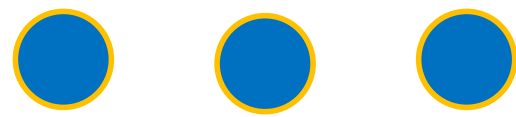
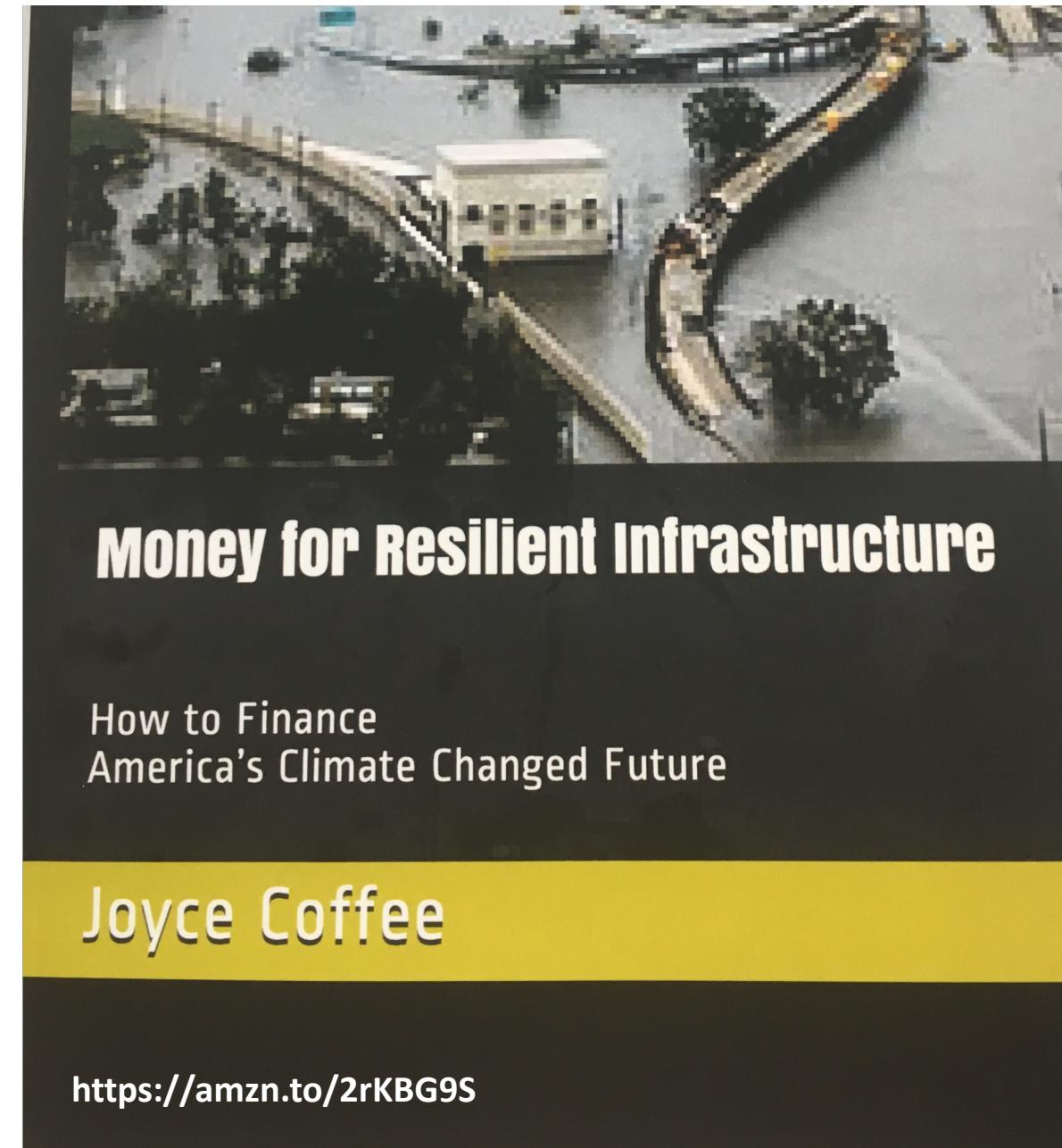


RESILIENCE



How to Turn Plans to Action for America's Climate Changed Future

Joyce Coffee
President, Climate Resilience Consulting
joyce@climateresilienceconsulting.com

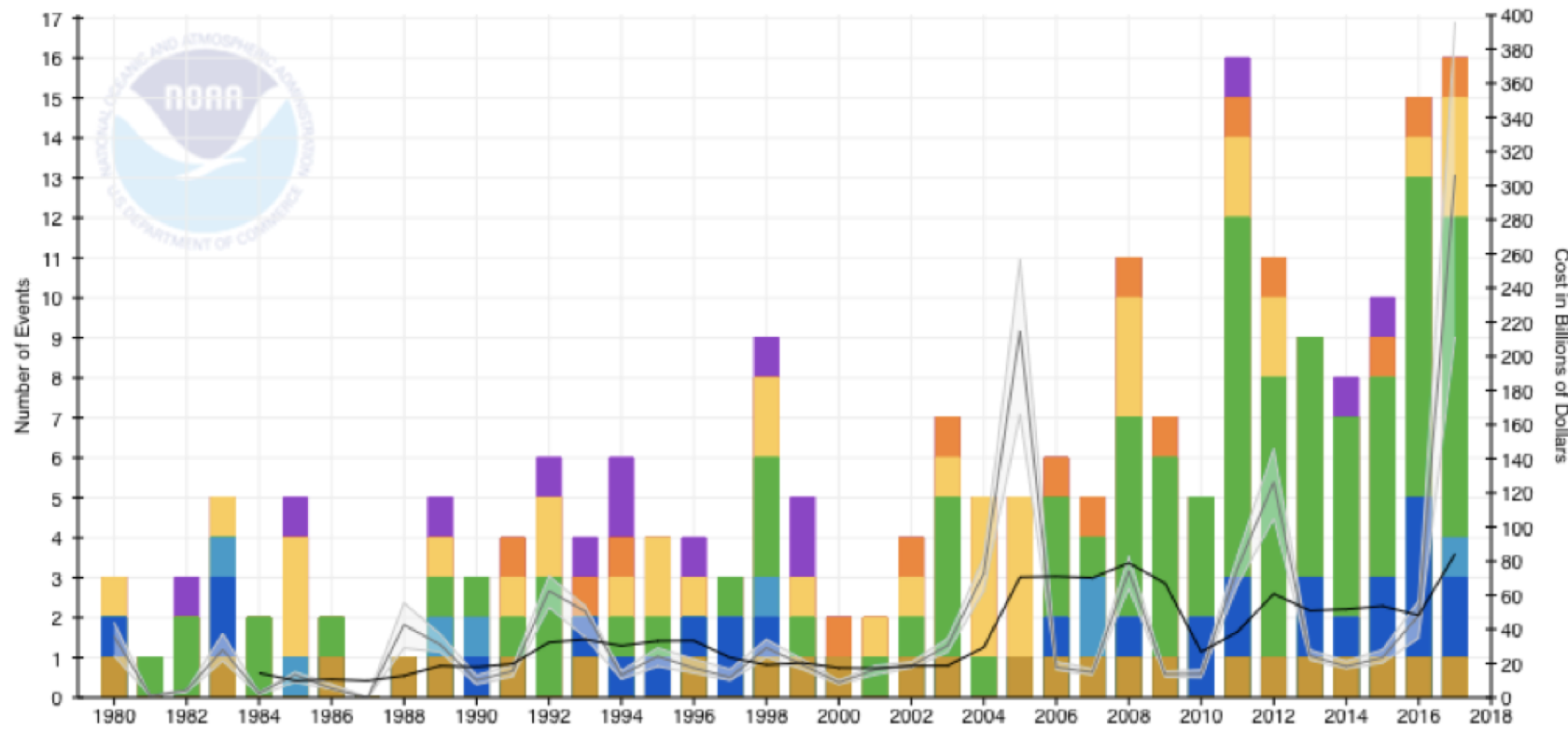


We've Arrived: Climate Change Risks

\$B Disaster Events

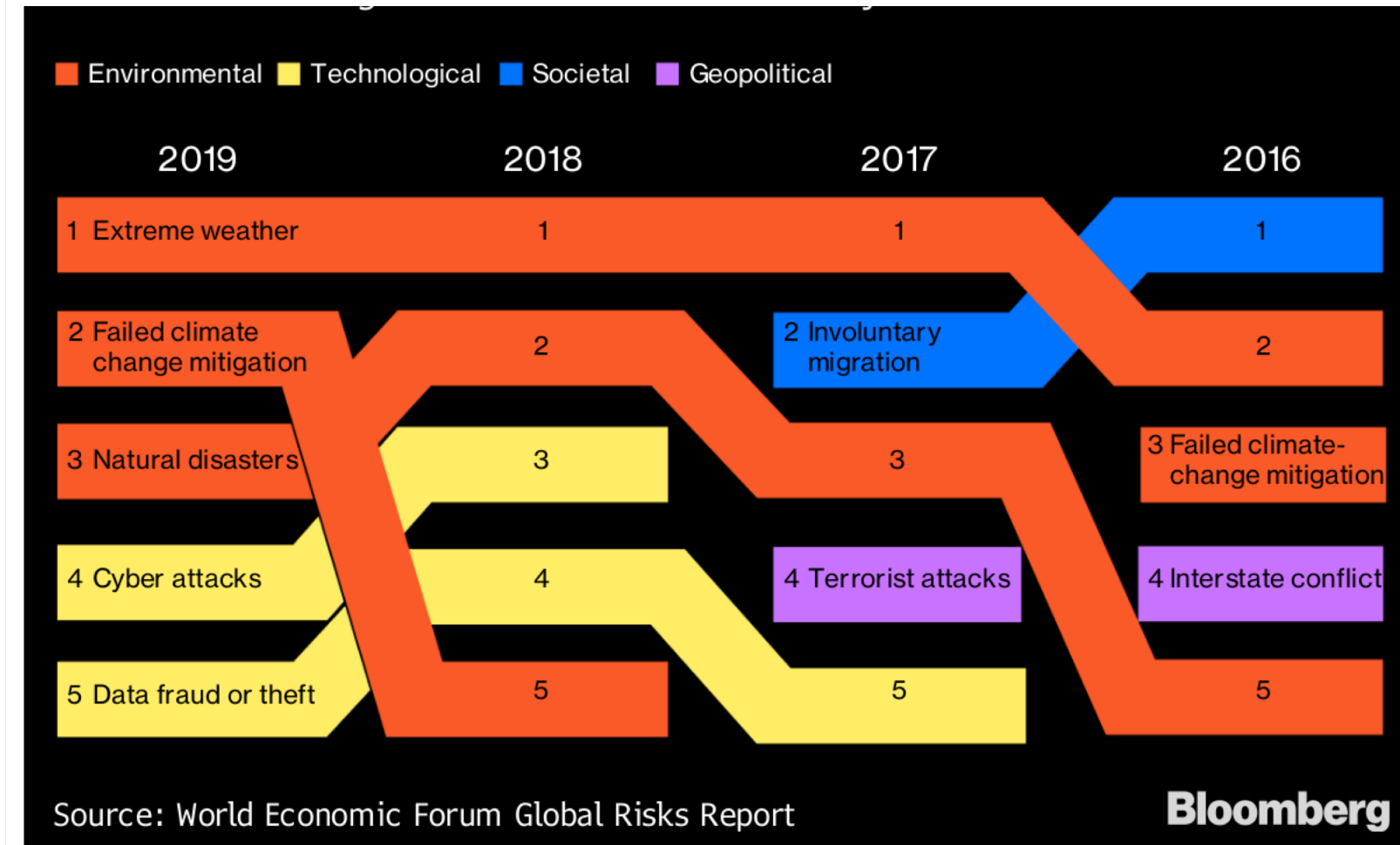
Billion-Dollar Disaster Event Types by Year (CPI-Adjusted)

- Winter Storm
- Wildfire
- Trop Cycl
- Severe Storm
- Freeze
- Flooding
- Drought
- Cost w/ 95% CI
- 5-Year Mean



Source: National Oceanic and Atmospheric Administration

WEF: 5 Global Risks



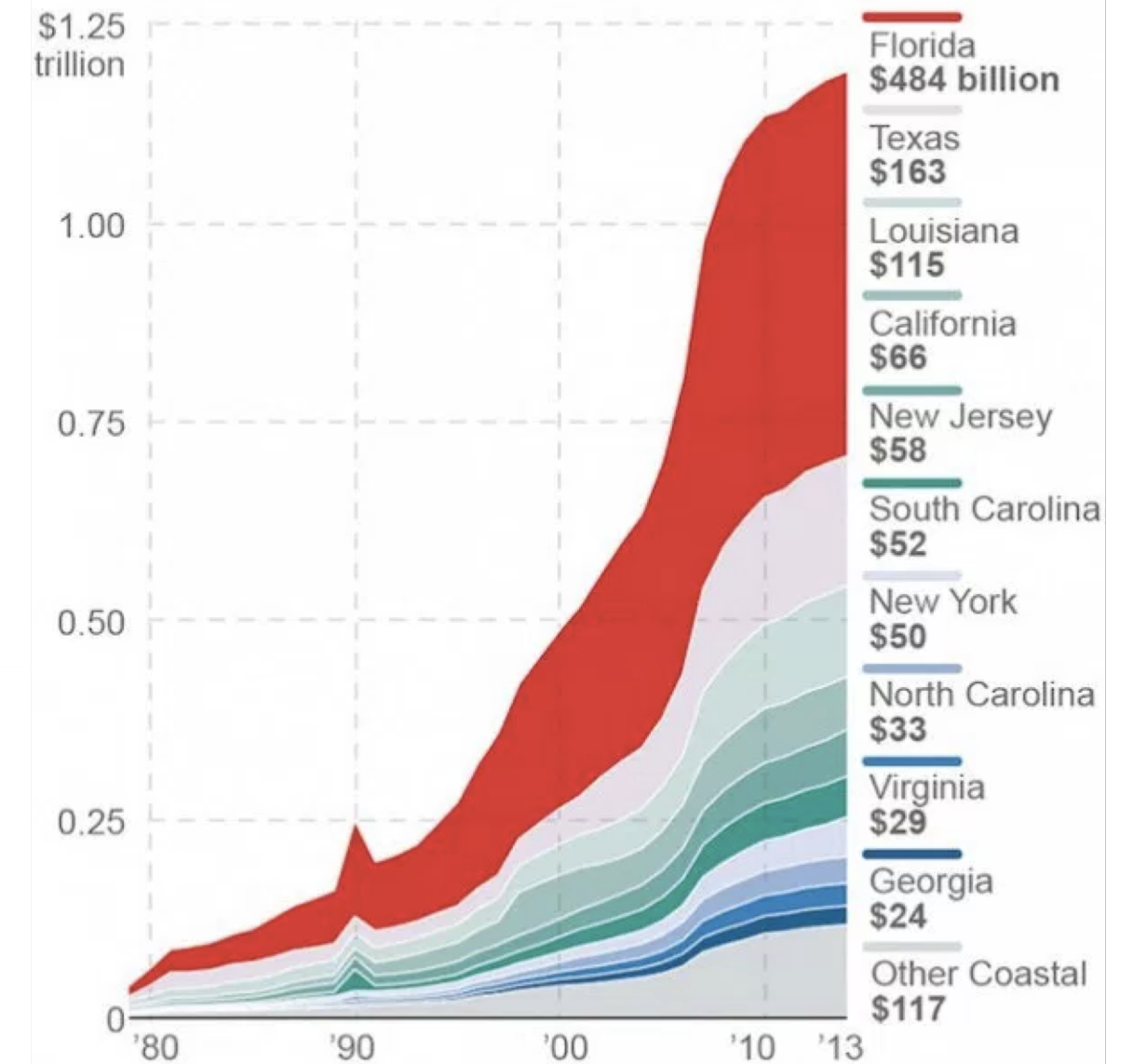
Bloomberg

It Pays to Act, Especially Since We All Pay

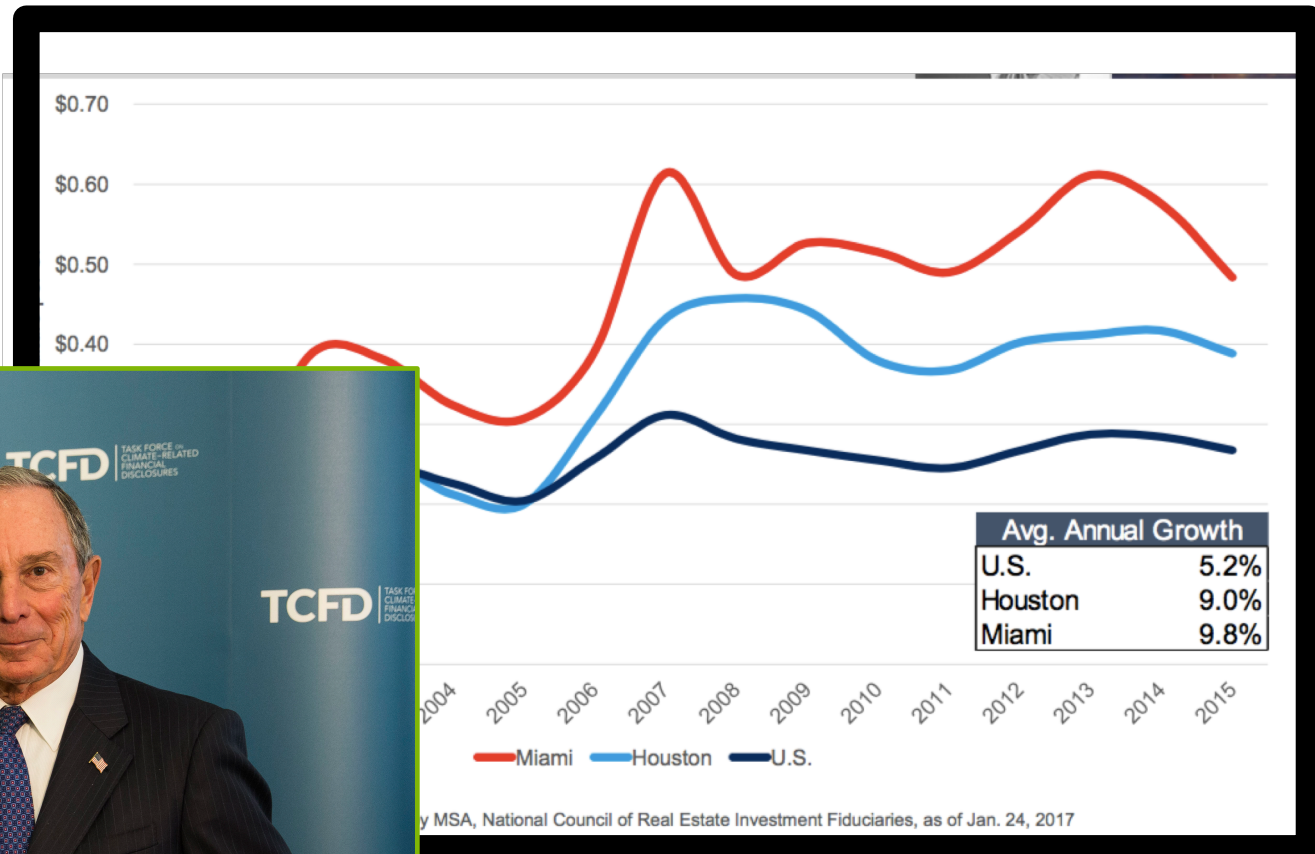
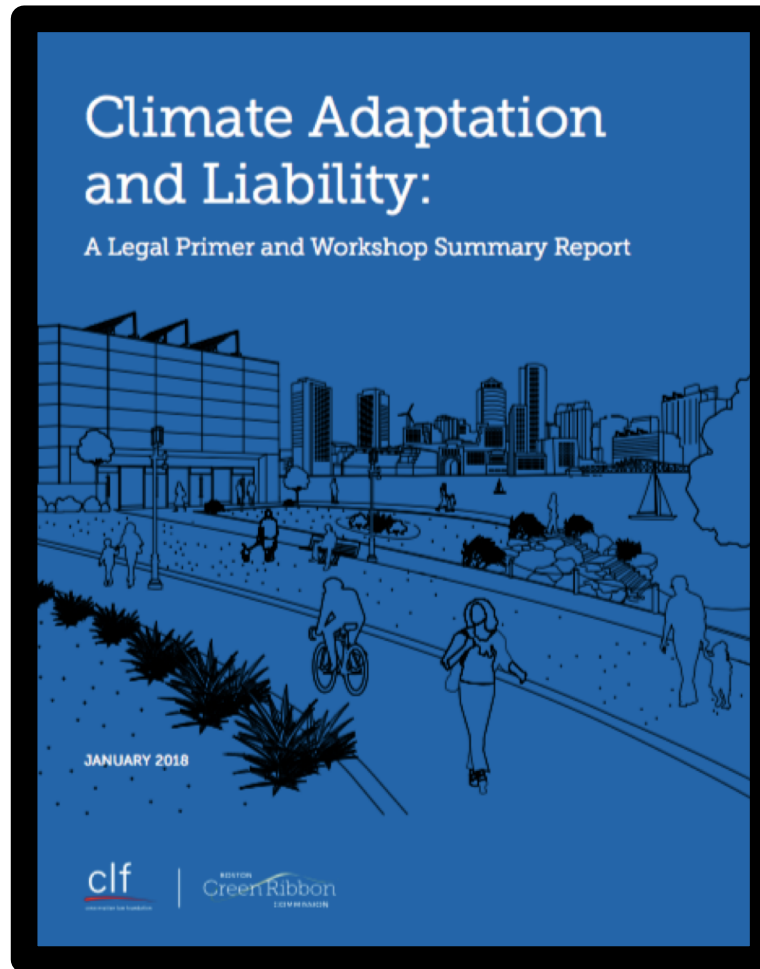
National Benefit-Cost Ratio Per Peril		Exceed common code requirements	Meet common code requirements	Utilities and transportation	Federally funded
<i>*BCR numbers in this study have been rounded</i>					
Overall Hazard Benefit-Cost Ratio		4:1	11:1	4:1	6:1
Riverine Flood		5:1	6:1	8:1	7:1
Hurricane Surge		7:1	Not applicable	Not applicable	Too few grants
Wind		5:1	10:1	7:1	5:1
Earthquake		4:1	12:1	3:1	3:1
Wildland-Urban Interface Fire		4:1	Not applicable	Not applicable	3:1

Safety net

Florida, Texas and Louisiana lead the nation in the value of property covered by the National Flood Insurance Program, often at below-market rates.



Market Inspirations for Resilience



Best Credit worthiness				Investment grade
aaa	An obligor has EXTREMELY STRONG capacity to meet its financial commitments.			
aa+	An obligor has VERY STRONG capacity to meet its financial commitments. It differs from the highest rated obligors only in small degree.			
aa				
aa-				
a+	An obligor has STRONG capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligors in higher-rated categories.			
a				
a-				
bb+	An obligor has ADEQUATE capacity to meet its financial commitments. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitments.			
bb				
bb-				
Ba1	BB+	BB+	bb+	"Junk" or sub-investment grade
Ba2	BB	BB	bb	
Ba3	BB-	BB-	bb-	
B1	B+	B+	b+	"Junk" or sub-investment grade
B2	B	B	b	
B3	B-	B-	b-	
Caa	CCC	CCC	ccc	"Junk" or sub-investment grade
Ca	CC	CC	cc	
	C	C	c	
C	D	D	d	"Junk" or sub-investment grade

© 2019 Climate Resilience Consulting—All rights reserved



Bankability: Revenue Streams



Government Money

City Expense Budget
City Capital Budget
Procurement - Contracts
Franchising



Government Assets

Government-Owned Property
Government Employees
Government Processes
Government Operations
Government Convening Power



Other People's Money Government/Private Sector Intersection

Zoning/Land Use
Rules and Regulations
Enforcement
Tax Policy/Incentives
Licensing
Permits
NGO Funded Work

THE WALL STREET JOURNAL.

PG&E: The First Climate-Change Bankruptcy, Probably Not the Last

The fast fall of PG&E after California's wildfires is a jolt for companies considering the uncertain risks of a warming planet

A problem related to Resiliency, Critical Infrastructure and Microgrids that needs a near term solution and requires collaboration is

**Funding and financing
energy security in the face
of climate change risks.**