

S&P Global's Green Evaluation Tool

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S&P Global Ratings

S&P Global Ratings is involved in the field of sustainability

Environmental & Climate Risk Research Team

Credit Ratings:

Integrating environmental and climate risks factors into global corporate and infrastructure credit ratings

Green Evaluations:

Providing an opinion on the environmental benefits of new investments

ESG Team

ESG Evaluation:

Assessing environmental, social and governance risks of companies

The Green Evaluation

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

Green Evaluation Analytical Approach

Weighted aggregate of three:



Transparency

- Use of proceeds reporting
- Reporting comprehensiveness

Governance

- Management of proceeds
- Impact assessment structure

Mitigation

Buildings, industrial efficiencies, energy infrastructure, transport, and water

Adaptation

Resilience capex such as flood defenses, asset protection etc.,

Net benefit ranking eKPIs:

Carbon emissions, water use, waste creation

Cost benefit ranking Resilience benefit ratio

Estimate of reduction in damages if event occurs

Hierarchy applied

Resilience level

Environmental impact

Mitigation score

Adaptation score

Final Green Evaluation (E1- E4 or R1- R4)

* 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

↑
Increasing contribution to climate change avoidance

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

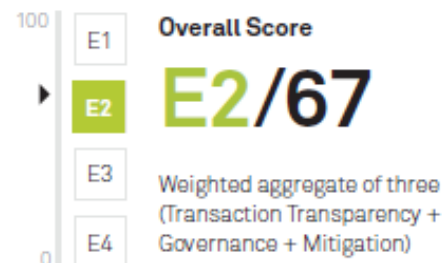
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Mitigation

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 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		

How Do Labeled Green Bonds Measure Up?

Applying Our Green Evaluation To The Labeled Green Bond
Universe

Green Evaluation scoring of 282 previously-issued green bonds

- ✓ Retrospective scoring exercise of self labeled green bonds issued between 2012 and July 2017 to provide further transparency and help calibration in the market
- ✓ Scoring solely based on public information
- ✓ Exclusion of non-labeled green bonds, green bonds excluded under the CBI criteria and bonds financing adaptation projects
- ✓ Proceeds allocated across 30 different sectors and more than 80 geographies

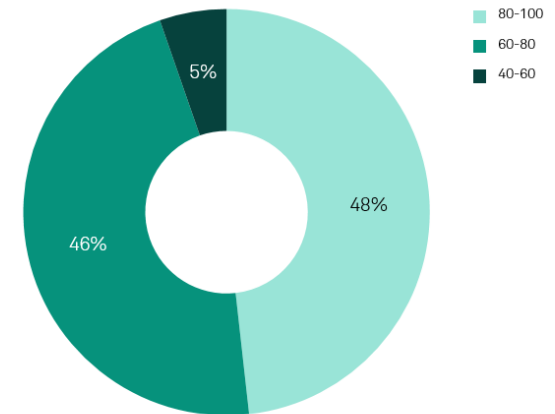
Positive impact of our hierarchy on the Mitigation score

✓ Strong average Mitigation score (78) due to the type of projects financed by green bonds in our sample, the majority of which were in the green energy, buildings, transport, and water sectors.

✓ Our hierarchy adjustment positively affects the overall score of these projects, reflecting the higher contribution of these sectors to systemic decarbonization and water system enhancement.

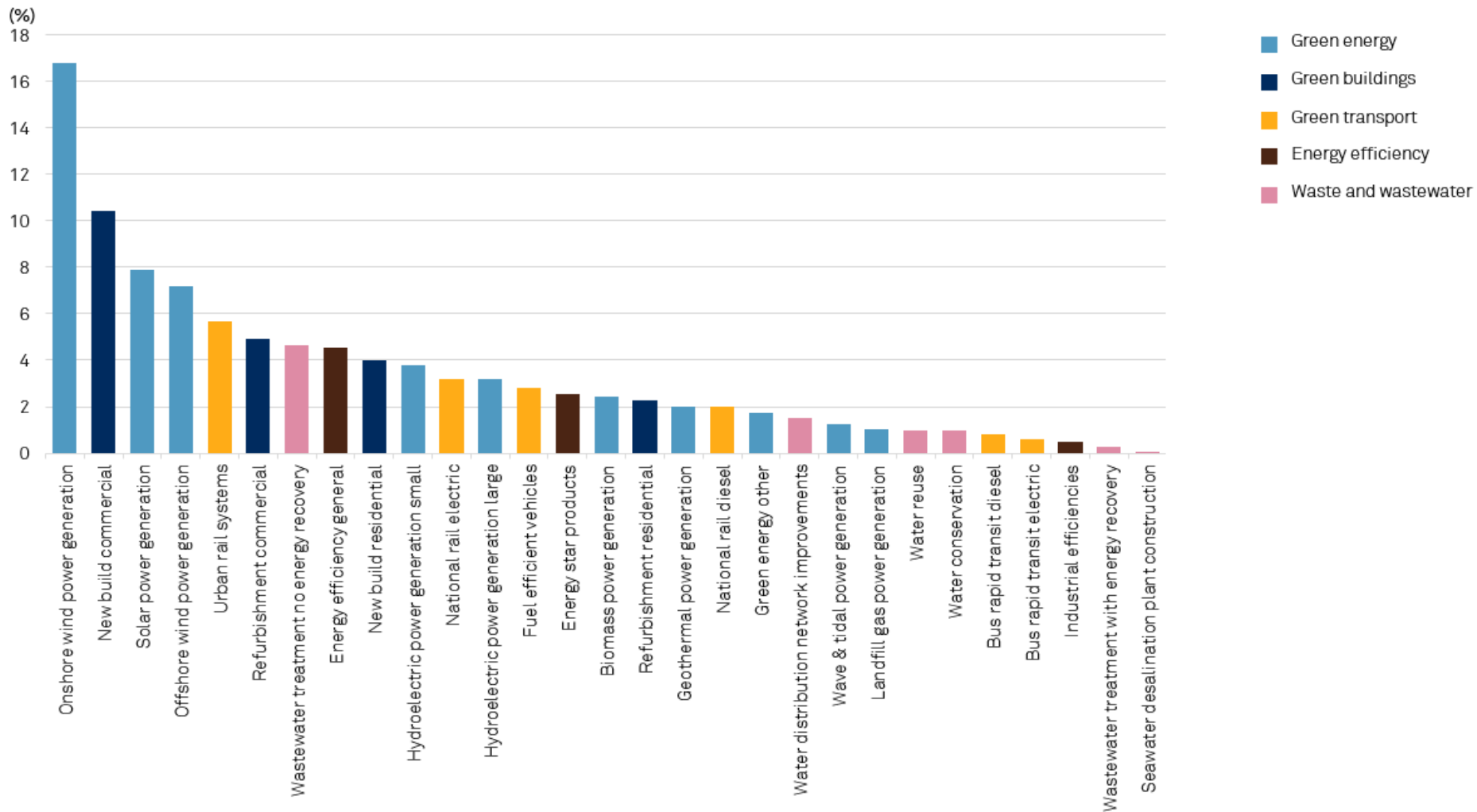
✓ The absence of bonds with a Mitigation score below 50 is due to the exclusion from our sample of projects with lower environmental contribution such as improving existing fossil-fuel technologies.

Breakdown Of Mitigation Scores By Percentile (%)



Source: S&P Global Ratings.

Breakdown of proceeds by technology

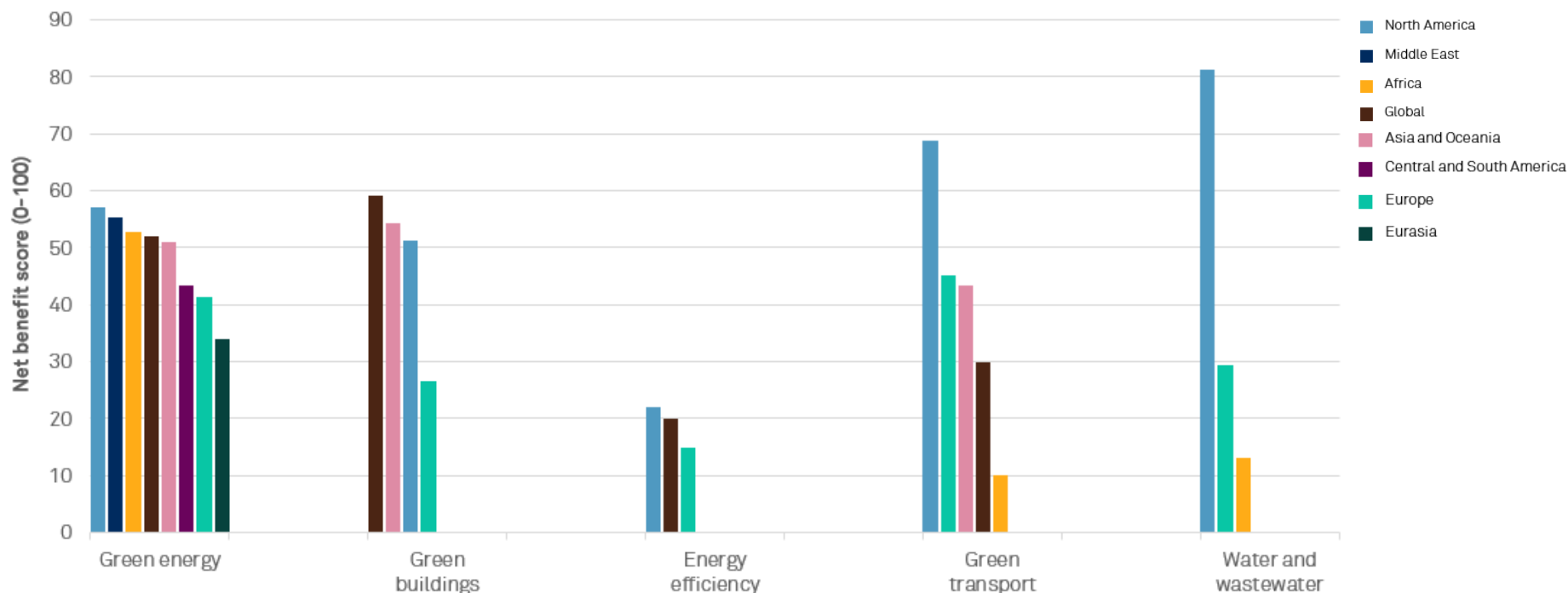


Material impact of the project's location

- ✓ The project's location plays a material role on the Green Evaluation score as it determines the regional baseline used to calculate the environmental net benefit of a project.
- ✓ The regional baseline is defined, amongst other factors, by the local carbon intensity and level of water stress.
- ✓ However, the project's location is typically less significant than the impact of our hierarchy adjustment on the overall Green Evaluation score.
- ✓ There is not one geographical region that scores systematically higher than others in our net benefit ranking. The relative ranking between regions is specific to each sector due to the use of local, sector-specific factors in our Green Evaluation.

Breakdown of net benefit score by geography and project category

Wastewater projects in North America get the highest average net benefit score compared to other sectors in our sample.



Note--This chart only includes the net benefit score of pure players in our sample (issuers that allocate 80% or more of their proceeds to one project category).

Further Information: spratings.com/greenevaluation

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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](#)

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