



# **“TOTAL MARKET” STUDIES: IMPLICATIONS FOR FINANCING PROGRAMS**

**May 23, 2016**

2

# Total Market Study: Example 1

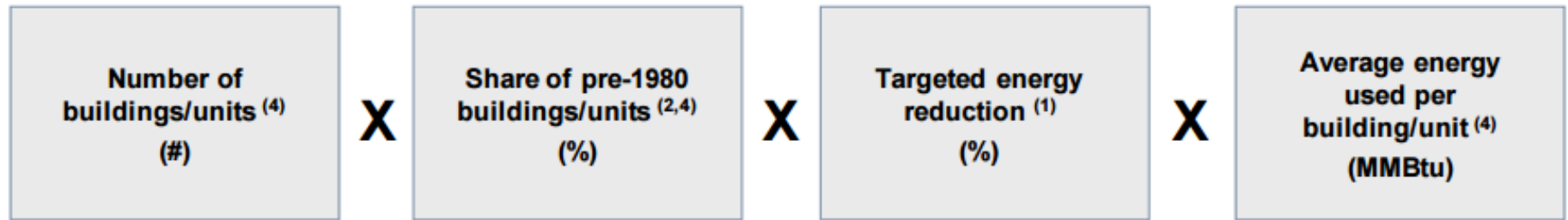
United States:

Deutsche Bank/Rockefeller Model

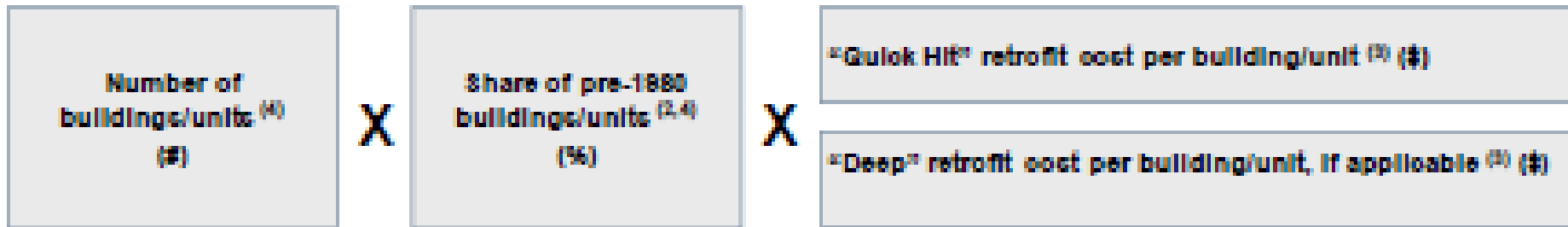
# Technical Potential: U.S. Deutsche Bank/Rockefeller Model

3

Energy Savings (Annual Tbtu)



Total Investment (\$Bn)



Bottom line:

“Scaling building energy efficiency retrofits in the United States offers a **\$279 billion** dollar investment opportunity.”

# Technical Potential: Implications

4

## *“Implications for Policy”*

(How do we get there, according to DB/Rockefeller?)

1. **Mandates (targets) that set comprehensive energy efficiency standards**
2. **Disclosure requirements**
3. **Leadership by example**
4. **Subsidies, incentives and guarantees to ‘de-risk’ energy efficiency investments**

5

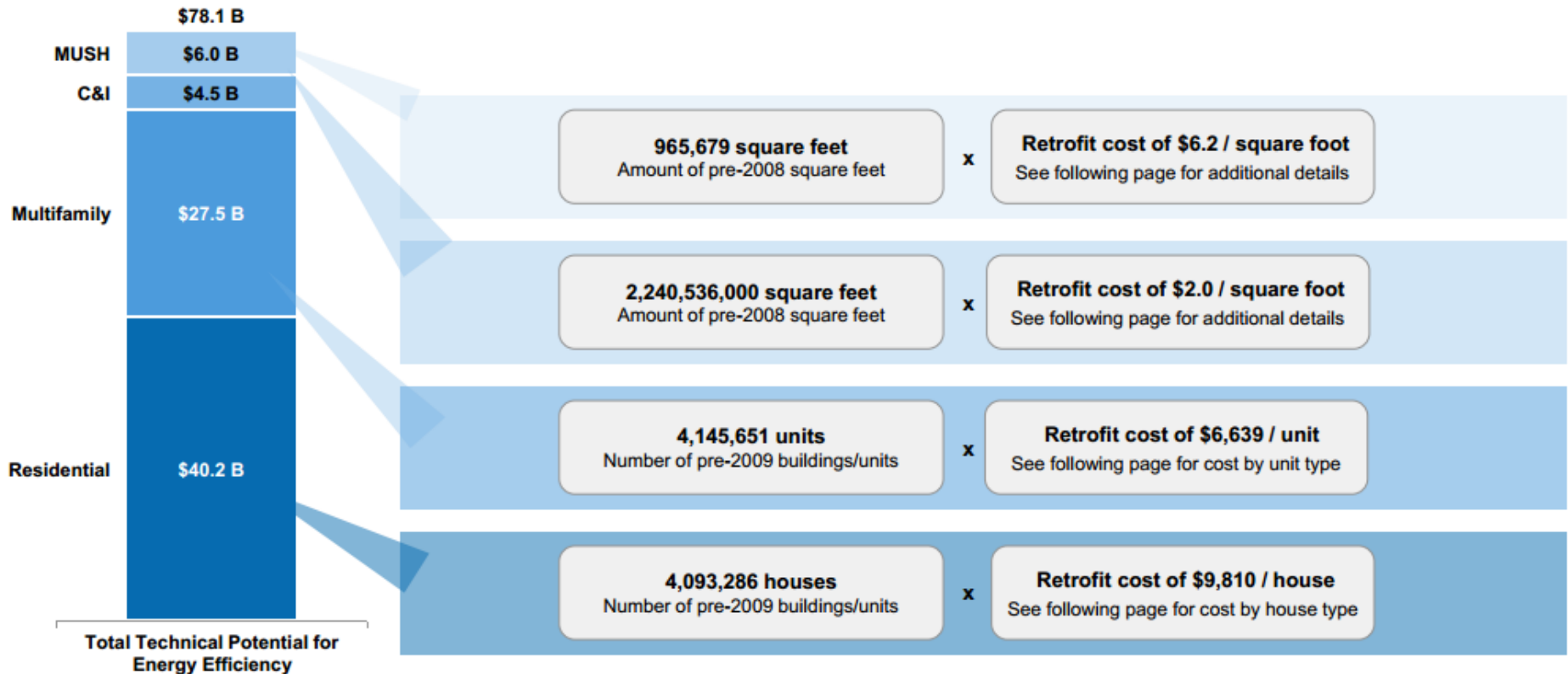
# Total Market Study: Example 2

New York:

Booz & Co. Model

# New York Model: Technical Potential

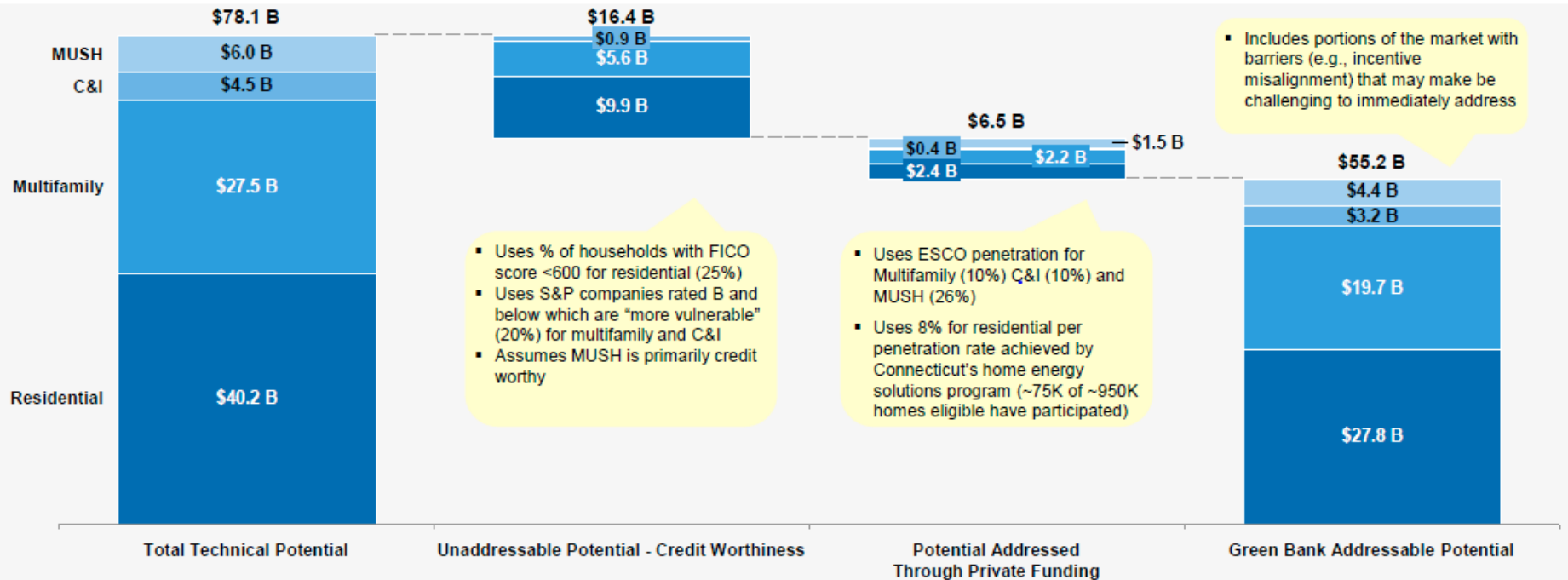
6



Source: Booz 2013

# New York Model: Green Bank “Addressable” Potential

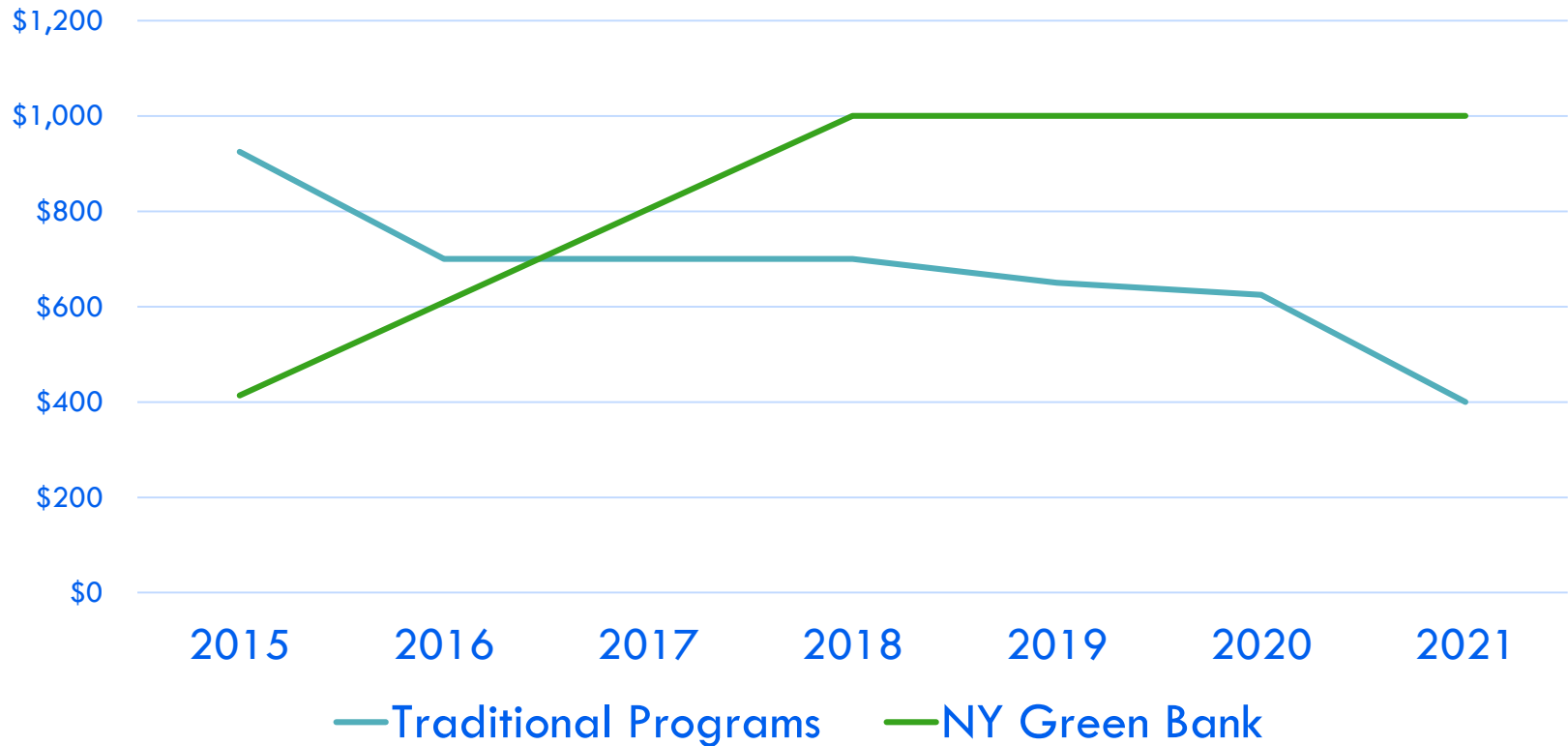
7



Source: Booz 2013

# Addressable Potential: Implications?

## NYSERDA Clean Energy Fund Proposal





# Compare to Deutsche/Rockefeller

- 1. Mandates (targets) that set comprehensive energy efficiency standards.** Mandated efficiency targets, such as those that have been recently employed in China, could transform overall demand for building retrofits. They are most easily applied to new buildings, however, and generally need to be implemented through local building codes. Enforcement of standards requires particular emphasis if they are to have a material impact on market adoption. As such, this type of policy has the greatest potential to transform the market but is also among the most difficult to execute and should be managed carefully.
- 2. Disclosure requirements.** Disclosure and benchmarking laws, such as those implemented in New York City, may provoke energy competition response from industry. As an alternative, voluntary systems such as Greenprint can play a complimentary role. The federal government can support disclosure-related initiatives, such as recent work by the Department of Energy to create a Buildings Performance Database, to enable more precise analysis of energy efficiency and create a template for disclosure to facilitate standardized reporting (See appendix for more detail). Policymakers should also consider methods for ensuring validity of the data used for benchmarking.
- 3. Leadership by example.** Government can lead by example by using its existing assets (e.g. GSA properties) to test emerging financing models and prove out different approaches, as it did with the LEED standards. Individual government projects can increase the visibility of retrofits, and government assets collectively can contribute to a critical mass of demand.
- 4. Subsidies, incentives and guarantees to 'de-risk' energy efficiency investments.** While challenging in the current budget environment, deal-enhancements, such as first lost reserves, credit enhancements or subordinated debt, can de-risk early finance models and support further proof of concept in near term to stimulate scale. Subsidized capital is not a long-term solution but could help catalyze private market development. State-level infrastructure investment banks are one way to do this at the state level; a 'Green Bank' has been discussed to play this role at the national level.

# Key Takeaways

10

- **Total Market** studies have been interpreted to lead to one of two implications by different thought leaders:
  1. **Enhance** non-financing policies and programs that drive demand and cause the capital to flow. (Deutsche/Rockefeller)
  2. **Reduce** non-financing policies and programs and shift greater focus to financing as a primary strategy comprehensive. (New York/Booz)
  
- **Achievable Potential** studies, as well as actual evidence on the ground, suggest that the first interpretation is likely to be more successful.

## Q&amp;A

Chris Kramer, Senior Consultant  
Energy Futures Group  
Phone: 802-482-5001 x4  
[ckramer@energyfuturesgroup.com](mailto:ckramer@energyfuturesgroup.com)



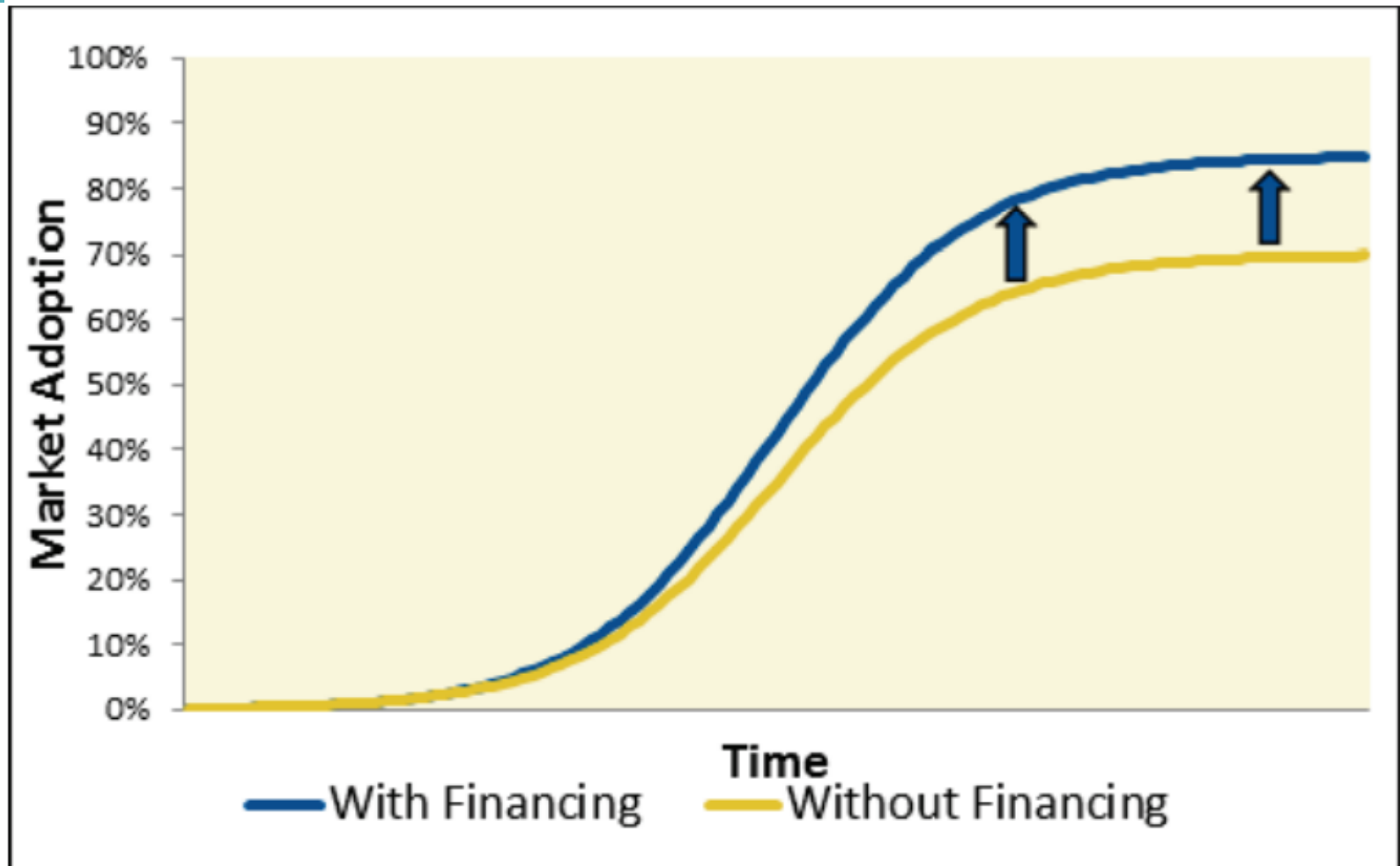
# Appendix: Achievable Potential

California:

Navigant Model

# Achievable Potential: CA Model

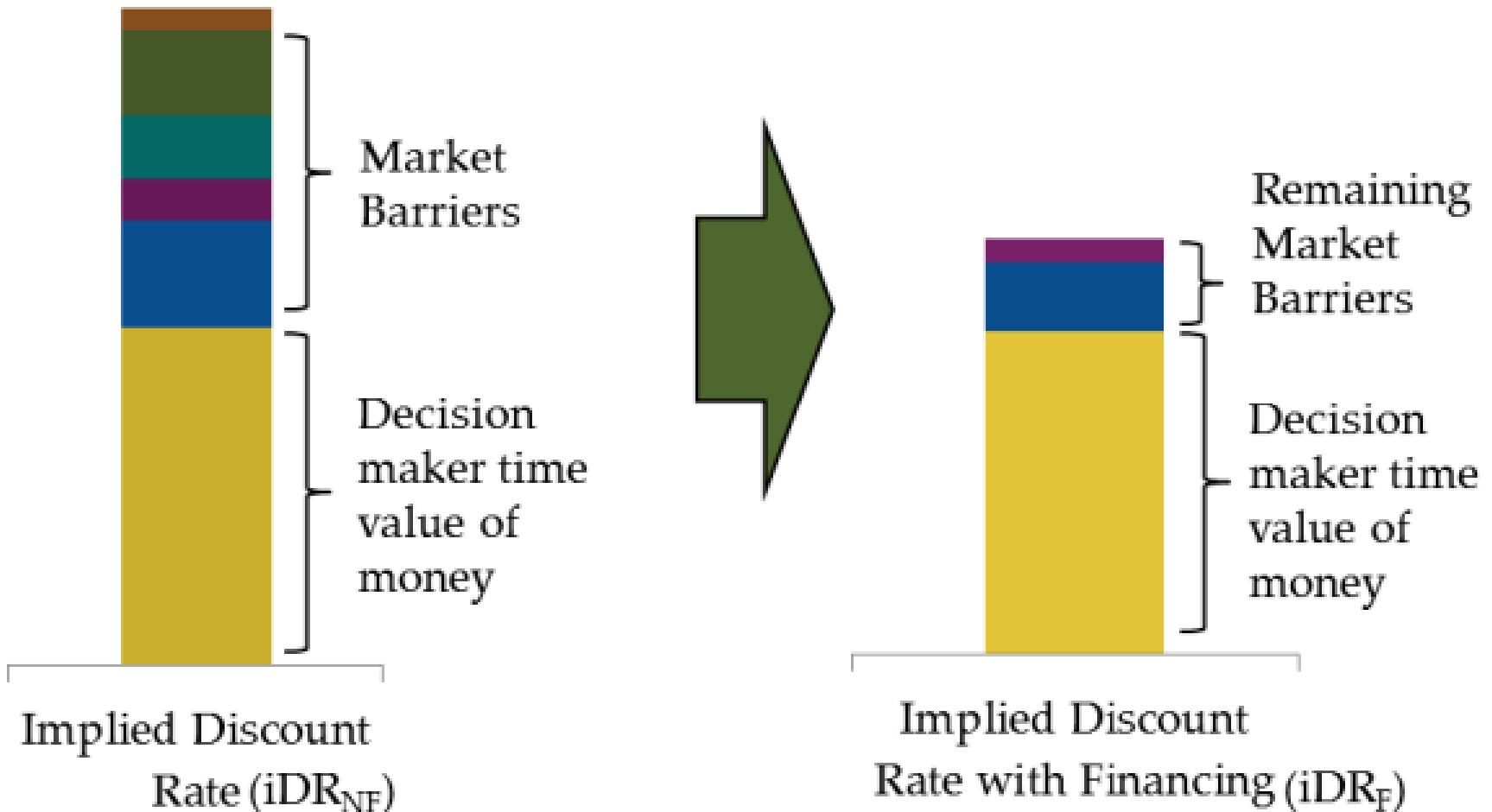
13



Source: Navigant

# Achievable Potential: CA Model

14



Source: Navigant

# Achievable Potential: California

## Navigant Detailed Approach

15

### Step 1: Calculate Potential Market Adoption without Financing

#### Key Inputs

- All inputs in main model

Bass /  
Stock Turnover  
and  
Levelized Cost

#### Key Outputs##

# each TechType\* adopted w/o financing

Energy savings w/o financing

### Step 2: Calculate Potential Market Adoption with Financing

#### Key Inputs

- All inputs for main model
- Loan characteristics (e.g., loan tenor, interest rate) by market segment
- % of population eligible by market segment
- Change in implied discount rate composition by market segment
- Which TechTypes are eligible
- Updated Advertising / WOM parameters

Bass /  
Stock Turnover  
and  
Levelized Cost

#### Key Outputs##

# each TechType\* adopted w/financing

\$ needed for loans

Energy savings w/financing

### Step 3: Calculate the Incremental Effects of Financing

#### Key Inputs

# each TechType\* adopted w/o financing

Energy savings w/o financing

# each TechType\* adopted w/financing

Energy savings w/financing

Basic Arithmetic  
(Market Adoption  
w/Financing –  
Market Adoption  
w/o Financing)

#### Key Outputs##

# each TechType\* adopted due to financing

Incremental energy savings  
potential from financing

# Achievable Potential: California

## Inputs and Sources

16

- Inputs included:
  - ▣ Past survey results
  - ▣ Observations from financing programs in California and other states
  - ▣ Expert interviews
  - ▣ Literature research
  - ▣ Process evaluation of California's small business On-Bill Financing Program



# Achievable Potential: California

## Findings from Background Research

17

- Research findings included:
  - Financing may enable, rather than drive, demand
  - Complementary strategies are needed to overcome wide range of EE barriers
  - Program design parameters may impact saving and participation rates
  - Private financing may be readily available to customers in some markets
  - Financing itself may sometimes introduce additional market barriers

# Achievable Potential: CA Model

18

## 2016 Incremental Electric Savings



Source: Navigant

# Achievable Potential: CA Model

19

## 2016 Incremental Gas Savings



Source: Navigant