

Office of the New York City Comptroller **Scott M. Stringer** Bureau of Public Finance

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A GREEN BOND PROGRAM FOR NEW YORK CITY

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The dire effects of climate change—from rising sea levels and drought to extreme storms and economic disruption—has focused worldwide attention on the need to make our planet more resilient and sustainable. In New York City, Superstorm Sandy's wrath proved that the five boroughs are not immune from the effects of climate change. Indeed, with 520 miles of coastline, a growing population, and aging infrastructure, our City is on the front lines of the climate battle, which poses challenges to our future prosperity and quality of life.

Combating climate change requires leadership at every level of government—local, state, federal, and transnational. In New York City, this means making infrastructure investments targeted toward resiliency and sustainability that will pay substantial dividends in the future, as well as continuing to be a model for cities around the world in minimizing our carbon footprint.

This report details Comptroller Stringer's plan to boost these critical infrastructure efforts through the use of innovative "Green Bonds," which are issued to fund environmental mitigation and sustainability capital projects. In short, Comptroller Stringer believes that a Green Bond program will benefit New York City in three ways: by expanding our investor base, creating a model program for other cities around the United States to follow, and encouraging a greener capital program.

Green Bonds gained momentum in 2008 when the World Bank offered a fixed income product dedicated to supporting climate change mitigation and adaptation projects in developing countries.

This new product made its way to the United States and the market is evolving rapidly. New York City could become the first large city in the nation to issue Green Bonds as part of an ongoing debt program.

With Green Bonds, the City would borrow for environmentally-beneficial capital projects by tapping into the growing pool of "double bottom line" institutional and individual investors—investors who not only seek quality returns, but who also want to invest in particular types of environmentally-friendly projects. As a result, Green Bonds have the potential to expand the investor base for New York City's debt.

Implementing Green Bonds could also drive a "greener" capital program by raising awareness within the capital budget process and creating a means to prioritize and track such projects.

Since there is no uniform convention for what is "green," the City will need to develop its own definitions and criteria in the context of evolving norms. We will also establish processes for segregating, tracking and reporting on bond proceeds and expenditures. The City's Green Bonds program would reinforce New York's position as a market leader and could pay financial dividends over the long term as investor awareness grows.

A Green Bond program is more than a label on an offering document. Investors demand strict accountability in project selection and expenditures. We believe a Green Bond program that meets high investor standards can be implemented within New York City's complex budget and accounting procedures and systems. This will entail collaborative participation among the Mayor's Office of Management and Budget (OMB), the Comptroller's Office, and other City agencies.

The City's existing core borrowing vehicles – General Obligation, Transitional Finance Authority, and Municipal Water Finance Authority – would contain Green Bond maturities, which would benefit from underlying credit strength and market presence while attracting new investor interest.

Green Bonds belong in the City's portfolio of tools. With Green Bonds, New York City can take a national leadership role in funding environmentally important infrastructure projects, broaden its investor base, and transform awareness in the City's capital planning process.

Green Bonds offer investors the opportunity to participate in the financing of environmentally conscious projects that help mitigate the detrimental impacts of or adapt to climate change, advance renewable energy or energy efficiency, enable more efficient and less polluting transportation, furnish clean water/drinking water, or address any number of other environmental issues. In New York City, the bonds will be issued in a common plan of finance with standard General Obligation (GO), Transitional Finance Authority (TFA) and Municipal Water Finance Authority (NYW or Water) bonds and have identical legal and credit features. The distinguishing characteristic of Green Bonds is the targeted use of bond proceeds, with additional transparency provided to investors on green project selection and the tracking and reporting of bond proceeds expenditures.

While selection criteria for projects financed by Green Bonds have varied from issuer to issuer, there are many that overlap. Both the World Bank (WB) and International Finance Corporation (IFC) have published project eligibility criteria that focus on climate change. The World Bank has financed clean energy projects, such as solar and wind installations, as well as mitigation projects like flood protection, while the IFC has financed both renewable energy and energy efficiency projects. Other Green Bond issuers have defined "green" more broadly. The table below summarizes the types of projects some active participants in the Green Bond market have financed, as well as types of City capital projects that could potentially be financed with a Green Bonds program.

Since there is no uniform definition of what constitutes a Green Project, the City will need to develop its own criteria. We will build on definitions currently used in the marketplace while considering the City's specific capital needs. The Comptroller's Office and OMB will lead the process of developing criteria and then work with capital budget staff within City agencies to identify specific projects to be coded as "green." This process should become institutionalized in the Capital Budget process.

Project Types	IFC (1)	World Bank (2)	Mass. (3)	Green Bond Principles (4)	Potential NYC
Clean Water & Drinking Water			1	\checkmark	1
Energy Efficiency and Conservation Projects In Buildings	1		1	\checkmark	1
Rehabilitation of Power Plants and Transmission Facilities to Reduce GHG Emissions		1			
Renewable Energy Generation (Solar & Wind Installations)	1	1		\checkmark	1
River Revitalization & Preservation, Habitat Restoration and Flood Mitigation		1	1		1
Sustainable Agriculture, Forestry, and Land Use	1	1	1	\checkmark	✓
Waste Management: Waste-to-Energy Generation	1	1		\checkmark	✓
Clean Transportation: Mass Transit, Retrofitting Vehicles, HOV lanes	1	1		\checkmark	1
Climate-Related Products: Manufacturing Energy Efficient and Renewable Energy Products	1				
Carbon Markets	1				
Mitigation Through Financial Intermediaries: Funding Green Projects	1				
Advisory Services Market-Level Activities: Policy Related Work For Reducing GHG Emissions	1				

Sources:

(1) IFC Definitions and Metrics for Climate-Related Activities, October 2013

(2) World Bank Green Bond Fact Sheet, August 2013

(3) Commonwealth of Massachusetts 2013 CDE General Obligation Bonds Official Statement, June 4, 2013

(4) "Green Bond Principles 2014: Voluntary Guidelines for Issuing Green Bonds" $% \mathcal{A}(\mathcal{A})$

The largest issuers of Green Bonds to date have been "supranational" development banks such as the World Bank and International Finance Corporation.¹

In 2008, the World Bank offered a fixed income product dedicated to supporting climate change mitigation and adaptation projects in developing countries. Proceeds from the issue were credited to a special account to support World Bank loan disbursements on qualifying projects. To date, the World Bank has issued over \$6.4 billion of Green Bonds to finance environmentally conscious projects while attracting a new and diverse pool of fixed income investors.²

In addition to the World Bank, IFC has issued \$3.5 billion in Green Bonds since the inception of its program in 2010. Bond proceeds have been used to finance renewable energy, energy efficiency, and other projects that seek to reduce greenhouse gas emissions from private-sector entities.³

In November 2013, Bank of America announced the sale of its first Green Bonds: a \$500 million issue as part of a 10-year, \$50 billion environmental initiative to help address climate change, reduce demands on natural resources, and advance lower-carbon economic solutions. Bank of America will re-lend and invest the proceeds⁴.

Green Bonds expanded to the United States municipal bond market in July 2013 when the Commonwealth of Massachusetts sold \$100 million of fixed rate new money bonds to help finance environmentally conscious public projects. Proceeds from the bonds will pay for improving water quality, increasing energy efficiency, and clearing pollution. The Commonwealth's issue of 20-year bonds was well received, with orders from 154 individual investors and 29 institutions, including several investors participating in the transaction mainly because of the "green" aspect.⁵ This is particularly notable because the Massachusetts bonds were taxexempt and thus had a smaller natural pool of green investors from which to draw. More recently, in June

1. Expanding Bond Market for Green Projects: <u>http://www.</u> jpmorganchase.com/corporate-responsibility/green-bonds

- 2. World Bank Green Bond Issuance to Date: <u>http://treasury.worldbank.org/cmd/htm/GreenBondIssuancesToDate.html</u>
- 3. IFC World Bank Group Green Bonds: <u>http://www.ifc.org/</u> wps/wcm/connect/353c8f004325cabfa308ef384c61d9f7/ Green+Bonds+March+2014+final.pdf?MOD=AJPERES
- 4. Bank of America issues \$500 million "Green Bonds": <u>http://</u> about.bankofamerica.com/en-us/green-bond-overview. html#fbid=d68LEHGphoZ
- 5. Massachusetts Goes 'Green': <u>http://online.wsj.com/news/articles/SB</u> 10001424127887324563004578525762271478512

2014, the New York State Environmental Facilities Corporation identified \$213 million of bonds to finance 128 drinking water and wastewater projects as Green Bonds.⁶

In July 2014 the District of Columbia Water and Sewer Authority sold its inaugural Green Bond issue of \$350 million. The taxable financing was the first independently certified Green Bond issuance in the U.S., obtaining a sustainability opinion from an independent party. The transaction generated more than \$1.1 billion in orders during the sale, and demand for the bonds allowed the Authority to upsize the transaction by \$50 million, while maintaining pricing levels throughout the order period.⁷

Green Bond issuance grew in September 2014, with the State of California conducting its inaugural Green Bond sale and the Commonwealth it's second.

According to the State of California's preliminary prospectus, it intends to finance projects that will provide air pollution reduction, clean water and drinking water, energy efficiency and conservation in public buildings, and other environmentally beneficial projects.⁸ The Commonwealth of Massachusetts took a more focused approach in its second Green Bond issue. According to their preliminary prospectus, they will use the \$350 million Green Bond sale to help pay for a marine terminal in New Bedford, Mass. to support the construction of offshore wind projects. They will also use proceeds for clean water, energy efficiency, river revitalization and open-space protection efforts⁹, similar to their initial issue.

New York Selling \$213 Million in "Green Bonds" for 128 Drinking Water, Wastewater Projects: <u>Press Release Link</u>

Barclay's Capital Case Study "DC Water and Sewer Authority's Ground Breaking Inaugural Century Bond Issuance: Emailed July 14, 2014

State of California, September 11, 2014, \$2.29 billion Preliminary Prospectus: <u>http://munibase.elabra.com/</u> <u>SeptGO14POS/doc/pos.pdf</u>

^{9.} The Commonwealth of Massachusetts, September 9, 2014, \$350 million Preliminary Prospectus: <u>http://www.massbondholder.com/sites/default/files/files/</u> <u>MA%20G0%202014%20Series%20E%20POS%20</u> %28Green%29%20unsecured.pdf

Across the globe, the market for Green Bonds is booming. As CNBC recently reported, so far in 2014 more than \$19.9 billion in Green Bonds have been issued worldwide, compared with \$10.9 billion for all of 2013. By year-end 2014, that number is slated to be \$40 billion, according to the Climate Bonds Initiative. As of July 1, 2014, the U.S. Green Bond market has hit \$3.24 billion, and even bigger deals are anticipated.¹⁰



In response to this emerging opportunity, institutions have set aside money dedicated to Green Bond investments. Large U.S. asset managers like TIAA-CREF, BlackRock, and Deutsche Asset and Wealth Management have recently begun to seek out green investment opportunities. In addition, other U.S. domestic investors focused on promoting socially responsible investments have started to purchase Green Bonds. Fund managers report that individual investors are also interested in this market segment for direct purchases. We believe that if more product is available in the tax-exempt market, the awareness and appetite will grow.

Notable Green	Bond Investors
BlackRock	Pax World Management
3M Company (corporate)	Pfizer (corporate)
California State Treasure's Office	Standish Mellon Asset Management
CalSTRS	State Street Global Advisors
Calvert Investments	Trillium Asset Management
Ford (corporate)	UN Joint Staff Pension Fund
TIAA CREF	Washington State Investment Board
Microsoft (corporate	Zurich Insurance Group
New York State Common Retirement Fund	MMA Praxis Mutual Funds
Source: Goldman Sachs: February 21, 2	2014

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 Constance Gustke, A scare global resource fighting climate change, CNBC: <u>http://www.cnbc.com/id/101796340</u> The Green Bond market was given a further boost earlier this year with the roll-out of the Green Bond Principles, a set of voluntary guidelines published by a consortium of thirteen large banks to promote development of the Green Bond market.¹¹ These guidelines set forth four main principles concerning transparency and disclosure that issuers have been adhering to and the market has accepted:

- Use of Proceeds: All designated projects must provide clear environmental benefits that can be described and, where feasible, quantified and/or assessed.
- **Process for Evaluation/Selection:** The issuer should outline the decision-making process followed to determine eligibility of investment and should engage in consultation with environmental experts.
- Management of Proceeds: The tracking of proceeds should be clearly and publicly disclosed. In addition, to foster integrity, the internal tracking method should be reviewed by an outside, independent party.
- **Reporting:** Regular updates that detail the specific projects and the dollars invested in projects should be available via newsletters, website updates, or filed financial reports.

Issuers, investors, and non-profit organizations have joined together to expand on these principles. Ceres, a non-profit organization advocating for sustainability leadership, has mobilized a network of investors, issuers, companies and public interest groups to accelerate and expand the adoption of sustainable business practices and solutions to build a healthy global economy. Ceres has been holding monthly calls with investors and issuers to expand on the definition and criteria for the four main principles. The Comptroller's Office Bureau of Public Finance is a regular participant in the Green Projects sub-committee that is developing a more standardized definition of what qualifies as a Green Project.

BENEFITS OF GREEN BONDS TO NEW YORK CITY

Comptroller Stringer believes that a Green Bond program will benefit New York City in three ways: by expanding the investor base, creating a model program

^{11. &}quot;Green Bond Principles 2014: Voluntary Guidelines for Issuing Green Bonds": <u>http://www.jpmorganchase.com/corporate/</u> <u>Corporate-Responsibility/document/Green_Bonds_Principles.pdf</u>

for other cities to follow, and encouraging a greener capital program.

EXPANDED INVESTOR BASE

New York City is the one of the largest issuers of municipal debt in the country, with an anticipated \$30 billion of borrowing over the next four fiscal years. The City already has a large investor base comprised of both individual and institutional investors who benefit from the municipal bond tax exemption. Large institutions such as TIAA-CREF and BlackRock that have historically purchased New York City municipal bonds are now purchasing and holding Green Bonds as part of their portfolios. New York City Green Bonds would open the door to other U.S. institutions that incorporate Environmental, Social and Governance criteria (ESG) in their analysis. Given the size and scope of New York City's capital program, an increase in demand for bonds can enhance absorption of new issues and potentially lower borrowing costs over time.

MARKET LEADERSHIP/CATALYST

Because of New York City's size and market presence, a clearly defined New York City Green Bond program can serve as a model for the municipal marketplace and lead to other U.S. municipalities creating similar programs, further expanding the investor universe.

"GREENER" CAPITAL PROGRAM:

A robust, ongoing New York City Green Bond program will require the City to evaluate its capital program to identify qualifying projects. This heightened awareness could lead to greater focus on environmentally beneficial projects. The share of capital spending addressing sustainability could be tracked and such capital needs prioritized.

Furthermore, as a result of Superstorm Sandy, the 2013 update to PlaNYC¹² has focused on how to make the City more resilient to future storms. The projects in PlaNYC, as well as others launched by the current administration, represent a large pool of potential Green Projects which could be identified and financed in bond transactions.

The Comptroller's Office envisions the Green Bond program as a sustained feature of City capital borrowing. For the GO and TFA credits, we expect specific maturities within Local Finance Law (LFL) compliant amortizing structures would be designated as Green Bonds, based on the useful lives of the projects being financed. Similarly for NYW, which frequently

12. "PlaNYC A Stronger, More Resilient City:" http://s-media.nyc.gov/agencies/sirr/SIRR_singles_Lo_res.pdf borrows with 30+ year bullet maturities, we would allocate Green Projects to a specific maturity that was designated as a Green Bond.

The City needs to sell Green Bonds with sufficient size and frequency so that investors are incentivized to put in the time and effort needed to understand and evaluate program criteria and management. NYW may have a higher proportion of "green" projects, depending on the final criteria, and could conceivably sell a significant portion of its \$1.5 billion/year new debt as Green Bonds. For GO and TFA, which typically borrow \$650-800 million per sale, periodic inclusion of \$100 - 200 million of Green Bonds should be sufficient to draw attention.

STRUCTURE AND FREQUENCY OF NYC GREEN BOND ISSUANCE

By any measure, New York City's capital program is large. The City's four year capital commitment plan for fiscal years 2015 through 2018 totals \$35.2 billion, of which 75.5 percent (\$26.6 billion) is projected to be City funded, largely through bond sales. For fiscal years 2009 through 2013, capital expenditures totaled \$46.5 billion, including \$39.6 billion of City funded expenditures.¹³ The Fiscal Year 2015 capital commitment plan totals \$12.8 billion (\$9.9 billion City-funded), of which almost 98 percent is projected to be attained within the fiscal year. Categories of expenditures with the 2015 capital commitment plan include the following:



The City of New York Capital Commitment Plan, Executive Budget Fiscal Year 2015, Volumes 1, May 2014

IDENTIFYING GREEN CAPITAL PROJECTS

In developing a Green Bond program to support the capital plan, the initial focus should be on agencies likely to have a significant amount of eligible projects.

The City's next major capital plan revision is expected in early 2015. By adopting a Green Bond program now, green project identification can be seamlessly incorporated in the capital plan update process. In addition to tagging projects already underway but not fully financed, a successful Green Bond program can assist in the creation of a new vision of the City's Capital Plan with heightened awareness of sustainability.

MANAGEMENT AND TRACKING OF GREEN BOND PROCEEDS

Green Bond tracking must provide for clear, regular reporting and an audit trail that will enable verification and meet the needs of investors to confirm that the Green Bond proceeds are being spent on qualified projects. This reporting and transparency is essential for the success of the City's Green Bond program. New York City has an advanced accounting, budgeting, and reporting process in place that tracks project spending and capital project reimbursement. Because we expect to "graft" record keeping onto existing budgeting and capital planning systems, we believe that the Green Bonds program can work within the City's existing process with minimal additional costs.

In conjunction with the existing capital budget process, agencies will review their capital needs, identify potential Green Projects, and request that the projects be financed with Green Bond proceeds. This request would be reviewed by OMB Task Force, OMB Counsel, and OMB Central Capital for capital expenditure eligibility and also reviewed by representatives from the Comptroller's Office and OMB to determine if the project qualifies for Green Bond financing. Once the green project and corresponding "Green Capital Budget Code" is approved, it will be ready for funding from a City Green Bond issue.

Proceeds from a Green Bond sub-series of bonds will be moved into a separate capital proceeds account earmarked for only Green Projects. Green Bond proceeds can then be allocated to Green Projects by creating a "Green Bond Status" code. The Comptroller's Office Bureau of Accountancy along with OMB will create Green Status Codes at the onset of the program. This Green Bond Status allows for automated allocation

of Green Bond proceeds to projects within the current Financial Management System (FMS) model. The automated process allows for a clear and transparent allocation of funds and minimizes the chance of human error.

In addition to automated funding, FMS has the ability to report financed expenditures by bond status. The creation of a Green Bond Status allows the City to know, in real time, the exact amount of spending that has occurred on Green Projects within the capital budget. In addition, FMS has the ability to provide a breakdown of funding on each project, allowing the City to manage, track and report back to investors on the status of projects funded by Green Bond proceeds.

Detailed flow charts and back-up material on implementing Green Bonds under the City's existing budget and accounting system are in the Appendix.

IMPLEMENTATION PLAN

Implementing a successful New York City Green Bond program requires partnership between the Comptroller's Office and OMB, which share responsibility for debt issuance. A joint working group will be formed to drive implementation of the project. Key goals for this group include:

- Defining criteria.
 - With no standard definition of what is "Green", New York City will have to create its own green selection criteria for projects to qualify for Green Bond financing.
 - The working group will look at other issuers' criteria and talk informally with key investors, as well as consider the specifics of the City's capital program.
- Establishing necessary coding to track projects and expenditures.
 - The Comptroller's Office has developed a model based on creating Green Budget Codes and a Green Bond Status code. These codes will ensure that proceeds from Green Bond financings only flows to Green Projects.
- Incorporating Green Bonds in the capital budget process with key agencies.
 - Once Green Bond criteria are determined and the working group has confirmed a tracking method, City agencies with an expected high volume of

eligible projects will be assisted in the review of their capital budgets for eligible Green Projects.

- Agencies will present eligible projects and corresponding Green Budget Codes to the OMB Task Force, OMB Counsel, OMB Central Capital, and the joint working group.
- Selecting initial projects.
 - Rigorous review and approval process to ensure that the proposed projects do in fact fit within the Green Bond funding eligibility framework.
 - Code projects and start tracking expenditures to be reimbursed from Green Bond proceeds. As with all City capital expenditures, payments will initially be made from the City General Fund and reimbursed from bond proceeds. Tagging as a project as Green will not affect the timing of expenditures.
- Executing in-depth investor communication strategy.
 - Once selection criteria are established and initial projects are selected, the City will inform the municipal market and investors about its inaugural issuance.
 - Selection criteria and Green Projects to be financed by Green Bond proceeds will be fully disclosed in bond offering documents. The official statement will describe uses of proceeds, the process used for evaluation and selection of projects, management of proceeds and investor reporting.
- Structuring and selling bonds in GO, TFA and/or NYW transactions.
 - New York City has enough flexibility within its bond structure limitations to create a Green Bond subseries of bullet maturities or amortizing maturities to meet investor demand.
 - Both conventional and Green Bond sub-series combine to make a single LFL-compliant

structure and proceeds from each subseries would be segregated into separate accounts to reimburse the General Fund for project spending.

- Reporting to investors on projects and expenditures.
 - Since investor reporting is a key component to a successful Green Bond Program, the City should report back to investors on a quarterly basis.
 - The City could use its existing investor communication tools or create a standalone website or newsletter. If needed, the Comptroller's Office can create a Green Bond section on its current investor relations webpage
 - Checkbook NYC may also be adapted to provide "real time" reporting.
- Seeking feedback and planning for expansion.
 - "Round one" experience will shape the ongoing Green Bonds program.
 - Additional City agencies will join the program in subsequent years.

CONCLUSION

As a highly populous coastal city with aging infrastructure and a large need for new capital projects, New York City must act to adapt to a changing environment. This challenge is also an opportunity: a chance to not only embark on innovative projects that protect our communities, but also to be a leader in financing these projects.

Indeed, as of one of the nation's largest and most sophisticated issuers of municipal bonds, New York City has the expertise and market presence to set a standard for the entire United States municipal bond market. Green Bonds will help to broaden and deepen our investor pool and drive environmental consciousness deeper into our capital program. Now is the time to move forward and make Green Bonds part of New York City's capital plan.

BUDGETING AND ACCOUNT AT A GLANCE



Within the City budget, funds are authorized at the Unit of Appropriation (UA), which is indicated by the red box. A UA represents the amount authorized for expenditure with regards to a particular group of projects in an agency's budget. Agencies have discretion to place one or many capital projects within a unit of appropriation. The FMS maintenance side of the capital budget provides information on the responsibility centers and budget codes within each unit of appropriation. A single UA can fund many budget codes and a budget line in the commitment plan can fund many Project IDs.

Since bond financing and tracking occurs at the Budget Code level (yellow box), this stage would represent our entry point into the capital budget. Budget codes are a 4-digit number assigned to each item on an agency's schedule of proposed encumbrances at the UA level.

On the funding side, the Comptroller's Bureau of Accountancy and OMB would create a Green Bond Status code in order to automate the funding process. The Bureau of Accountancy will assign these Green Bond Statuses to all Green Budget Codes to ensure Bond Proceeds are applied automatically. Once contracts are registered and Green spending occurs, Green Bond proceeds can be used to fund Green liquidated expenditures in Green Budget codes with a Green Bond Status.

BOND STRUCTURE



New York City has enough flexibility within its structuring limitations to create a subseries of bullet maturities or amortizing maturities to meet investor demand.



Both sub-series combine to make a single LFL - compliant structure and proceeds from each subseries are segregated in to separate accounts to reimburse the General Fund for project spending.

	- BUDGET				R
Home	Agency	Citywide(All Agencies)	Modified	то	
Citywide A	Department	Select Department Y	Pre Encumbered	то	15) -
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INVESTOR REPORTING: CHECKBOOK

Reporting back to investors can be enhanced with the inclusion of Checkbook 2.0 into our investor relations toolkit. Checkbook currently provides a live feed on expenditures from FMS. Once Green Budget Codes are created in FMS they will automatically populate on Checkbook. This will provide an extra layer of

transparency as it will allow investors to search for spending at the Budget Code Level. If the specific budget code is not known, investors can search by key terms as illustrated above. There is a direct link to Checkbook on the New York City Comptroller's homepage.





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