Financing Infrastructure through Resilience Bonds

Wednesday, April 6th | 1:00-2:00pm PDT
Learning Session Agenda

• **Overview** of the Alliance of Regional Collaboratives for Climate Adaptation (ARCCA)

• **Feature Presentation** on Financing Infrastructure through Resilience Bonds

• **Discussion** with the ARCCA Executive Committee

• **Q&A** with Webinar Participants
Webinar Logistics

Questions:
At any point during the webinar, you can type your question into the question text box and click send.
All questions directed towards a speaker will be read aloud and answered at the end of the presentations, as long as time permits.
ARCCA is a network of regional collaboratives in California coordinating and supporting climate adaptation efforts to enhance public health, protect natural systems, build economies, and improve quality of life.

Engaging in state policymaking to advance a regional and holistic approach to adaptation.

Sharing best practices and resources to advance local efforts on the ground.

Encompassing over 80% of the state’s population.
Current Initiatives

• Projects with CivicSpark
  - Adaptation in Action Roadmap for SB 379 Compliance
  - Whitepaper on the Urban-Rural Connection for Holistic Climate Change Adaptation
• Research Projects
  - CEC Natural Gas Regional Adaptation Studies
  - Overcoming Institutional and Financial Barriers to Climate Adaptation
• Calendar of climate change adaptation events
• Legislative tracking
• More information available at www.arccacalifornia.org
Featured Speaker

Shalini Vajjhala
Founder and CEO
re:focus partners
refocuspartners.org
Financing Infrastructure Through Resilience Bonds

Shalini Vajjhala
ARCCA Learning Session
April 6, 2016
The High Cost of Infrastructure Failure

Image credit: weather.gov

insuring for resilience.
Designing & Financing for Resilience

Image credit: Instagram (paulphotraku)

insuring for resilience.
Infrastructure as Financial Risk Reduction

- Resilient infrastructure is designed to reduce risk
  - Public sector assets & services are safer
  - AND insurance companies lose less money when public & private policy holders are better protected

- Resilience Bonds are one way of ensuring the *financial* value created by these public investments returns to the public sector
Investing in Resilience

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insuring for resilience.
HOBOKEN, NJ

STORMWATER STORAGE + PARKING +
GREEN INFRASTRUCTURE

Population: 55,000 (2010 Census)
Area: 1 sq. mi.

Hoboken is a riverfront community prone to flooding when heavy rain events coincide with high tides. The City has several interrelated challenges including local flooding, aging infrastructure, and an overflowing combined stormwater and sewer system - all of which are exacerbated by increasing storm frequency, greater storm surges, and rising sea levels.

Hoboken Flood Map & Depth to Bedrock

insuring for resilience.
insuring for resilience.
HOBOKEN, NJ

STORMWATER STORAGE + PARKING + GREEN INFRASTRUCTURE

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Total Price ($M)</th>
<th>Excavation (CYD)</th>
<th>Excavation (CYD)</th>
<th>Waterproofing (SFT)</th>
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<td>114.9</td>
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<td><strong>Smaller Scenarios</strong></td>
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<td>188,521</td>
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insuring for resilience.
### NORFOLK, VA

**FLOOD BARRIERS + GREEN INFRASTRUCTURE**

<table>
<thead>
<tr>
<th></th>
<th>NO. OF FLOODED STRUCTURES</th>
<th>AREA OF FLOODED STRUCTURES (SQ. FT)</th>
<th>NO. OF STRUCTURES SAVED</th>
<th>AREA OF BUILDINGS REMOVED FROM FLOODING (SQ. FT)</th>
<th>VOLUME WATER HELD BACK (CU. FT)</th>
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<td>100-Year Flooding (7.6')</td>
<td>465</td>
<td>1,997,466</td>
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<td>-</td>
<td>11,095,891</td>
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Table 2 - Summary of Flood Reductions due to Self-Closing Flood Barrier
insuring for resilience.
Overview of Resilience Bonds
Leveraging Private Finance for Resilience

- The Challenge: Funding Resilient Infrastructure
  - Public resources for infrastructure are limited
  - Benefits are diffuse & rarely linked to revenues
  - Success is often something that didn’t happen

- The Opportunity: Resilience Bonds
  - Resilience Bonds can help close the loop
  - Create virtuous cycle of risk reduction investments

PROJECT + INSURANCE = REBATE

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How Resilience Bonds Work

Policy Holder → Insurance Policy → Cat Coverage (Property Insurance Co.) → Catastrophe Bond Investors

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How Resilience Bonds Work

- **Public Works Project**
  - Project Funding
  - Project Benefits

- **Policy Holder**

- **Cat Coverage**
  - Property Insurance Co.
  - Insurance Policy

- **Catastrophe Bond Investors**

  **Insuring for resilience.**
How Resilience Bonds Work

Resilience Project

Policy Holder

Avoided Losses

Cat Coverage

Property Insurance Co.

Catastrophe Bond Investors

Project Funding

Project Benefits

Insurance Policy

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How Resilience Bonds Work

- **Resilience Project**
  - Project Funding
  - Project Benefits

- **Policy Holder**
  - Insured Property

- **Cat Coverage**
  - Insurance Policy
  - Reduced Premiums
  - Reduced Risk to Principal
  - Avoided Losses

- **Catastrophe Bond Investors**
  - Project Rebate

**Insuring for resilience.**
Benefits of Resilience Bonds

1. Fill Project Funding Gaps
   - Rebates can fund future phases of projects
   - Savings can cover O&M costs or addt’l insurance

2. Help Meet Insurance Compliance Obligations
   - Existing federal disaster assistance requirements
   - Potential new req’s (i.e. FEMA Disaster Deductible)

3. Ensure Project Design Integrity
   - Set design standards linked to risk reduction value
   - Avoid value-engineering out key benefits
Is a Resilience Bond right for your project?

- Identify a potential project & risk reduction
- Talk to your Financial Advisor/Insurance Broker
- Follow-up to discuss:
  - Resilience & Insurance Priorities
  - Modeling Risk Reductions
  - Bond Design and Structuring Process
- For more information on Resilience Bonds see:
  RE.bound Program Report at
  www.refocuspartners.com

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Questions?

Contact: info@refocuspartners.com
Thank You

• To learn more about ARCCA:
  – Visit www.arccacalifornia.org
  – Contact Julia Kim at jkim@lgc.org or (916) 448-1198 x304

• To learn more about re:focus partners:
  – Visit www.refocuspartners.org
  – Contact Shalini Vajjhala at info@refocuspartners.org

• Stay tuned for our next Learning Session!