

Session 6: Mobilizing Finance for Climate- Resilient Infrastructure

Jessica Williams,
Analyst, Infrastructure Ratings
September 7, 2017



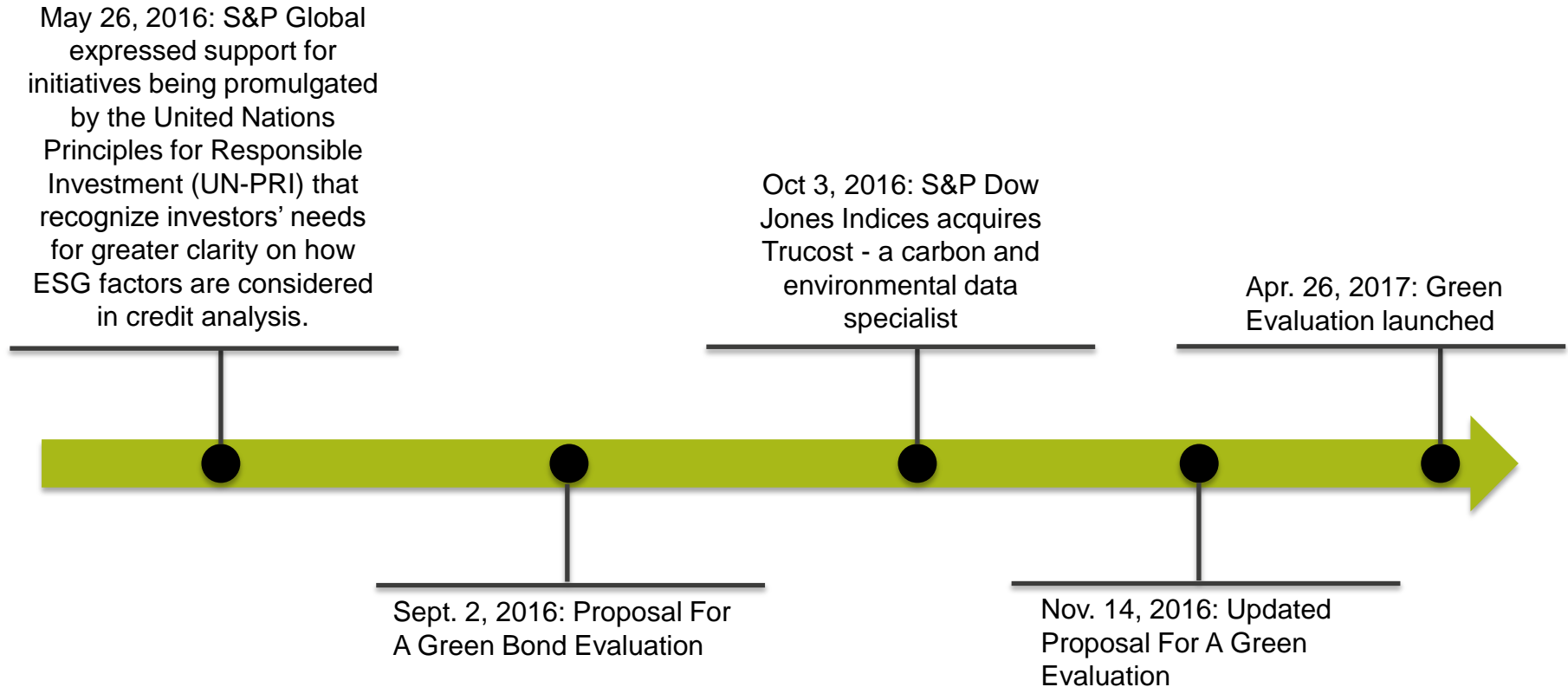
S&P Global
Ratings

The Green Evaluation

Applicable to green bonds but also to green bank loans, green ABS, equity and all other forms of sustainable finance

S&P Global Commitment To Green Financing

S&P Global has been tracking the green bond market for a number of years and 2016 set new mile stones in green bond initiatives



Green Evaluation Market Feedback

HSBC

“S&P has stepped into the picture, with a tool that could represent a breakthrough. The S&P tool attempts to gauge how green a bond is, rather than just confirming whether or not it is green. They may just have created the single metric that in our view the green bond market needs.”

“We believe this tool is superior to the array of verification services currently offered to validate green bonds, the so called ‘second party opinions’...”

Royal Bank of Scotland

“I am impressed with the sophistication and comprehensiveness of the new S&P Green Evaluation – particularly compared to the current other products of this nature in the market.”

Nuclear Risk Insurers

“...really good stuff and a great example of the sort of thing which ratings agencies can do to make a positive difference.”

Green Evaluation - Introduction

"For investors, green bond markets offer a stable, rated and liquid investment with long duration. For issuers, green bonds are a way to tap the huge \$100 trillion pool of patient private capital managed by global institutional fixed-income investors."

Mark Carney, Governor of the Bank of England, September 2016

S&P Global's Role – The Green Evaluation

- ✓ Define the value of "green" for capital markets and any other financing
- ✓ Establish essential transparency in Green Finance
- ✓ Enable institutional investment in sustainability by providing the confidence of independent evaluation of environmental impact
- ✓ Go beyond existing tools and takes a local, sector-specific perspective on impact
- ✓ Provide a "green channel" to sustainable finance for institutional fixed income
- ✓ Covers all financings such as bank debt and equity not just green bonds

Comprehensive Impact Evaluation

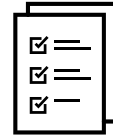
Goes beyond existing assessment tools and takes a local, sector specific view



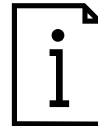
Establishes a hierarchy across technologies depending on their contribution to the green transition



Scores and weighs individual component scores in a transparent manner



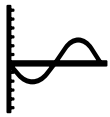
Includes analysis of governance, transparency and use of proceeds



Draws on, but is not limited to, green bond principles and existing green taxonomies



Focus on new build and improvements to enhance greenness or resilience



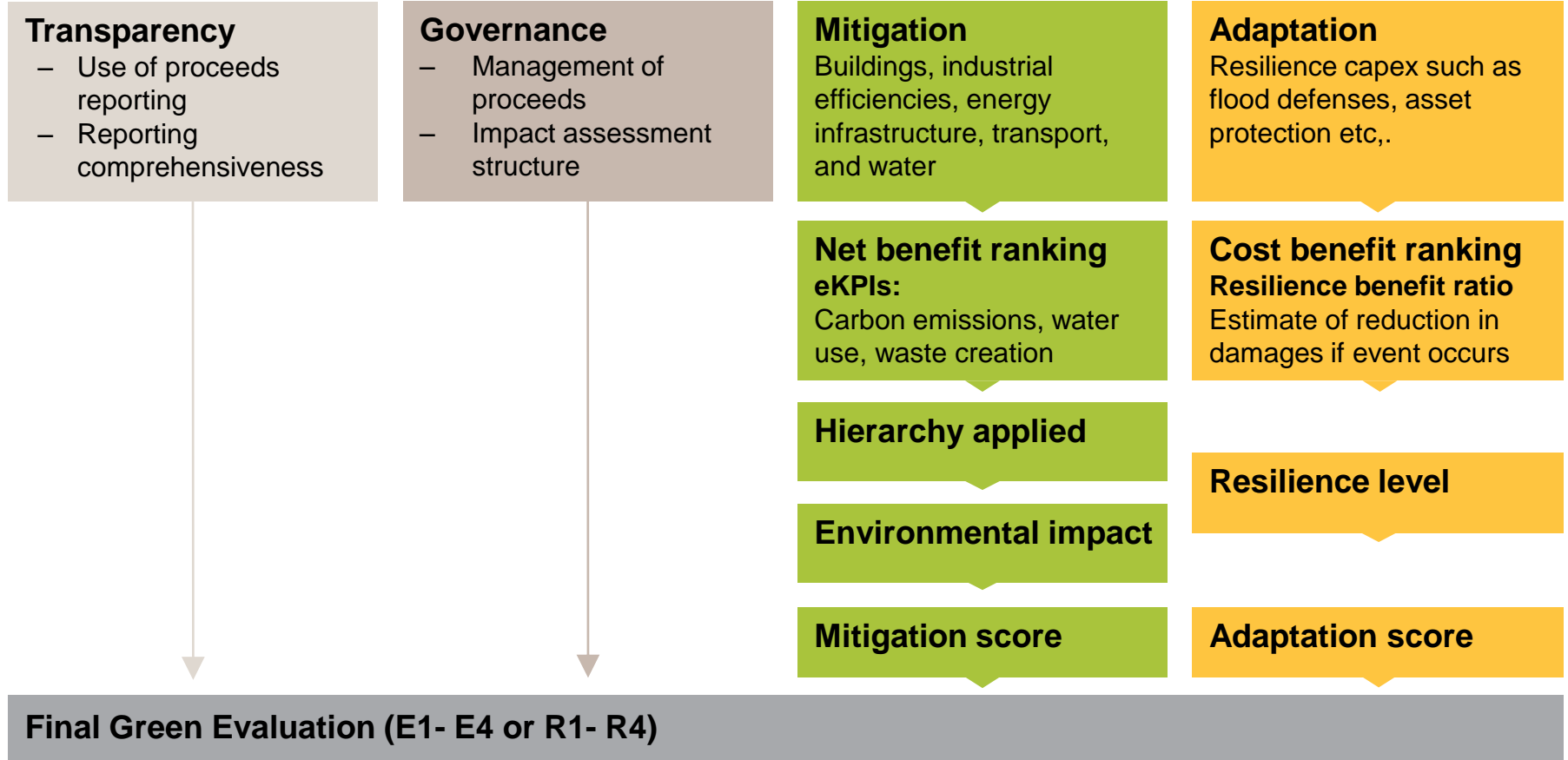
Based on local conditions baseline e.g. for energy generation projects we consider the emissions intensity of the local grid



Evaluation of projects' lifecycle impacts on the environment (construction, operation, decommissioning)

Green Evaluation Analytical Approach

Weighted aggregate of three:



* eKPI – Environmental Key Performance Indicator

Carbon Hierarchy

The Mitigation or Adaptation categories account for 60% of the final score. In recognition of the varying levels of contribution to avoiding climate change by different technology, we consider each technology's overall contribution to decarbonization that would not be fully captured by our regional net benefit calculation alone.

This gives us the overall score.

Role In Green Transition

Systematic decarbonization of economies

Significant Decarbonization of Key sectors through low-carbon solutions

Decarbonization by alleviating emissions in intensive industries

Decarbonization technologies with significant environmental hazards

Improvement of fossil fuel based activities' environmental efficiency & impact

Technology

Wind and Solar Power, Small and Large Hydro

Energy management and control

Green Transport apart from hybrid/fuel efficient vehicles

Green buildings new built best standards/net zero

Industrial efficiencies

Green Transport (with fossil fuel combustion) Green buildings refurbishment/new built lower standard

Energy-efficient products

Nuclear

Large Hydro in tropical areas

Coal to natural gas, Clean fuel production, Clean use of coal



Source: S&P Global Ratings Proposal for a Green Bond Evaluation Tool. September 2, 2016.

Water Hierarchy

For water projects we consider each technology's overall contribution to sustainable water use that would not be fully captured by our net benefit calculation alone:

Role In Green Transition

System enhancements

Marginal system enhancements

Marginal system enhancements with material negative environmental consequences

Demand-side improvements

Technology

Recycling wastewater supply

Wastewater treatment

Reducing water losses in the water distribution network

Water desalination to supply potable municipal water

Conservation measures in buildings & equipment
Smart metering



Green Evaluation

City of Gothenburg

Transaction Overview

On June 15, 2016 the City of Gothenburg, Sweden issued Swedish krona (SEK) 1 billion of green bonds due June 15, 2022 to fund a number of eligible projects as part of its wider environmental initiatives. In accordance with the city's environmental programs, green bonds proceeds are targeted at financing projects in renewable energy, energy efficiency, public transportation, waste management, water treatment, and sustainable housing. The proceeds are solely dedicated to financing green projects, as defined within the city's environmental framework.

Entity:	City of Gothenburg
ICB subsector:	N.A.
Location (HQ):	Sweden
Financing Value:	SEK 1 billion
Proportion of proceeds:	Full
Evaluation date:	June 19, 2017
Contact:	Andrea Croner +46 (0) 84-40-59-21 andrea.croner@spglobal.com

Green Evaluation Overview

Transaction Transparency

- Use of proceeds reporting
- Reporting comprehensiveness

56

Governance

- Management of proceeds
- Impact Assessment Structure

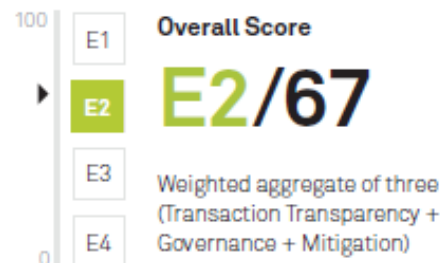
94

Mitigation

Sector	→ Net benefit ranking	→ Hierarchy overlay	
Green transport	Green transport without fossil fuel combustion		69
Green buildings	Green buildings – new build		

Adaptation

NA



Green Evaluation

Three Gorges Finance II (Cayman Islands) Limited

Transaction Overview

On June 21, 2017 Three Gorges Finance II (Cayman Islands) Ltd. issued €650 million of unsecured unsubordinated 1.30% notes due 2024 guaranteed unconditionally and irrevocably by China Three Gorges Corp. The financing is a labelled green bond. Proceeds will be used to finance European renewable energy projects based in Portugal and Germany acquired by China Three Gorges Corp.

Entity: Three Gorges Finance II (Cayman Islands) Limited
ICB subsector: Renewable Energy Equipment
Location (HQ): Beijing, China
Financing value: €650 million
Amount evaluated: 100%
Evaluation date: July 10, 2017
Contact: Jessica Williams
 (44) 2017 176 3884
 jessica.williams@spglobal.com

Green Evaluation Overview

Transparency

- Use of proceeds reporting
- Reporting comprehensiveness

67

Governance

- Management of proceeds
- Impact Assessment Structure

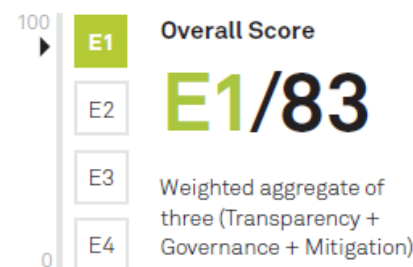
73

Mitigation

Sector → **Net Benefit Ranking** → **Hierarchy overlay** **91**

Renewable Energy → Onshore and Offshore Wind

Adaptation **NA**



Green Evaluation

Brookfield White Pine Hydro Senior Secured Notes

Transaction Overview

Brookfield White Pine Hydro LLC (BWPH) is planning to issue US\$475 million of senior secured notes in July 2017. Proceeds of the offering will be used in part to refinance existing indebtedness (74% of the funds raised) for a portfolio of 21 hydroelectric facilities with an installed capacity of 380 MW primarily located in Maine. The remaining proceeds (less minor amounts for financing fees) will be used to offset funding of capital expenditure and development activities at a number of renewable projects within the Brookfield Infrastructure Fund II (BIF II). Brookfield Renewable Partners L.P. (Brookfield Renewable) retains a 50% controlling interest in BWPH with the remaining interest held by third party investors in BIF II. The notes are expected to have a 15-year bullet maturity in 2032. The notes are callable at any time in whole or part. Given that BWPH generates 100% of its electricity through hydro resources and the remainder of the proceeds will be used to offset the funding of renewable projects, we consider the entire offering to be applied to green energy projects.

Green Evaluation Overview

Transparency

- Use of proceeds reporting **83**
- Reporting comprehensiveness

Governance

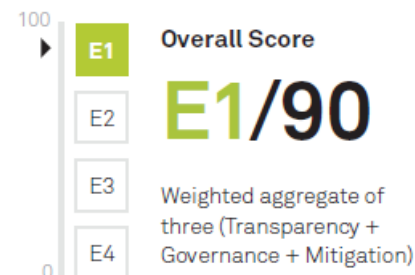
- Management of proceeds **83**
- Impact Assessment Structure

Mitigation

Sector	→ Net Benefit Ranking	→ Hierarchy overlay	94
Green energy	Supplying the grid with low-carbon electricity		

Adaptation **NA**

Entity:	Brookfield White Pine Hydro LLC
ICB subsectors:	Alternative Electricity (7537)
Location (HQ):	U.S.A.
Financing value:	US\$ 475 mil.
Amount evaluated:	100%
Evaluation date:	July 10, 2017
Contact:	Stephen R.W. Goltz +1-416-507-2592 stephen.goltz@spglobal.com



Green Evaluation

D.C. Water & Sewer Authority Series 2017 A Senior Lien Revenue Bonds

Transaction Overview

In January 2017, the District of Columbia Water & Sewer Authority issued \$100 million in series 2017A public utility senior lien revenue bonds (green labeled) alongside \$200 million in series 2017B public utility senior lien revenue bonds (unlabeled). Our Green Evaluation applies only to the series 2017A bonds, the proceeds of which will finance portions of the authority's DC Clean Rivers Project. The series 2017A bonds have a final maturity of June 30, 2052.

Green Evaluation Overview

Transparency

- Use of proceeds reporting
 - Reporting comprehensiveness
- 90**

Governance

- Management of proceeds
 - Impact Assessment Structure
- 88**

Mitigation

Sector	→ Net Benefit Ranking	→ Hierarchy overlay	95
Water	Increasing availability of fresh water		

Adaptation **NA**

Entity: District of Columbia Water & Sewer Authority

ICB sector: N.A.

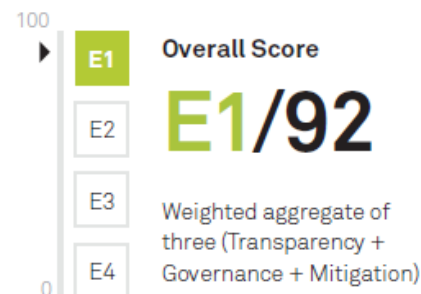
Location (HQ): U.S.

Financing value: US\$100 million

Amount evaluated: 100%

Evaluation date: June 26, 2017

Contact: Kurt Forsgren
1-617-530-8308
kurt.forsgren@spglobal.com



Green Evaluation

Mexico City Airport Trust

Transaction Overview

Fideicomiso 80460 (the Mexico City Airport Trust) is a financing trust that has the benefit of an assignment of all airport passenger charges (Tarifa de Uso de Aeropuertos; TUA) generated by Mexico City's existing Aeropuerto Internacional de la Ciudad de México (AICM) airport and future TUA from the city's new airport (NAICM), which is under construction. This trust, issued in September 2016, the first series of senior secured bonds for a total amount of about US\$2 billion. We expect bond debt to gradually increase, reaching up to US\$6 billion over the next two to three years. We expect the trust to issue at least three tranches through 2020, with maturities ranging from five years to 20 years or more. This analysis addresses the entire amount of the financing to be raised by the trust within the construction phase. All proceeds will partially fund the construction of the NAICM and will be labeled as green. The remaining funds for the financing of the NAICM (estimated at about US\$7 billion) will come from the Mexican government, the airport's sponsor and concession holder.

Entity: Mexico City Airport Trust
ICB subsectors: N.A.
Location (HQ): Mexico
Financing value: US\$6 billion
Amount evaluated: 98%
Evaluation date: July 21, 2017
Contact: Candela Macchi
 +54-11-4891-2110
 candela.macchi@spglobal.com

Green Evaluation Overview

Transparency

- Use of proceeds reporting
 - Reporting comprehensiveness
- 88**

Governance

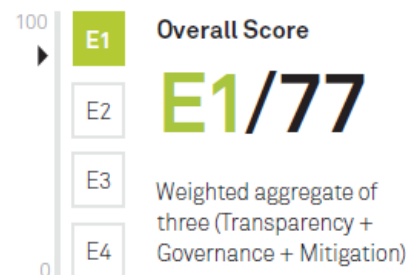
- Management of proceeds
 - Impact Assessment Structure
- 75**

Mitigation

Sector	→ Net Benefit Ranking	→ Hierarchy overlay	
Green Energy	Solar photovoltaic power generation		78
Green Buildings	New build - commercial		
Energy Efficiency	Energy Star products - electronics; Energy Star products - heating and cooling		
Water	Wastewater treatment		

Adaptation

NA



Green Evaluation Process

56

Transaction Transparency

94

Governance

69


Mitigation

Weighted aggregate of three
(Transaction Transparency + Governance + Mitigation)

E2/67

Overall score

Increasing Decarbonization Impact

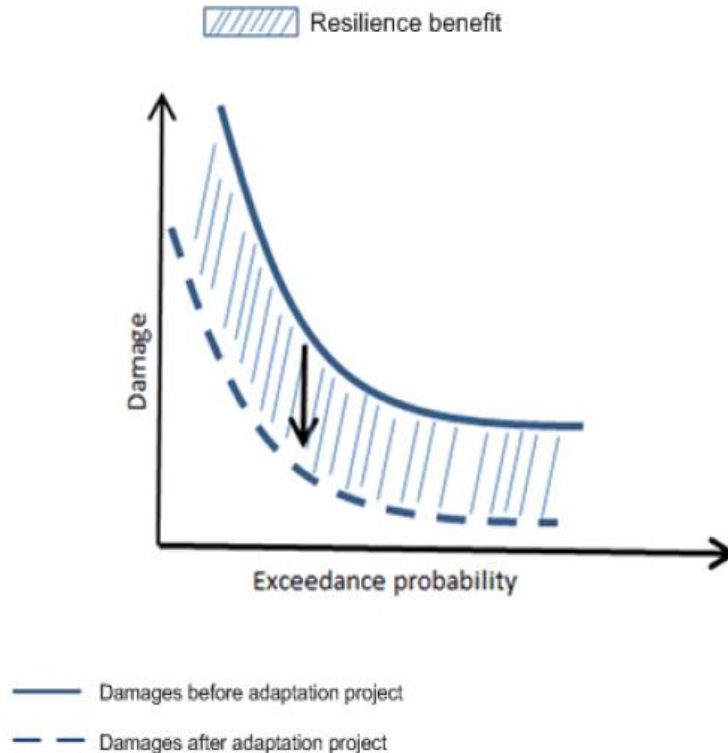
Carbon intensity technology	Local baseline of carbon intensity	Net benefit ranking	Hierarchy overlay	Environmental impact score	Proceeds (SEK Mil.)
	High  Low Sweden				
Wind power			Green energy		
Solar power					
Small hydro					
Large hydro					
Energy management and control			Energy efficiency		
Unspecified					
Green transport without fossil fuel combustion		60	Green transport	81	170
Green buildings – new build		11	Green buildings	66	925
Unspecified					
Energy efficient projects (industrial efficiencies)			Energy efficiency		
Green transport with fossil fuel combustion			Green transport		
Green buildings refurbishment			Green buildings		
Unspecified					
Nuclear			Nuclear power		
Large hydro in tropical areas			Green energy		
Unspecified					
Coal to natural gas			Fossil fuel power plants		
Cleaner fuel production					
Cleaner use of coal					
Unspecified					
Water enhancements	Local baseline of water scarcity	Net benefit ranking	Hierarchy overlay	Environmental impact score	Proceeds (SEK Mil.)
Water			Water		

Assessing Resilience Benefit: Definitions

Resilience Benefit is the estimated reductions in the expected damages that the project aims to achieve

Resilience Benefit Ratio =

Resilience Benefit/ GB Financing



Assessing Resilience Benefit: Assessment Scale

Step 1

Determine the resilience benefit ratio based on issuer's own assessment of the resilience benefit and S&P quantitative adjustments

<u>Range of Resilience Benefit Ratio</u>	<u>Resilience Level</u>
>4	1
3-4	2
2-3	3
1-2	4
<1	5



Step 2

Apply qualitative adjustments reflecting the adequacy of the quantification approach used by the issuer

Adjustment For Adequacy of Quantification Benefit

No change One notch higher One notch lower



Step 3

Apply qualitative adjustments for projects in developing countries that have high exposure to climate risk and a high level of vulnerability

Developing Country Adjustment

No change One notch higher

Further Information: spratings.com/greenevaluation

PRODUCTS & CAPABILITIES : Assessments

S&P Global Ratings Green Evaluations

TIME TO TURN OVER A NEW LEAF?

Green issuance and investment is on a firm upward trajectory, propelled by the 2015 Paris Climate Agreement, and the impetus it created to finance \$1 trillion a year in investments for renewable energy and other initiatives to limit global warming.

At the same time, long-term investors are also recognizing the threat from greenhouse gases and have begun to diversify portfolios away from carbon-based investment. The final push is coming from corporations as they start to contend with the consequences of increasingly extreme and violent weather and flooding. Many are starting to see that managing environmental exposure may be more than risk management; it may be good for business.

So how green or resilient are your financing initiatives?

Audio Webcast Replay: Green Evaluation Analytical Approach

[Click here](#) to listen and watch the replay

BENEFITS FOR ISSUERS

Why go green?

- Diversify your investor base
- Potential to enjoy long term pricing advantages
- Internally benchmark your green performance Y-O-Y
- Send a strong, pro-active message to stakeholders
- Appeal to millennials as employees and customers

BENEFITS FOR INVESTORS



Michael Wilkins
Managing Director - Global Infrastructure Ratings

Green Finance Ramps Up To Meet \$1 Trillion Annual Climate Needs

RELATED ARTICLES

Jul. 27, 2017

[Mexico City Airport Trust's Senior Secured Bonds Receive E1/77 Green Evaluation Score](#)

Jul. 27, 2017

[Green Evaluation: Mexico City Airport Trust](#)

Jul. 20, 2017

[D.C. Water & Sewer Authority's 2017A Senior Lien Bonds Receive Green Evaluation Score Of E1/92](#)

Jul. 20, 2017

[Green Evaluation: D.C. Water & Sewer Authority Series 2017 A Senior Lien Revenue Bonds](#)

Jul. 10, 2017

[Brookfield White Pine Hydro Senior Secured Project Financing Notes Receive A Score Of E1/90](#)

Jul. 10, 2017

[Green Evaluation: Brookfield White Pine Hydro Senior Secured Notes](#)

Jul. 10, 2017

Q&A

If you would like more information please visit spratings.com/greenevaluation or email green.evaluation@spglobal.com