



# STEPPING UP: BENEFITS AND COST OF ACCELERATING FORT COLLINS' ENERGY AND CLIMATE GOALS

BY ROCKY MOUNTAIN INSTITUTE,  
IN PARTNERSHIP WITH FORT COLLINS UTILITIES

1820 FOLSOM STREET | BOULDER, CO 80302 | RMI.ORG  
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DESIGN: ROCKY MOUNTAIN INSTITUTE

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COREINA CHAN, MANAGER

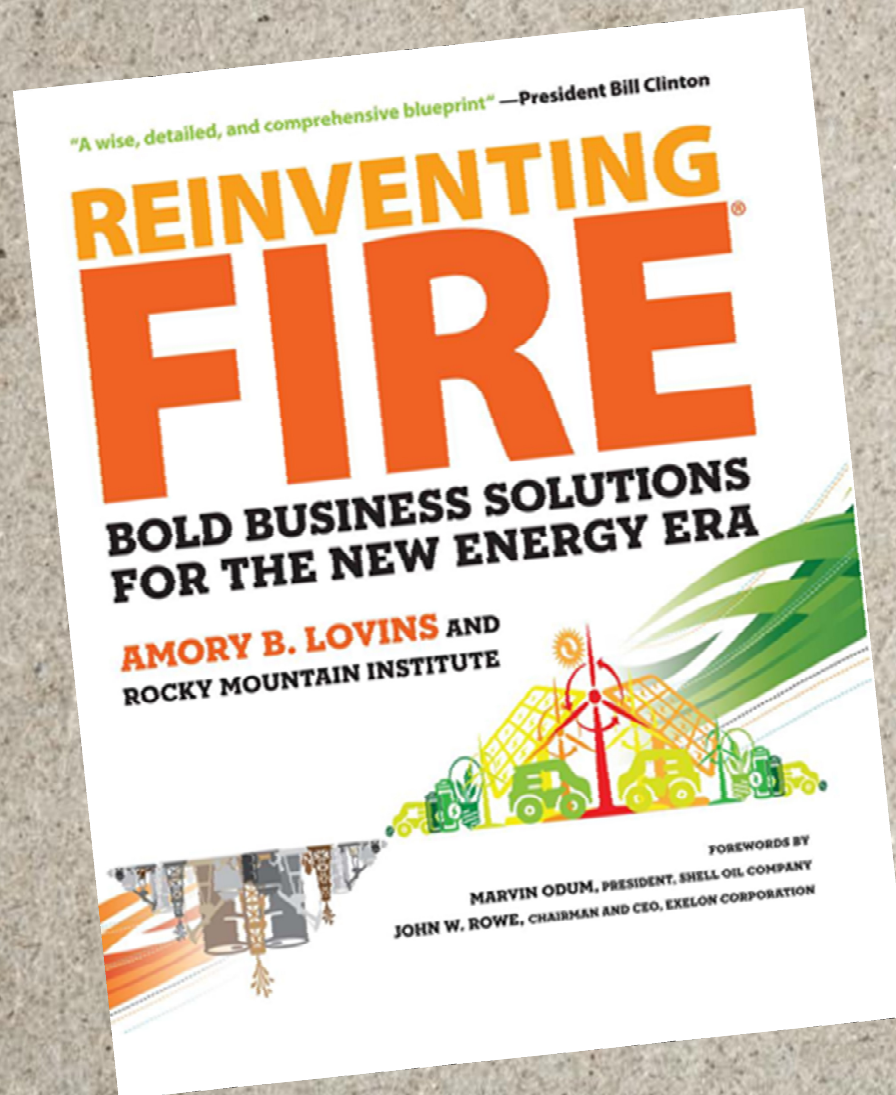
JUNE 12, 2014







# A NATIONAL LEVEL LOOK AT WHERE OUR ENERGY FUTURE COULD BE HEADED



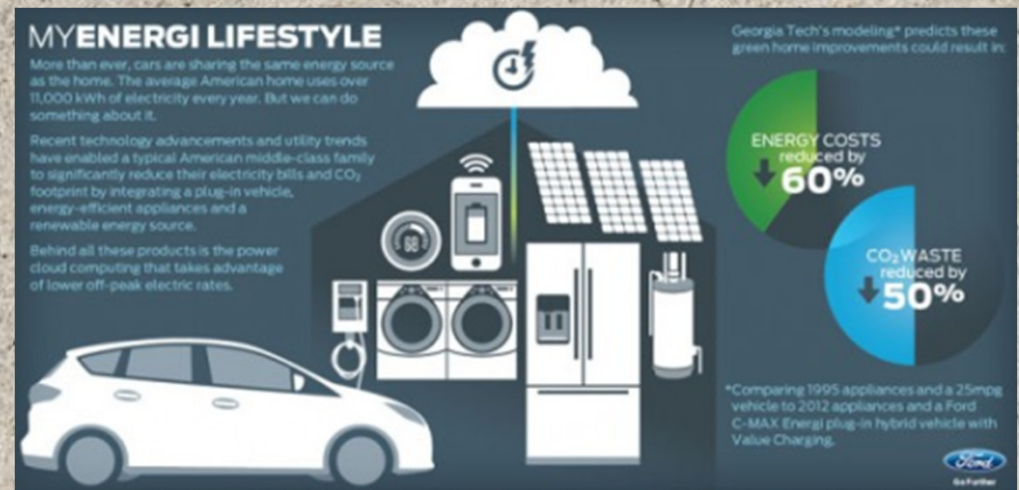


# CHANGING THE WORLD FROM THE BOTTOM UP



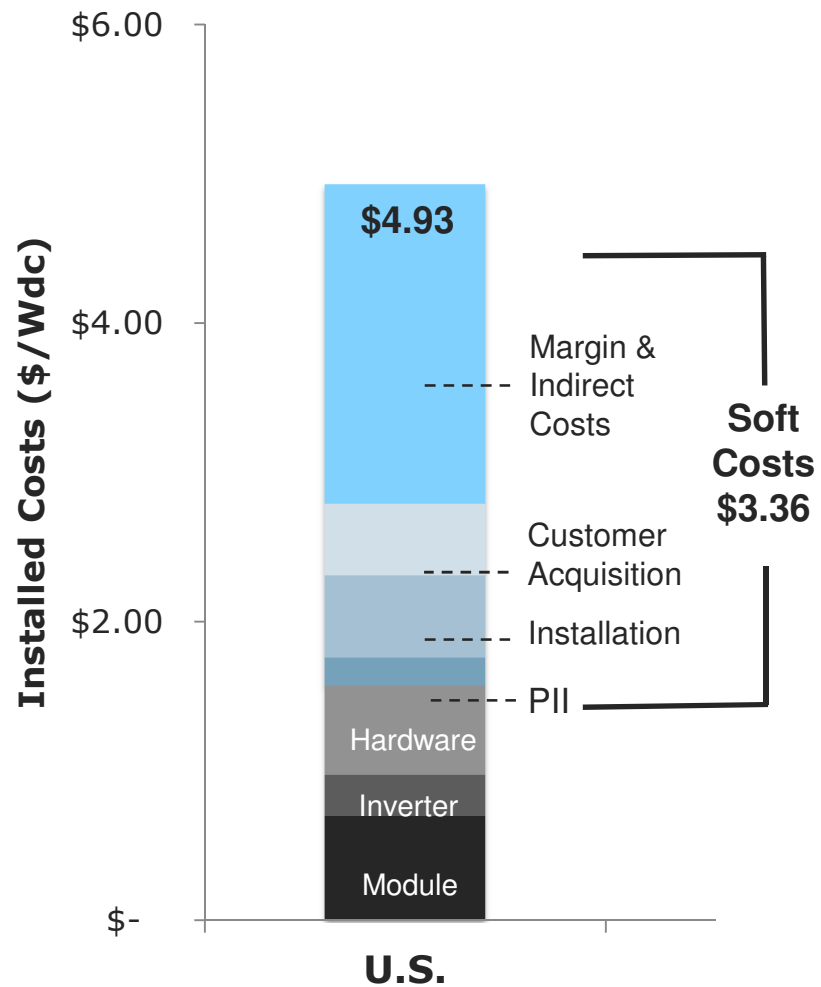


# NEW TECHNOLOGY DRIVES NEW OPPORTUNITY





# FALLING PV SOFT COSTS: US, GERMANY, AUSTRALIA





# FORT COLLINS CAN CAPTURE SIGNIFICANT BENEFITS BY ADVANCING ITS ENERGY GOALS



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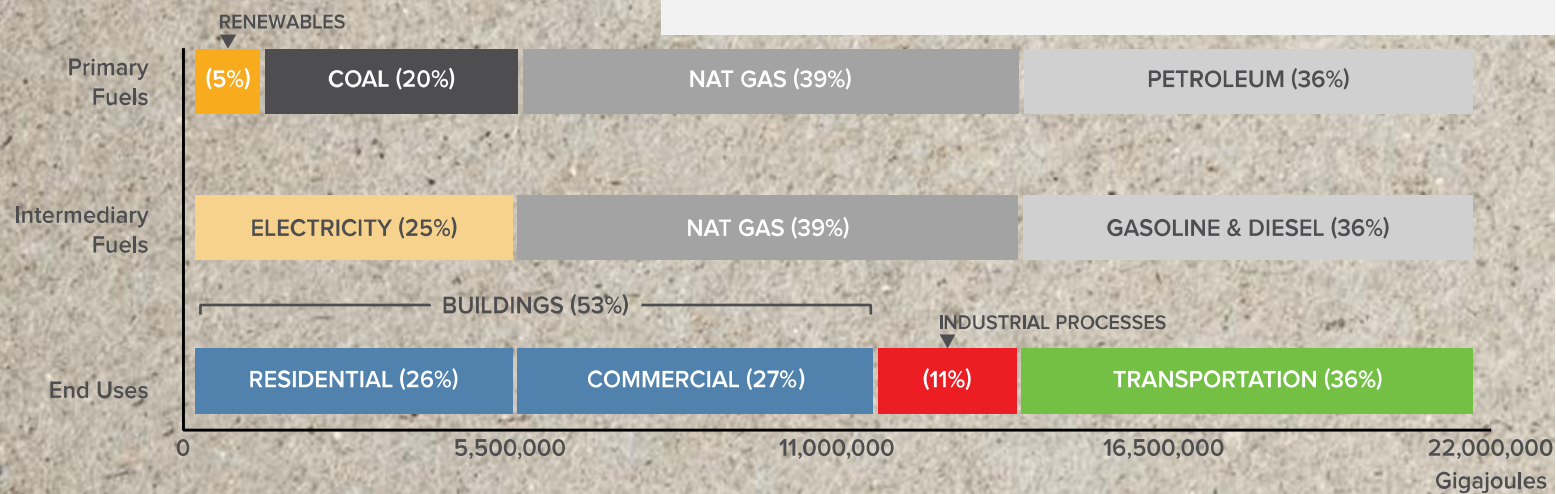
# FORT COLLINS' ENERGY USE - 2012

## 2012 Emissions

 **55%**  
COAL

 **21%**  
NAT GAS

 **24%**  
PETROLEUM







## RMI'S ANALYSIS APPROACH

### **Focus on three key questions:**

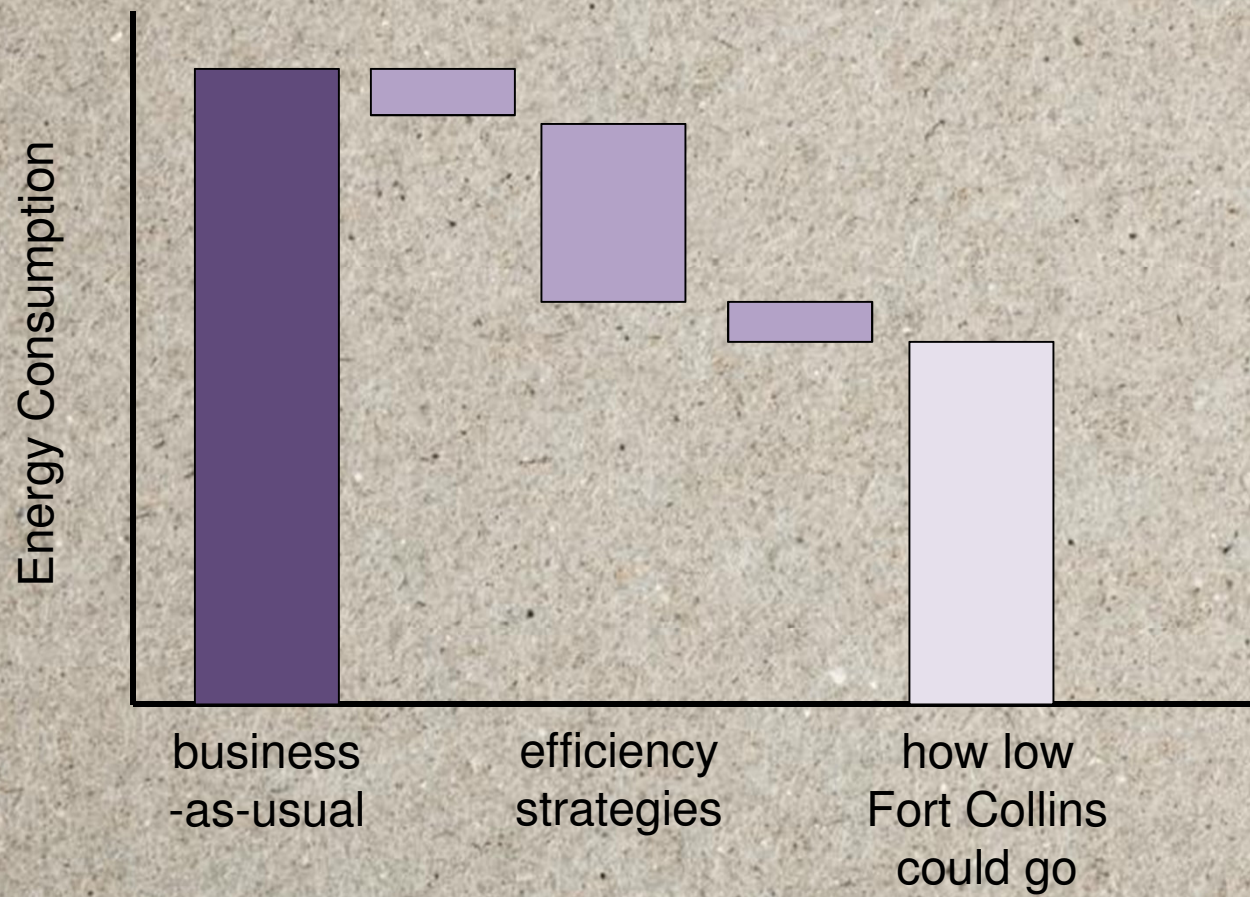
1. How much can building efficiency be improved?
2. How much of Fort Collins' electricity supply can be derived from clean local resources?
3. How much can the city reduce fossil fuel use from transportation?

### **Analysis methods drawn from:**

- *Reinventing Fire*, published studies and analyses
- Adapted to Fort Collins with data and assessments provided by Fort Collins Utilities and the City of Fort Collins
- RMI's research and advisory work with cities and states, universities, building portfolio owners, and industrial partners



## RMI'S ANALYSIS APPROACH







## ASSUMPTIONS

- Currently available technologies
- Industry-accepted cost projections
- Implementation rates observed in best-of-class
- Customized to Fort Collins' infrastructure and demographics



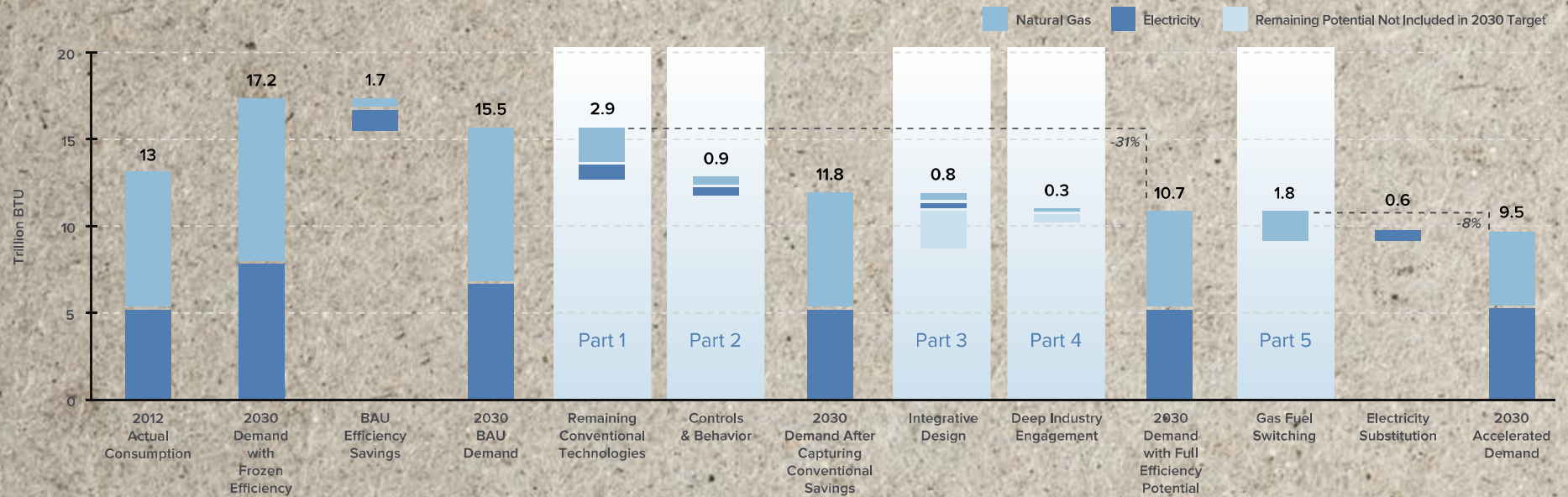


# BUILDINGS





# 31% IMPROVEMENT IN EFFICIENCY IN BUILDINGS



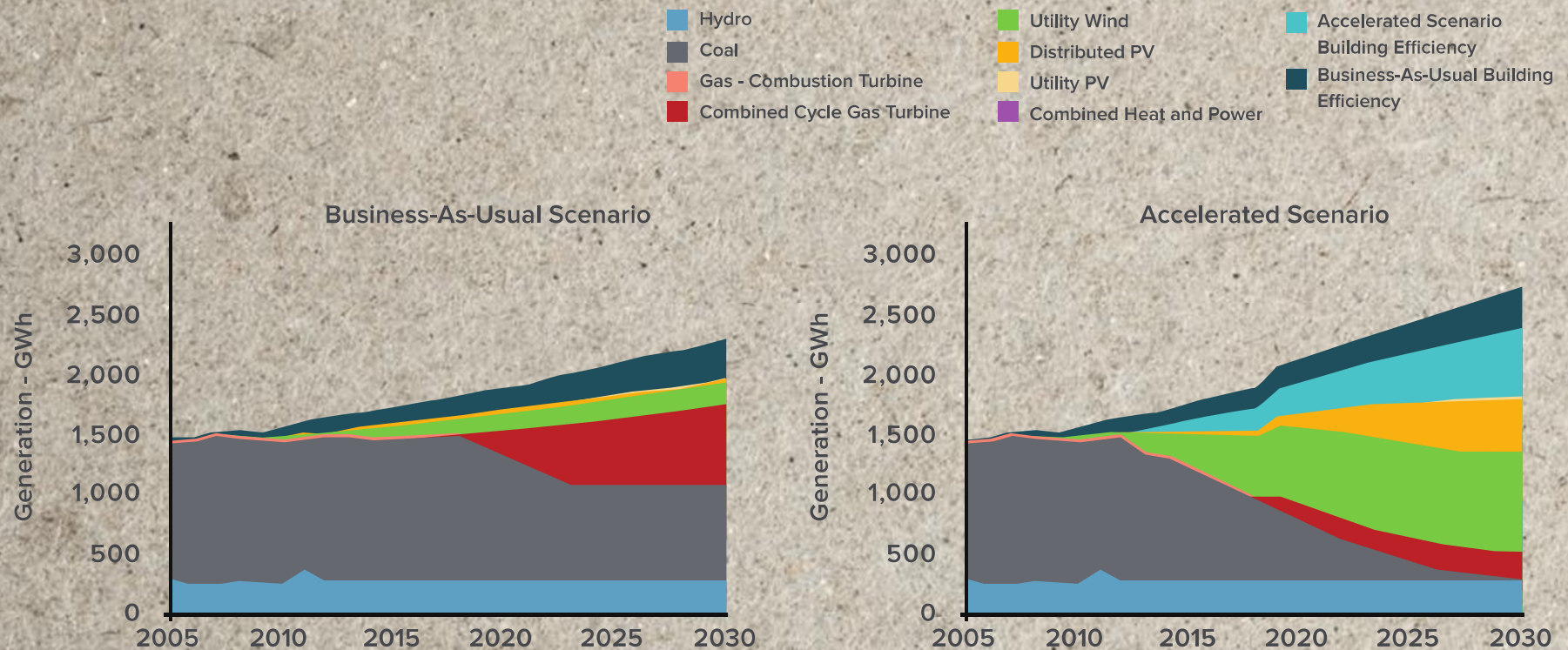


# ELECTRICITY



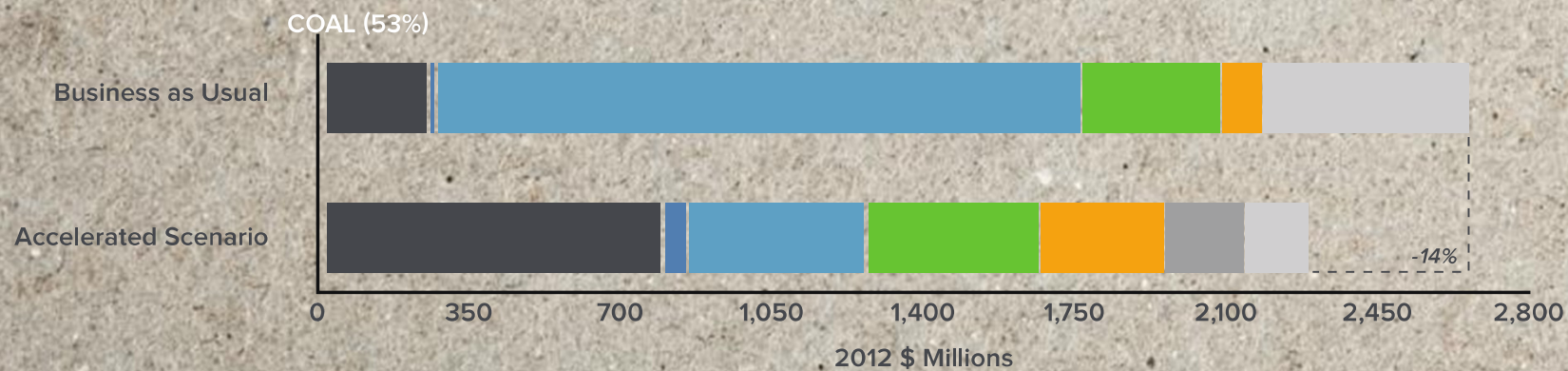
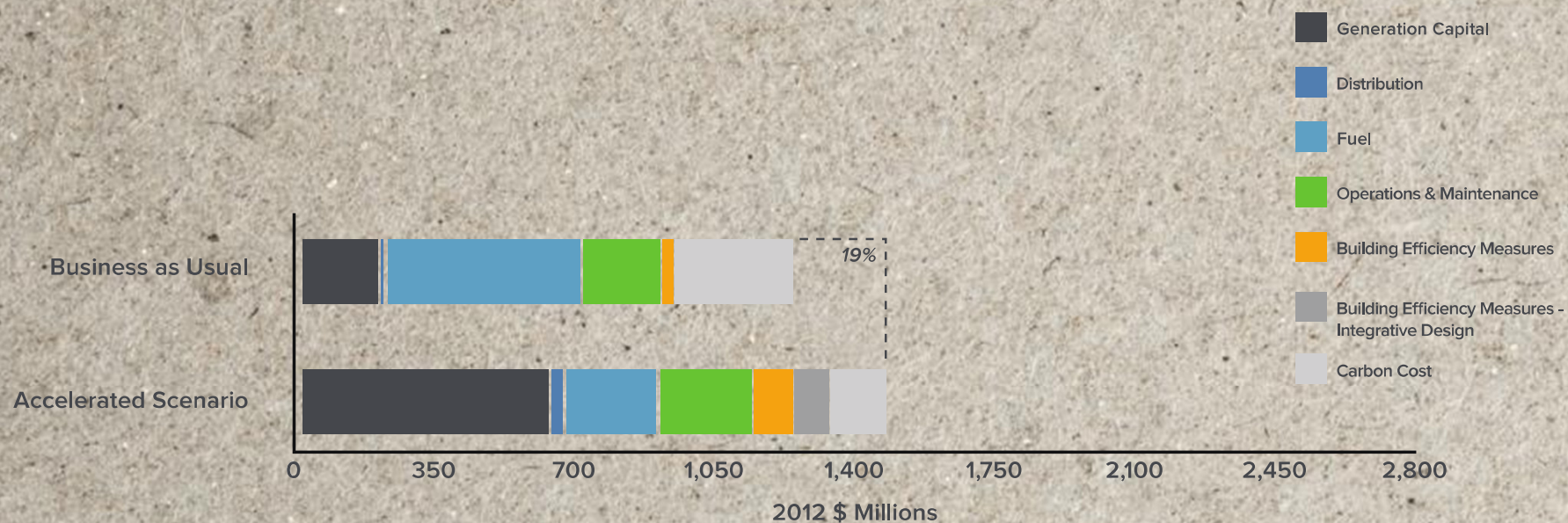


# NET ZERO ELECTRICITY SYSTEM





# NET IMPACT ON ELECTRICITY COSTS AND RISKS



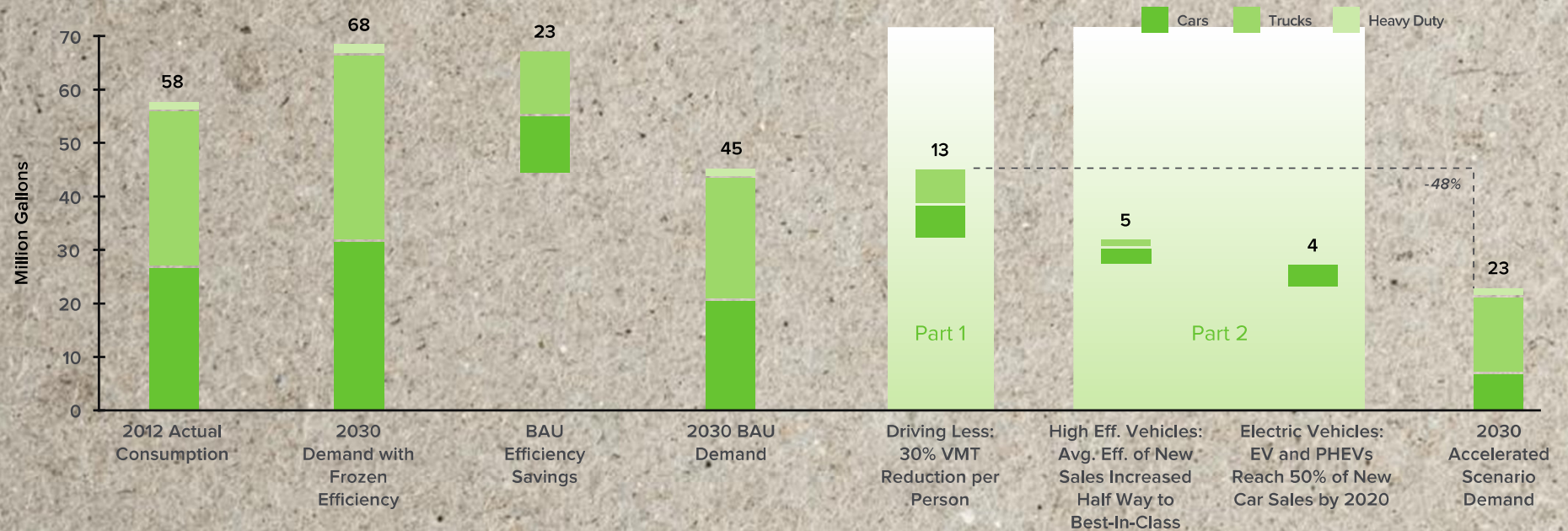


# TRANSPORTATION



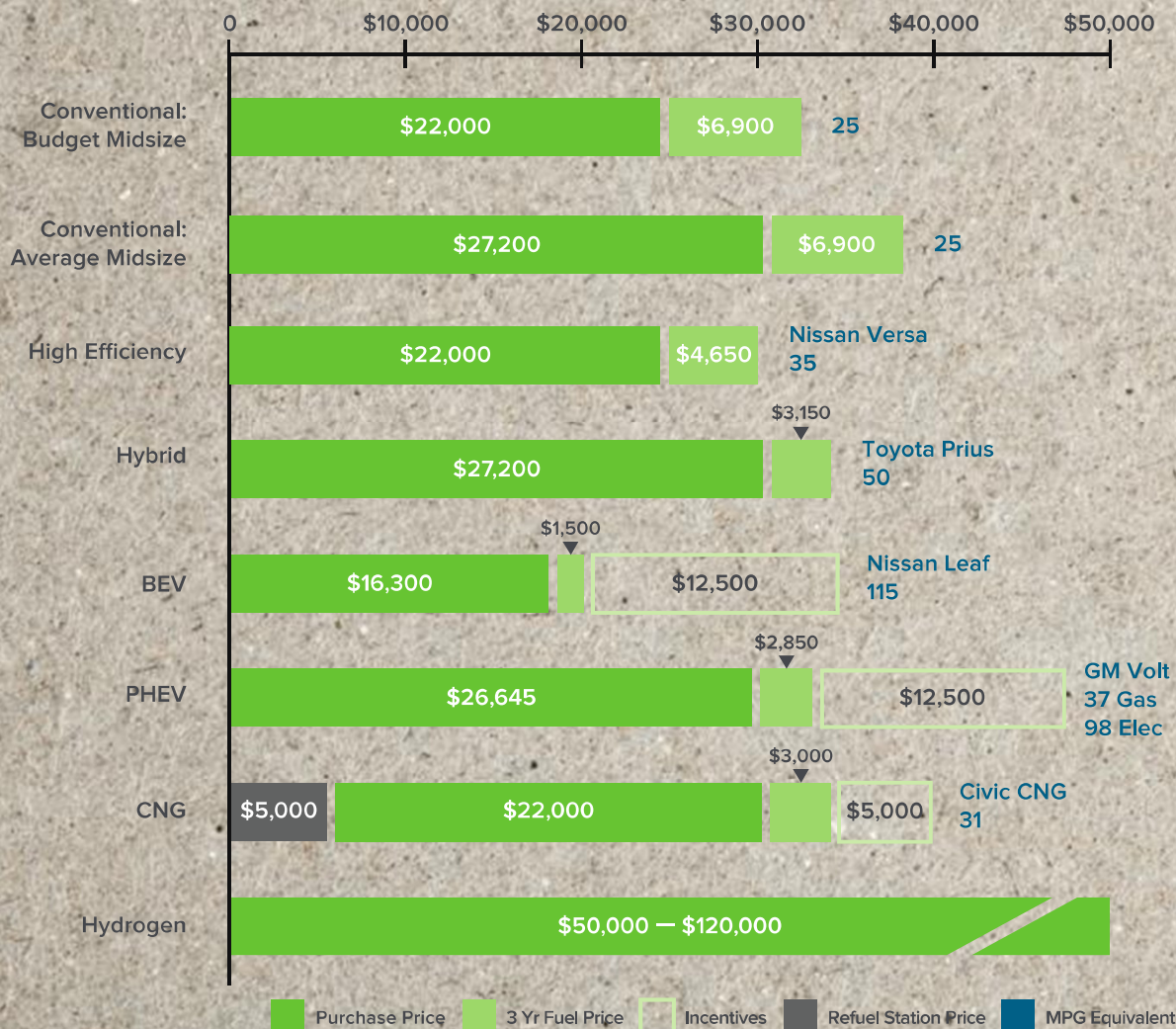


# 48% ENERGY USE REDUCTION IN TRANSPORTATION





# EFFICIENT AND ELECTRIC VEHICLE OPTIONS



Source: Fueleconomy.gov, EIA Annual Energy Outlook 2011: ref2011.d020911a.



An aerial photograph of a city, likely in the Rocky Mountain West region, showing a mix of urban development and green spaces. In the background, a range of large, rugged mountains is partially covered in snow under a clear blue sky. The city below features a variety of buildings, including a prominent tall, light-colored skyscraper. The foreground shows more industrial or commercial structures, parking lots, and some greenery. The overall scene suggests a thriving urban area in a mountainous region.

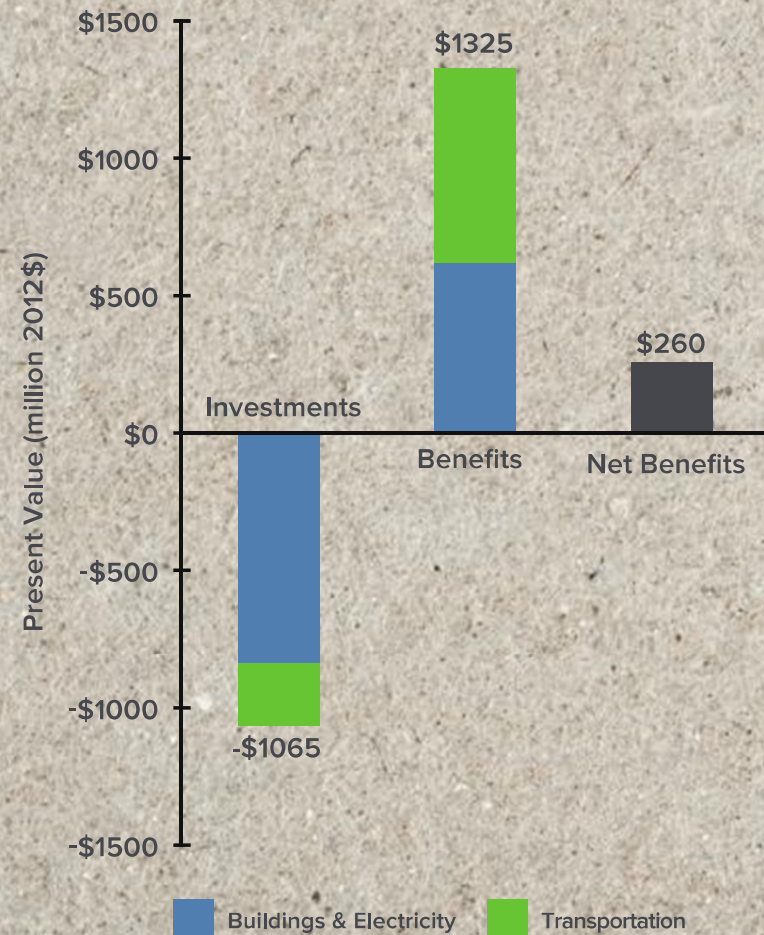
WHAT DOES IT  
ADD UP TO?



## SUMMARY OF KEY FINDINGS

- Accelerate carbon goals by 20 years
- Net benefit of \$260 million for the community, while reducing CO2 emissions by 15 million metric tons.

Net Present Value of Accelerated Scenario, 2013–2030







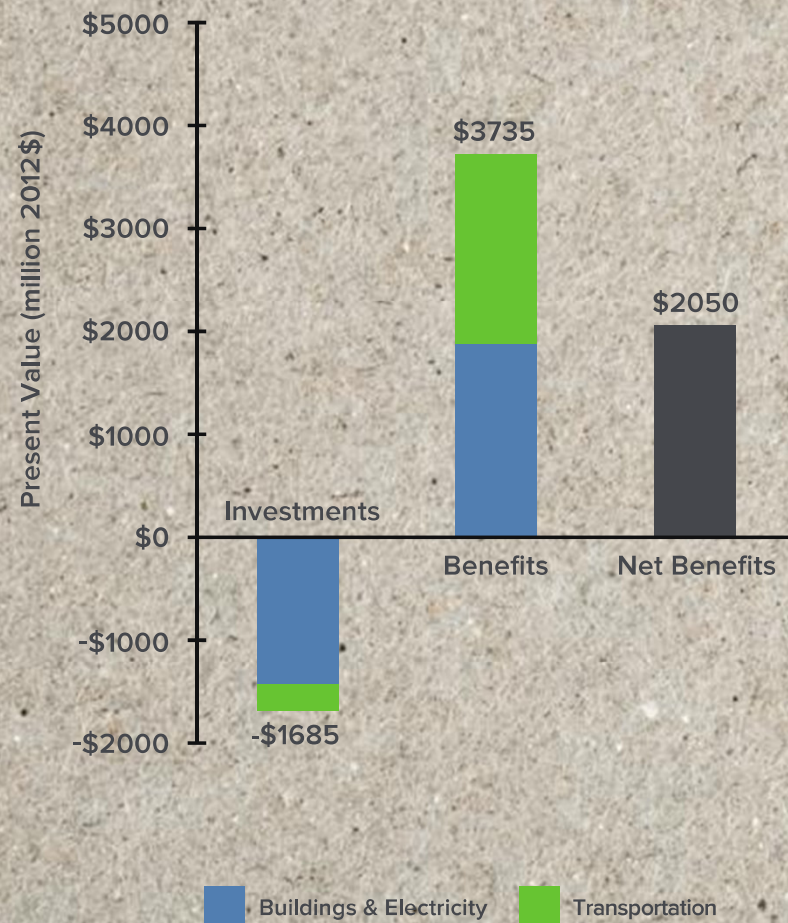
## NET PRESENT VALUE COSTS AND BENEFITS

- Reduces cash outflows to pay for coal and natural gas fuel by \$16M / yr.
- Raises local investment in efficiency, and local energy assets by \$20M / yr
- Generates > 400 jobs over the entire period from 2013-2030.

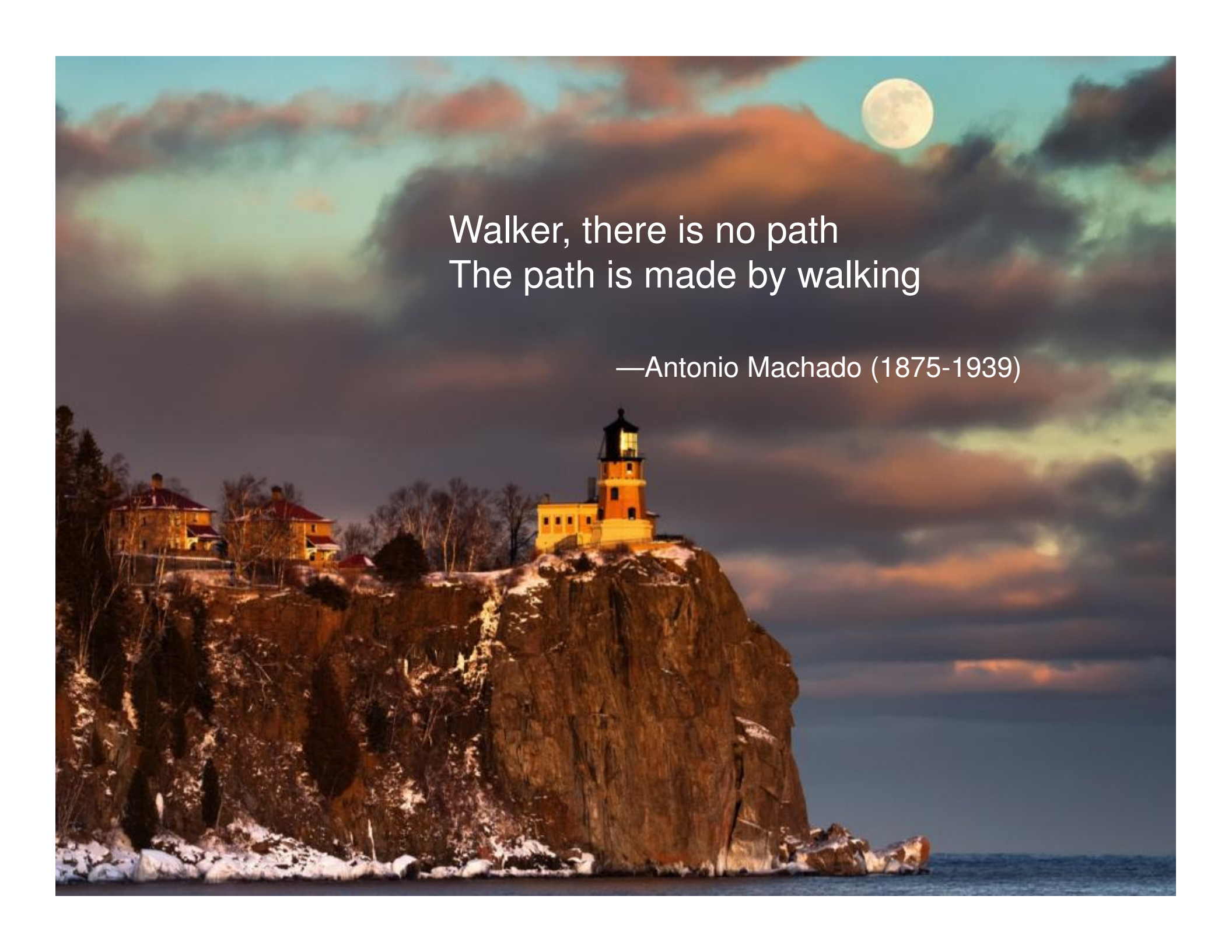


# NET PRESENT VALUE COSTS AND BENEFITS TO 2050

Net Present Value of Accelerated Scenario, 2013–2050





A photograph of the Little Boy Lighthouse on a rocky cliff at dusk. The lighthouse is a small, white, cylindrical structure with a black lantern room, perched on a dark, craggy rock face. To the left of the lighthouse, there are several small, white buildings with red roofs, likely the keeper's quarters. The cliff is covered in patches of snow and some bare trees. The sky is a mix of dark blue, orange, and yellow, with a large, full moon in the upper right corner. The overall mood is serene and dramatic.

Walker, there is no path  
The path is made by walking

—Antonio Machado (1875-1939)





## HOW CAN THE CAP ENABLE THIS TRANSITION?

1. Detailed collaboration with Platte River

1. Annual adoption goals and costs

1. Business, financing, and customer adoption models that will attract private capital and drive lower costs

1. Triple bottom line benefits