# Bond Financing for Clean Energy Projects

BROOKINGS-ROCKEFELLER

Project on State and Metropolitan Innovation

#### Clean Energy Finance Through the Bond Market: A New Option for Progress Lewis Milford, Devashree Saha, Mark Muro, Robert Sanders, Toby Rittner

"Bond finance

potential for

clean energy

investment, at

levels in the

tens of billions

of dollars in

years."

the next several

holds tremendous

State and local bond finance represents a powerful but underutilized tool for future clean energy

firestiment, for followers, the nation's state and local infrastructure finance agencies have issued tritions. for nou years, the nation a state and special immastructure manner experience nave insulate or leads of decilists worth of public thance bonds to fund the construction of the nation's roads, bridges, or communities of picture marker outlook to rund the construction of the nation's roads; so traces, or possess, and other infrastructure—and iterally built America, Now, at clean energy subsidies to possess, and other infrastructure—and iterally built America, Now, at clean energy subsidies hospitals, and other intrastructure-and meriany outst americal from as count interrity subsideses. From Washington deficite, these agencies are increasingly willing to finance clean energy pro-

eds, a copy me case energy community any enursus ment.

So far these authorities are only experimenting. However, the bond finance community has 30 has unser extractues are only experimenting movever; the point limited community mo-accumulated significant experience in getting to scale and knows how to raise large amounts. accumpanage segment experience or germino to scale and arrows now to raise large amounts for important purposes by selling bonds to Wall Street. The challenge is therefore to create new so important purposes or seamy dates to translates. The conserve in timescent to create in models for clean energy bond finance at state and regions, and so to establish a new clean induces or onam energy dono mance in states any regions, and so to extension a new cream energy asset class that can easily be traded in capital markets. To that end, this brief arques that

- energy asset cass that can easily or traceu in capital markets. To that was this state and local bonding authorities and other partners should do the following: Base and some becoming destinations are also cover participes advantage of the recoverage.

  Establish mutually useful partnerships between development finance experts and clean
- receipt omenas at the state almo total government arevo-Expand and scale up bond-financed clean energy projects using credit enhancement and
- Expand and scare up bond-marketo clean enemy projects sharp creat entersoluter emerging tools to mitigate risk and through demonstration projects.
- oner emerging tools to manager raw and mroupn demonstration projects
  improve availability of data and develop standardized documentation so that the risks and reasons or count energy pressiments call the server single-shape.

  Create a plessing of rated and private placement deals, in effect a new clean energy asset Creates a specimen or seaso and promise pascement ones, in errors a new cover-enting in sec-class, to meet the demand by institutional livestors for fixed-income clean energy securities

#### 1. Introduction

he financing of renewable energy and energy efficiency projects to reduce carbon emissions As your stee memory and viscoustry may list yourse extent.

The massive infusion of clean energy investments embedded in the American Recovery. ing masser enterior or creat strengy investments emocuoeu in the American Reinvestment Act (ARRA) of 2009 has almost entirely wound down.<sup>1</sup>

and reconveniment act cannot be 2007 has almost enning young down-doctionally, commercial bank lending for dean energy projects is down, and many American banks Additionant, commercial data herding for creat energy projects a boart, and many American Joans of the companies of the compa sere open out on source and into repayment surrouses and no shaper renewalse energy projects.

The clean energy sector's ability to secure either equity or deet financing for projects has also

Devashree Saha

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#### Outline

Proposition

Clean energy bond financing

The challenge

Toward a new infrastructure finance approach

**Progress** 

#### Proposition

Nation's states and metropolitan regions are taking the lead in coming up with smart, creative, large-scale clean energy financing solutions

#### Proposition

#### Brookings-Rockefeller Project on State and Metropolitan Innovation Series:

- Leveraging State Clean Energy Funds for Economic Development (2012)
- State Clean Energy Finance Banks: New Investment Facilities for Clean Energy Development (2012)
- Clean Energy Finance Through the Bond Market: A New Option for Progress (2014)

## Clean energy bond financing

State and local bond finance represents a powerful but underutilized tool for future clean energy investment

#### The challenge

#### Four major finance and policy problems:

- Weak cooperation between development finance agencies and clean energy offices
- Lack of a large market for clean energy bonds
- Spotty performance data and lack of standardized documentation
- Institutional investor demand fro clean energy bonds remains limited

#### States and localities can consider pursuing four main agendas:

- Establish mutually useful partnerships between development finance experts and state and local clean energy officials
- Expand and scale-up bond financed clean energy projects using credit enhancements and through demonstration projects
- Improve the availability of data and develop standardized documentation
- Create a pipeline of rated and private placement deals to meet the demand by institutional investors for fixed-income clean energy securities

Establish mutually useful partnerships between development finance experts and state and local clean energy officials

Expand and scale-up bond financed clean energy projects using credit enhancements and through demonstration projects

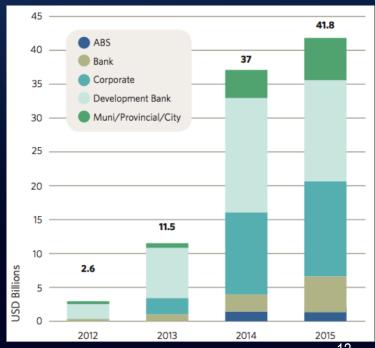
Improve the availability of data and develop standardized documentation

Create a pipeline of rated and private placement deals to meet the demand by institutional investors for fixed-income clean energy securities

#### Progress

#### Growing demand in clean energy / green bonds

- Record \$41.8 billion green bonds issued globally in 2015
- 1/4 of total issued amount came from the United States--\$10.5 billion, mainly driven by municipal green bonds
- Continuously growing investor demand, particularly by institutional investors and corporate treasuries



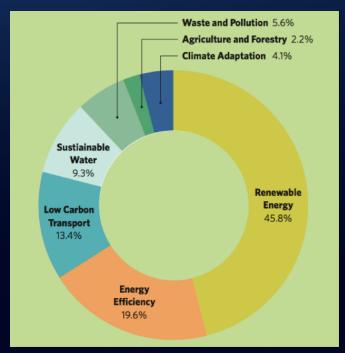
Source: Climate Bonds Initiative

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#### Progress

Clean energy projects lead the type of projects

being financed by green bonds



Source: Climate Bonds Initiative

#### For more information

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