a big difference if compared to other types of infrastructure (like ports and highways), where choice of use between different infrastructures is possible.</p>
Stokab	Page 126	<p>When assessing the telecom sector and telecom investments in terms of risk, it is necessary to distinguish between the different layers of the value chain, inter alia the infrastructure/wholesale level and the end consumer level, and, in this case, assess the infrastructure/wholesale level separately.</p> <p>Against this background, we therefore strongly urge EIOPA to carefully analyse (i) the infrastructure/wholesale level of the telecom value chain separately, not only as a part of the telecommunication industry as a whole, and (ii) the utility aspects of the Swedish digital infrastructure sector.</p>

Respondent	Page Number(s)	Key points in the response
<p>Similar responses from</p> <p>AFME-ICMA</p> <p>Insurance Europe</p>	<p>Pages 131, 155</p> <p>Page 138</p>	<p>We consider that some telecom investments (ownership and operation of telecom networks and infrastructure which have high barriers to entry) should be incorporated in the infrastructure corporate definition as set out in the EIOPA’s proposed definition set out in paragraph 1.132 of the consultation paper (see below, Section 8.4, second paragraph). We do not agree that telecom operators operating under concession should not be treated as infrastructure corporates since their underlying activities can exhibit the same feature as the regulated infrastructure corporates.</p> <p>Some other infrastructure sectors are not listed because they usually don’t have any publicly traded bonds or equities but this does not mean they are not part of the core infrastructure universe:</p> <ul style="list-style-type: none"> • Strategic electrical or non-electrical energy storage • Water irrigation systems ... <p>Please note that those proposed additional sectors are already covered by the project entity framework for SPVs only as long as they comply with the criteria.</p>
<p>FTTH Europe</p>	<p>Page 135</p>	<p>The respondent suggested for a more granular analysis and pointed to the potential exclusion of mobile tower companies, data centre companies and wholesale network operators.</p>
<p>Similar responses –</p> <p>GDV</p> <p>Insurance Europe</p>	<p>Page 136</p> <p>Page 137</p>	<p>Communication towers and other telecom such as optic fibre, mobile networks as well as satellite systems financing could be considered as core infrastructure assets.</p>
<p>GDV</p>	<p>Page 158</p>	<p>GDV believes that the following sectors should be included in the scope:</p> <p>Telecom operators operating under concession;</p>

Respondent	Page Number(s)	Key points in the response
		<p>Communication infrastructure such as towers and other mass telecom;</p> <p>Electrical or non-electrical energy storage;</p> <p>...</p> <p>Given that district heating is more energy efficient, reduces carbon emission (solar or geothermal sourced heat) and is indirectly incorporated in the European Union energy policy via the Combined Heat and Power (CHP) Directive, GDV would consider the inclusion of district heating coherent with wider EU objectives.</p>
IRSG	Page 152	<p>Notably, the following sectors would fall outside the current scope and could instead be included in the scope:</p> <ul style="list-style-type: none"> • Communication towers and other mass telecom (ex: optic fibre, mobile) networks as well as satellite systems financing should be considered as core infrastructure assets • Strategic electrical or non-electrical energy storage • Water irrigation system <p>...</p>
2. RESPONSES RELATING TO CALIBRATION		
<p>The following responses have been similar in nature</p> <p>IRSG</p> <p>AFME-ICMA</p>	<p>Annex VII</p> <p>Page 61-63</p> <p>Page 70</p>	<p>We also believe that the current calibration of infrastructure corporates is based on “normal” corporates, and there is proof that non-infrastructure corporates are more risky than infrastructure corporates which makes the current calibration unnecessarily conservative and punitive.</p> <p>Where eligible infrastructure corporates (“qualifying infrastructure corporates”) and infrastructure project finance entities have sufficiently similar risk profiles, applying the same capital treatment is justified.</p> <p>We do not believe that EIOPA has developed a persuasive argument as to why corporate structures entail more risk than projects (or SPVs). The data previously supplied from two separate Moody’s reports, including Moody’s</p>

Respondent	Page Number(s)	Key points in the response																					
		<p>Infrastructure Finance Default Study (9 March 2015) highlights average recovery for project finance debt of 80%, and for senior secured infrastructure debt of 75%, versus 53% for senior secured corporates and 37% for senior unsecured corporates (see table below).</p> <hr/> <p>EXHIBIT 17 Recovery Rates for Defaulted Corporate Infrastructure Debts</p> <table border="1"> <thead> <tr> <th data-bbox="644 663 687 680">Sector</th> <th data-bbox="1123 663 1214 680">Senior Secured</th> <th data-bbox="1251 663 1342 680">Senior Unsecured</th> </tr> </thead> <tbody> <tr> <td data-bbox="644 689 703 707">Utilities</td> <td data-bbox="1171 689 1203 707">76%</td> <td data-bbox="1315 689 1347 707">58%</td> </tr> <tr> <td data-bbox="676 719 895 736">Regulated E&G Utilities and Networks</td> <td data-bbox="1171 719 1203 736">83%</td> <td data-bbox="1315 719 1347 736">63%</td> </tr> <tr> <td data-bbox="676 748 887 766">Unregulated E&G Utilities and Power</td> <td data-bbox="1171 748 1203 766">80%</td> <td data-bbox="1315 748 1347 766">55%</td> </tr> <tr> <td data-bbox="644 777 743 795">Transportation</td> <td data-bbox="1171 777 1203 795">74%</td> <td data-bbox="1315 777 1347 795">n/a</td> </tr> <tr> <td data-bbox="644 806 927 824">Average Corporate Infrastructure Debt Securities</td> <td data-bbox="1171 806 1203 824">75%</td> <td data-bbox="1315 806 1347 824">57%</td> </tr> <tr> <td data-bbox="644 835 879 853">Average Non-Financial Corporate Issuers</td> <td data-bbox="1171 835 1203 853">53%</td> <td data-bbox="1315 835 1347 853">37%</td> </tr> </tbody> </table> <p>Source: Moody's</p> <p>It's very important to avoid “cliff edges” where capital charges change from one day to the next simply because of a change in legal setup.</p>	Sector	Senior Secured	Senior Unsecured	Utilities	76%	58%	Regulated E&G Utilities and Networks	83%	63%	Unregulated E&G Utilities and Power	80%	55%	Transportation	74%	n/a	Average Corporate Infrastructure Debt Securities	75%	57%	Average Non-Financial Corporate Issuers	53%	37%
Sector	Senior Secured	Senior Unsecured																					
Utilities	76%	58%																					
Regulated E&G Utilities and Networks	83%	63%																					
Unregulated E&G Utilities and Power	80%	55%																					
Transportation	74%	n/a																					
Average Corporate Infrastructure Debt Securities	75%	57%																					
Average Non-Financial Corporate Issuers	53%	37%																					
OPSG	Page 67	<p>"This makes obvious sense in the case of infrastructure, where there is academic evidence that this asset class often exhibits significantly lower risks compared to other equity/corporate debt risks*"</p> <p>*A few relevant studies on infrastructure include:</p> <ul style="list-style-type: none"> • Moody's (2015) study on “Infrastructure Default and Recovery Rates, 19832014” has shown lower probabilities of defaults (PD) and LGD statistics and lower rating volatility for all rating classes, including Aaa and Aa. • A study by BlancBrude/Whittaker (2015) , notes that the Private Finance Initiative (PFI) portfolio, composed of securities listed on the London Stock Exchange, predominantly exhibits higher returns than the market, with much lower drawdown and tail risks and very little, or no correlation with the market. 																					
Finance Norway	Page 77	When calibrating the capital charges for infrastructure																					

Respondent	Page Number(s)	Key points in the response
		investments, we urge EIOPA to heed the “same risk, same rules, same capital charge” principle. Thus, where eligible infrastructure corporates and infrastructure project entities have sufficiently similar risk profiles, the same capital treatment should be applied.
GDV	Page 81	Calibration for infrastructure projects should be expanded to qualifying infrastructure corporates, provided that risk profiles are identified as being similar.
Insurance Europe	Page 83	It has strong concerns ...and would strongly argue that the capital approach of project finance should be extended to qualifying corporates.
The following responses are similar IRSG AFME-ICMA	Page 85 Page 95	It would be most helpful to also look at default and recovery statistics to the extent they are available for infrastructure corporates and others, which we believe show less default / higher recoveries. Again, we would refer to Moody’s Infrastructure Finance Default Study (9 March 2015).
Vahta	Page 97	It should be noted, that not only “Infrastructure provides a relatively low credit risk alternative to government bonds.”, but we should look deeper. The issue is that if the analysis is done properly, the infrastructure bond in a specific country could not be riskier than the country’s government bond!
Insurance Europe	Page 98	In addition, as far as diversified corporates are concerned, and as mentioned by EIOPA in paragraphs 1.73&1.75, there is evidence that cash flows and revenues stemming from infrastructure corporates’ activities are significantly less volatile than traditional corporates of similar size, leverage and profitability. This is an additional reason why the calibration of infrastructure corporates should reflect this much lower volatility than for traditional corporates.

Respondent	Page Number(s)	Key points in the response
LTIIA	Page 122	<p>We encourage further analysis of the outcomes from EDHEC’s work in arriving at EIOPA’s final advice (BlancBrude F, Hasan M and Whittaker T, Revenue and dividend pay-outs in privately held infrastructure investments: Evidence from 15 years of UK data, Singapore: EDHEC Risk Institute, 2016). Notwithstanding the limitations, the paper provides a clear quantitative evidence that infrastructure equities – whether in SPVs or in corporates – are featuring lower risk profile than equities in similar non-infrastructure firms.</p>

Respondent	Page Number(s)	Key points in the response
Moody's	Page 123	<p>We highlight the following extracts from our report "Infrastructure Default and Recovery Rates, 1983-2014" which show that the rating volatility of Moody's-rated infrastructure corporates has been lower than that of non-financial corporates (NFCs), notably during 2008-09:</p> <ul style="list-style-type: none"> " ... Exhibit 8 compares the rating volatility for total infrastructure securities with that for global NFC issuers. The rating volatility, the sum of the notch& weighted upgrade and downgrade ratios, measures the gross average number of notches a portfolio of securities has changed over a twelve-month period. ..." <div data-bbox="635 831 1401 1211" style="text-align: center;"> <p>EXHIBIT 8 Rating Volatility for Total Infrastructure Securities and Non-Financial Corporate Issuers</p> <p>Legend: Non-Financial Corporate Issuers (Green), Total Infrastructure Securities (Blue)</p> <p>Y-axis: Notch wtd Volatility (0.0 to 0.8)</p> <p>X-axis: Year (83 to 14)</p> </div>
3. RESPONSES SPECIFIC TO UNRATED DEBT		
<p>Similar responses from</p> <p>IRSG</p> <p>AFME-ICMA</p>	<p>Page 140</p> <p>Page 141</p>	<p>IRSG believes that the majority of corporate infrastructure debt have an ECAI rating as most public debt issuance effectively requires such rating; however, it is not uncommon for lenders in private debt not to require a rating assessment.</p> <p>Since the criteria for debt without an ECAI rating have already been developed for project debt, IRSG suggests adopting similar albeit tailored criteria to the context of corporates rather than imposing an ECAI rating for corporates as a qualification requirement. IRSG does not</p>

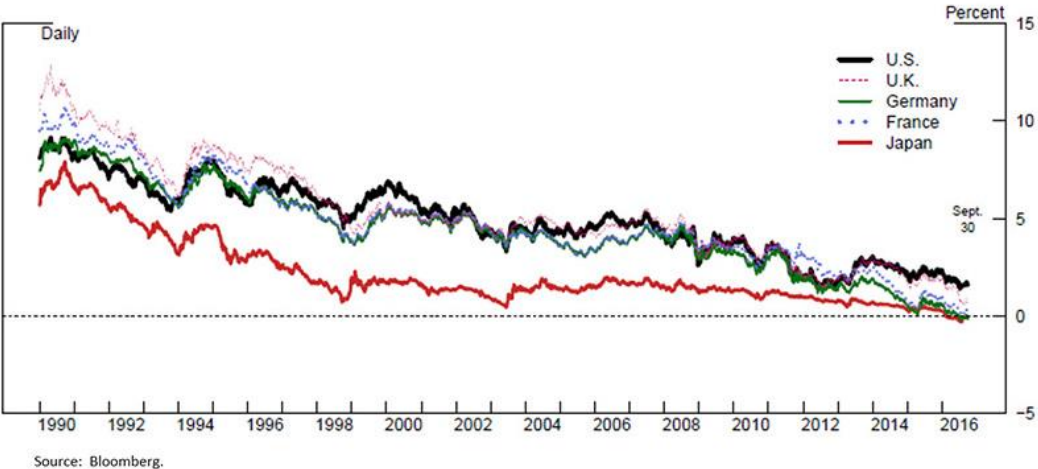
Respondent	Page Number(s)	Key points in the response
		believe it is in the interest of long-term stability to tie all criteria to ECAI ratings. IRSG also strongly recommends that the ECAI be an appropriately EU regulated ECAI.
AFG	Pages 77-	We propose that the qualifying criteria for revenue predictability, when such revenues are not funded by a large number of users, should also be considered as satisfied when the purchasers of goods and services provided by the infrastructure corporate or project, while unrated , feature a low and evidenced counterparty risk.
AFME-ICMA	Page 156	We are aware of a number of deals e.g. in the Ports sector which have private ratings. There have been recent examples of built solar and wind generation debt issuance which does not have a rating and has less than 5 years operational history. Renewable energy generation is a growing asset class which appeals to insurers not only for its potential for stability but also for its environmental benefits.
IRSG	Page 153	There are a number of deals e.g. in the Ports sector which have private ratings.
GDV	Page 142	GDV believes that compliance with the criteria for infrastructure project finance including necessary adjustments would be sufficient.
Insurance Europe	Page 142	Insurance Europe believes that compliance with the additional criteria (revised to allow the inclusion of corporates) is enough and no further criteria are needed.
LTIIA	Page 142	Majority of corporate infrastructure debt has an ECAI rating, however, is not uncommon for lenders in certain sectors not to require a rating assessment. For example, it is the case for port and terminal assets that are often credited by specialized banks. Since the criteria for debt without an ECAI rating have already been developed for

Respondent	Page Number(s)	Key points in the response
		project debt, we would suggest adopting those criteria to the context of corporates rather than imposing an ECAI rating for corporates as a qualification requirement.

Annex 7 – Low interest rate environment context

Insurance companies, particularly life insurers, have historically invested in long term investments in order to meet their long term liabilities to the policyholders. Such long terms investments used are and have been government bonds of long maturities. However, in the current low interest rate environment where sovereign yields are at historical lows (see picture), insurers require a robust alternative to government bonds such as infrastructure investments.

Figure 2: 10-Year Sovereign Yields



Annex 8 – Sectors within infrastructure – what makes the investment safer?

The definition in the Technical Advice enlists some sectors within infrastructure by their general title (e.g. 'water and waste water'). However, not all investments that can be loosely associated with the general title are infrastructure investments. Even within a particular sector, there can be differences in the investment risk. The illustrative table is non-exhaustive and provides examples of infrastructure entities within each sector and the typical considerations in determining the safety of investment.

General name	What is infrastructure	What is not infrastructure	What typically makes the infrastructure safer*
Water and waste water	Water supply / distribution Waste water collection / treatment	Fixing domestic leakages (<i>although some infrastructure companies offer this as an optional product</i>)	Regulation relating to long term concessions or pricing or return-on-assets or profit margin.
Waste management and recycling	Facilities dedicated to waste management and recycling for the population.	Using spare parts from scrapped vehicles for other vehicles.	Long term concessions usually with the involvement of a local government or council.
Electricity and Gas	Generation / transmission / distribution / storage / district heating	Batteries used in electric cars Insulation of houses (<i>although some infrastructure companies or local governments may offer this service as an optional product with or without subsidy</i>)	Regulation relating to long term concessions or pricing or return-on-assets or profit margin. In some cases, availability based infrastructure can be safer than demand based infrastructure.
Transportation	Airports / ports / roadways / railway network	Car, aircraft, boat manufacture Spare parts for aircrafts, etc.	Long term concessions or agreements usually with the involvement of a local government or council.

General name	What is infrastructure	What is not infrastructure	What typically makes the infrastructure safer*
			Demand for such services.
Telecom	Core telecom infrastructure such as broadband equipment, optical fibres, radio masts, etc. without which telecom services cannot reach the public.	Production and selling of phone instruments with or without a contract with the end consumer. Facilities for private use.	Long term contracts, mostly B2B.
Social infrastructure	Infrastructure for public use supported by a government or a similar authority. (E.g. Courts, public libraries, prisons, juvenile facilities, refugee camps, social housing for poor population, government owned hospitals, national museums etc.).	Privately owned universities, hospitals, museums etc. Assets belonging to individual charities or organisations (e.g. YMCA)	The infrastructure facility is consistent with the social policies of the relevant government. The revenues are usually availability based.

* It is expected that the credit quality step of a debt asset will take into account various risks relevant to the investment.

Annex 9 – Revised debt risk calibrations (Recommended option)

Bonds and Loans (S2 Standard Formula)

Credit quality step		0		1		2		3	
Duration	Stress	a_i	b_i	a_i	b_i	a_i	b_i	a_i	b_i
upto 5	$b_i \cdot dur_i$	0	0,9%	0	1,10%	0	1,4%	0	2,50%
More than 5 and up to 10	$a_i + b_i \cdot (dur_i - 5)$	4,50%	0,50%	5,50%	0,60%	7%	0,70%	12,50%	1,5%
More than 10 and up to 15	$a_i + b_i \cdot (dur_i - 10)$	7%	0,50%	8,40%	0,50%	10,50%	0,50%	20,00%	1,00%
More than 15 and up to 10	$a_i + b_i \cdot (dur_i - 15)$	9,50%	0,50%	10,90%	0,50%	13,00%	0,50%	25,00%	1,00%
More than 20	$\min [a_i + b_i \cdot (dur_i - 20); 1]$	12,00%	0,50%	13,40%	0,50%	15,50%	0,50%	30,00%	0,50%

Bonds and Loans (Qualifying Infrastructure Corporates)

Credit quality step		0		1		2		3	
Duration	Stress	a_i	b_i	a_i	b_i	a_i	b_i	a_i	b_i
upto 5	$b_i \cdot dur_i$	0	0,68%	0	0,83%	0	1,05%	0	1,88%
More than 5 and up to 10	$a_i + b_i \cdot (dur_i - 5)$	3,38%	0,38%	4,13%	0,45%	5,25%	0,53%	9,38%	1,13%
More than 10 and up to 15	$a_i + b_i \cdot (dur_i - 10)$	5,25%	0,38%	6,38%	0,38%	7,88%	0,38%	15,00%	0,75%
More than 15 and up to 10	$a_i + b_i \cdot (dur_i - 15)$	7,13%	0,38%	8,25%	0,38%	9,75%	0,38%	18,75%	0,75%
More than 20	$\min [a_i + b_i \cdot (dur_i - 20); 1]$	9,00%	0,38%	10,13%	0,38%	11,63%	0,38%	22,50%	0,38%

Bonds and Loans (Qualifying Infrastructure Projects)

Credit quality step		0		1		2		3	
Duration	Stress	a_i	b_i	a_i	b_i	a_i	b_i	a_i	b_i
upto 5	$b_i \cdot dur_i$	0	0,64%	0	0,78%	0	1%	0	1,67%
More than 5 and up to 10	$a_i + b_i \cdot (dur_i - 5)$	3,20%	0,36%	3,90%	0,43%	5%	0,50%	8,35%	1%
More than 10 and up to 15	$a_i + b_i \cdot (dur_i - 10)$	5%	0,36%	6,05%	0,36%	7,50%	0,36%	13,35%	0,67%
More than 15 and up to 10	$a_i + b_i \cdot (dur_i - 15)$	6,80%	0,36%	7,85%	0,36%	9,30%	0,36%	16,70%	0,67%
More than 20	$\min [a_i + b_i \cdot (dur_i - 20); 1]$	8,60%	0,36%	9,65%	0,36%	11,10%	0,36%	20,05%	0,36%

Annex 10 – Analytical approach in the Impact Assessment

Sources of information

This impact assessment is based on publicly available data including the following.

- EIOPA Technical Advices (Dated 29 September 2015 and 30 June 2016)
- Responses to the EIOPA public consultation
- Infrastructure related reports by Credit Rating Agency – Moody's
- Infrastructure related research by independent academics
- List of infrastructure projects support by European Institutions
- Risk calibrations of various asset classes in the Delegated Regulation (including amendment adopted on 30 September 2015 for projects.)

Analysis

The analysis required for this impact assessment included the following.

- Identification of infrastructure sectors that are important from the perspective of growth in the European Union and wider priorities and initiatives announced by the Commission.
- Quantitative differences in the risk profiles of infrastructure corporates and non-infrastructure investments.
- Quantification of the "cliff edge effect" if some infrastructure investments were deemed to be disqualified for a lower risk calibration.

Annex 11 – Procedural Information

Procedural information concerning the process to prepare the impact assessment report and the related initiative.

- Lead Directorate-General: Directorate-General for Financial Stability, Financial Services and Capital Markets Union.
- Commission Work Programme reference 2016/FISMA/051
- Organisation and timing of Inter Service Steering Group's meetings: two meetings on 24 November and 20 December 2016. In addition to DG FISMA, the Inter Service Steering Group was formed by inviting Directorates General Economic and Financial Affairs, Internal Market Industry Entrepreneurship and SMEs, Communications Networks Content and Technology, Energy, Research and Innovation, Mobility and Transport, the Legal Service and the Secretariat General to make nominations on the ISSG.
- Evidence used in the impact assessment:
 - EIOPA Technical Advices (Dated 29 September 2015⁵⁷ and 30 June 2016⁵⁸)
 - Infrastructure related reports by Credit Rating Agency – Moody's^{59,60,61}
 - Responses to the EIOPA public consultation⁶²
- Expert advice, reports and information provided by
 - the European Insurance and Occupational Pensions Authority (EIOPA)⁶³
 - Moody's⁶⁴
 - The EDHEC Infrastructure Institute-Singapore⁶⁵
- Consultation of the RSB on 1 February 2017.
- **(Placeholder for the final opinion of the RSB)**

⁵⁷ EIOPA Technical Advice on infrastructure projects is available at this [link](#)

⁵⁸ [EIOPA Technical Advice on infrastructure corporates is available at this link](#)

⁵⁹ Moody's Investor Service, "Infrastructure Default and Recovery Rates, 1983-2015", 18 July 2016

⁶⁰ Moody's response to EIOPA public consultation, May 2016

⁶¹ Moody's Infrastructure Finance Default Study (9 March 2015)

⁶² See Annex VII of the final report available at this [link](#).

⁶³ <https://eiopa.europa.eu/>

⁶⁴ <https://www.moody.com/>

⁶⁵ <http://edhec.infrastructure.institute/>

Annex 12 – Complementary analysis and risk calibration for infrastructure debt

This Annex presents a summary of the complementary data and analysis which confirms that infrastructure corporate debt is less risky than non-infrastructure investment. Further below, the justification for the 25% reduction in the calibration in the recommended policy option is included.

The bond price data used by EIOPA covered a maximum of 128 bonds across three ratings (AA, A and BBB). Most of the data relates to the period 2008-2015. EIOPA did not have data on unrated infrastructure debt. This limitation of data used for calibration can be overcome through complementary data and analysis.

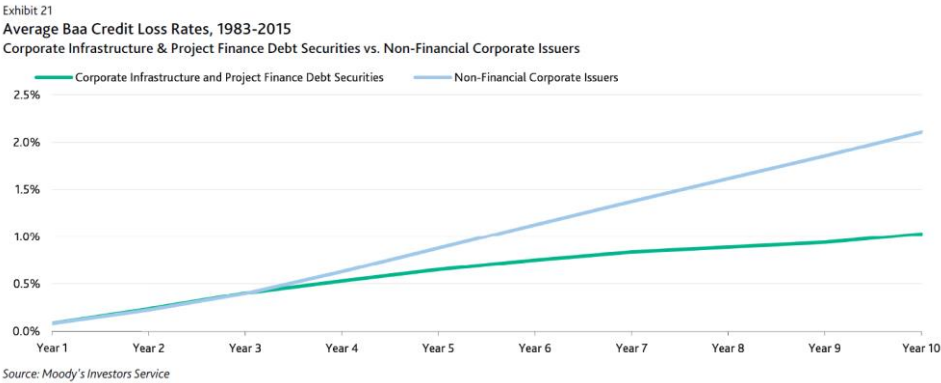
COMPLEMENTARY ANALYSIS - RATED DEBT (Using Moody's data)

The Moody's rating universe covers 1000 bonds for all ratings and the credit loss data is available for a significantly longer period (1983-2015). The data provides greater insight into credit defaults, recovery rates and stability of credit ratings.

As regards unrated debt the EY Report compares the performance of unrated debt with BBB rated debt.

Analytical Findings in the Complementary Data and Reports.

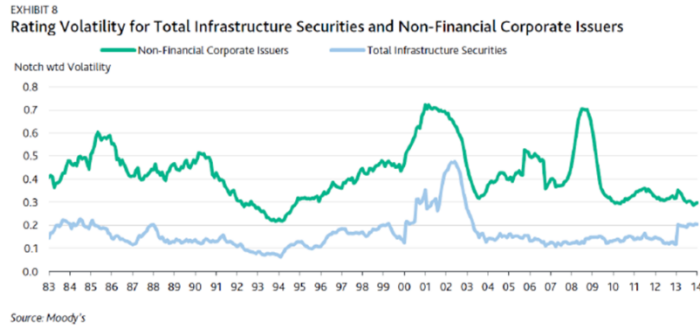
The graph below compares the risk in infrastructure investment versus non-infrastructure.



(Source: Moody's Investor Service, "Infrastructure Default and Recovery Rates, 1983-2015", 18 July 2016)

The above graph based on historical experience shows that losses on infrastructure debt (including projects and corporates⁶⁶) are significantly lower than those for non-infrastructure debt of the same term. This difference is remarkable over the longer maturities in excess of 7 years. Such longer maturities are very common in infrastructure debt.

⁶⁶ The year-by-year split between infrastructure corporates and infrastructure projects was not available. However, infrastructure corporates represent approximately 80% of the total and therefore the illustration is relevant for this Impact Assessment.



(Source: Moody's response to EIOPA public consultation, May 2016)

The above graph show that credit ratings of infrastructure debt are more stable than those for non-infrastructure debt.

Over a long term period (10 year) credit default loss experience in infrastructure suggests an approximately 25% reduction in risk calibrations as follows.

Complementary assessment using long term credit default experience

	Average Cumulative Default Rates, 1983-2015	Average Recovery Rates for Defaulted Corporate Infrastructure & Project Finance Debt Securities, 1983-2015	Loss Given Default Rate	Expected Loss (10 years holding period)
Corporate Infrastructure - Investment Grade	1.70%	56%	44%	0.7480%
Non Financial Corporate Issuers	2.00%	38%	62%	1.2400%
Expected Credit Loss Ratio				40%
Weightage assigned for the Credit Risk Approach (as part of Solvency II spread risk)				60%
Reduction in the risk calibration for Infrastructure Corporates compared to Non Infrastructure				24%

Sources:

(1) Moody's - Infrastructure Default and Recovery Rates, 1983-2015

(2) EIOPA - EIOPA-CP-15/004 dated 2 July 2015

Relevance of the Complementary Data for Risk Calibrations

In section 1.48 of the Consultation Paper, EIOPA explains the reasons for their choice to use the available market data. For infrastructure corporates, EIOPA took an approach based on market prices of bonds. For infrastructure projects, in the absence of market price data, EIOPA derived proxy measures from fundamental credit risk data. EIOPA states:

"For debt, the approach is reasonably straightforward given the meaningful amount of spread data for infrastructure corporates that is available. This makes it unnecessary to infer the spread volatility based on other quantities. This was done during the first call for advice, in the form of the "credit risk approach", to compensate for the lack of spread data for infrastructure project debt. Information on default and recovery rates can still be useful as supporting evidence."

The credit loss data from Moody's therefore can be used for the purpose of complementary analysis and calibration.

COMPLEMENTARY ANALYSIS - UNRATED DEBT

The technical advice was not based on data for unrated debt.

The Moody's study "Infrastructure Default and Recovery Rates, 1983-2014"⁶⁷, specifically derived historical default rates for project finance bank loans and compared these against historical default rates for corporate bond and loan issuers rated by Moody's and found that "The 10-year cumulative default rate for project finance bank loans is consistent with 10-year cumulative default rates for corporate issuers of low investment grade credit quality".

The EY report⁶⁸ quantifies the relative safety of infrastructure loans, even if unrated, to BBB rated non-infrastructure (see table below)

	Unrated infrastructure loan ⁶⁴		BBB corporate bond ⁶⁵
	Operational	Construction	
Probability of default	3.8%		7.4%
Ultimate recovery rate	c.80%	c.60%	48.8%

Note: Unrated infrastructure loan data averaged over 1983-2013 and corporate bond data averaged over 1987-2014. The probability of default for the BBB corporate bond is based on a term of 15 years.

(Source: EY (formerly Ernst & Young), "Infrastructure investments - An attractive option to help deliver a prosperous and sustainable economy", page 14)

Furthermore, the revised Regulation on credit rating agencies⁶⁹ reduces the reliance on external credit rating institutions. This plays a role for unrated debt in general where there are arguments for its safety. Considering the above mentioned EY report, particularly in the case of SME infrastructure corporates, investment in privately placed unrated debt may be justified based on the due diligence by insurers as investors.

Complementary analysis based on Value at Risk (VaR measure)

The assessment takes into account the aggregate bond investments by insurance companies and the relative differences in the Value at Risk (VaR) measure for each credit rating.

The following table shows the distribution of bond investments of European insurance undertakings based on the data collected for the Quantitative Impact Study (QIS4) exercise.⁷⁰

⁶⁷ Research available at this [link](#) (requires free registration).

⁶⁸ Report is available at this [link](#).

⁶⁹ Regulation (EU) No 462/2013 of the European Parliament and of the Council of 21 May 2013 amending Regulation (EC) No 1060/2009 on credit rating agencies, OJ L 146, 31.5.2013, p. 1

⁷⁰ CEIOP's Advice for Level 2 implementing measures on Solvency II: SCR Standard Formula, Article 111 b, Calibration of Market Risk Module ([link](#))

Rating class	
AAA	37.8%
AA	27.4%
A	22.2%
BBB	6.7%
BB	0.8%
B	0.5%
CCC or lower	0.1%
Unrated	4.6%

Table 1: Distribution of bond investments of European insurance undertakings (based on QIS4 data)

We note that the reduced risk calibrations for infrastructure corporates were allowed only for investment grade bonds and unrated bonds (that meet the qualifying criteria were treated at par with BBB rated bonds). This comprises of AAA, AA, A, BBB rated bonds besides unrated debt totalling 98.3 % of the portfolio.

(Source: Annex II of EIOPA technical advice)

For AAA rated assets (typically involving high quality investments) there is little difference in VaR between Infrastructure and Non-Infrastructure corporate debt. For unrated assets the VaR is treated at par with BBB rated assets⁷¹.

Rating class	weight	VaR with regard to corporate bonds
AAA	38.05 %	1
AA	27.87 %	0.75
A	22.58 %	0.44
BBB	6.82 %	0.42
Unrated	4.68 %	0.42
Weighted Portfolio VaR		0.74 (Relative basis)

In conclusion, the VaR for infrastructure debt is roughly 25% lower than that for non-infrastructure.

Complementary analysis – Comparison between infrastructure projects and infrastructure corporate debt risk calibration

We have compared the data of historical expected losses on infrastructure projects and infrastructure corporates. The results of the complementary analysis (table below) show that the calibration for projects should be about 7% lower than that for infrastructure projects.

⁷¹ EY (formerly Ernst & Young), "Infrastructure investments - An attractive option to help deliver a prosperous and sustainable economy", page 14. The fundamental credit risk data like recovery rate and probability of default is for infrastructure corporate loans better than for the rating class BBB.

**Relative difference between Infrastructure Projects and Infrastructure Corporates
(Debt risk calibration 10 year example)**

	Average Cumulative Default Rates, 1983- 2015	Average Recovery Rates for Defaulted Corporate Infrastructure & Project Finance Debt Securities, 1983-2015	Loss Given Default Rate	Expected Loss (10 years holding period)
Infrastructure Projects#	5.5%	88%	12%	0.6600%
Infrastructure Corporates - Investment Grade	1.70%	56%	44%	0.7480%
Relative reduction in the Expected Loss over 10 years				11.76%
Weightage assigned for the Credit Risk Approach				60%
Reduction in the risk calibration for Infrastructure Corporates compared to Non Infrastructure				7%

Note # This data is only available for the 1990-2013 cohort.

Sources:

(1) Moody's - Infrastructure Default and Recovery Rates, 1983-2015; Default and Recovery Rates for Project Finance Bank Loans, 1983-2013

(2) EIOPA - EIOPA-CP-15/004 dated 2 July 2015

Annex 13 – Detailed list of qualifying criteria for infrastructure projects and corporates

Black text represents the recommendations in EIOPA’s previous call for advice on infrastructure

Blue text represents the recommendations in this latest call for advice on infrastructure corporates

		“Qualifying Infrastructure Projects” – Sept 2015 Advice			“Qualifying infrastructure corporates ⁷² ” – June 2016 Advice
	<i>Topic</i>	<i>Rated debt</i>	<i>Unrated debt</i>	<i>Equity</i>	<i>Equity (and limited views on debt)</i>
Qualifying criteria	Legal structure	Entity or corporate group (no restriction to special purpose vehicles for projects)			
	Scope: non-infrastructure activities	Substantial majority of revenues derived from infrastructure assets			
	Scope: infrastructure sectors	No restriction			List of qualifying sectors
	Scope: country	No restriction	Located in EEA or OECD		Substantial majority of revenues in EEA or OECD

⁷² No recommendations are provided for a differentiated treatment for debt (rated or unrated) in infrastructure corporates since there is insufficient evidence that the risk charge should be lower than current standard formula

		“Qualifying Infrastructure Projects” – Sept 2015 Advice			“Qualifying infrastructure corporates”⁷² – June 2016 Advice
	Topic	Rated debt	Unrated debt	Equity	Equity (and limited views on debt)
	History of operations	N/A			3 years minimum or at least CQS 3
	Stress testing	Yes (only infrastructure revenues can be taken into account)			N/A
	Financial structure	At least CQS ⁷³ 3	Allows debt service		Allow debt service or at least CQS 3
	Predictability of revenues	Conditions apply to all but immaterial part of revenues			Conditions apply to infrastructure revenues
	Diversified revenues	N/A			Either in terms of location, activities or payer
	Security package	Yes (indirect as well as direct security permissible)		N/A	N/A
	Termination clause ⁷⁴	Yes			N/A
	Reserve funds	Yes			N/A

⁷³ CQS is the Credit Quality Step derived from a rating from an external credit assessment institution (ECAI)

⁷⁴ Termination clause refers to the requirement in Article 164a(1)(c)(a) of the Delegated Regulation

		“Qualifying Infrastructure Projects” – Sept 2015 Advice			“Qualifying infrastructure corporates”⁷² – June 2016 Advice
	<i>Topic</i>	<i>Rated debt</i>	<i>Unrated debt</i>	<i>Equity</i>	<i>Equity (and limited views on debt)</i>
	Debt seniority	N/A	Most senior ⁷⁵	N/A	N/A
	“Sponsor ⁷⁶ ” requirement	N/A	Construction phase only		N/A
	Construction risk	N/A	Safeguards in place		N/A
	Operating risk	N/A	Properly managed		N/A
	Technology risk	N/A	Tested technology and design		N/A
	Refinancing risk	N/A	Low		N/A
	Derivatives use	N/A	Only risk mitigation		N/A

⁷⁵ Some “super-senior” claims are permitted.

⁷⁶ Sponsor requirement refers to the requirement in Article 164a(1)(f)(ii) of the Delegated Regulation

		“Qualifying Infrastructure Projects” – Sept 2015 Advice			“Qualifying infrastructure corporates⁷²” – June 2016 Advice
	<i>Topic</i>	<i>Rated debt</i>	<i>Unrated debt</i>	<i>Equity</i>	<i>Equity (and limited views on debt)</i>
<i>Risk management requirements</i>	Validation of assessment of qualifying criteria	Yes			N/A
	Validation of financial model	Yes			N/A
	Stress tests	Yes			Yes
	Active monitoring in construction phase	Material investments			Material investments
	Procedures for work-out scenario	Material investments			N/A
	Demonstrate hold to maturity in asset-liability management	Yes			N/A