

# A GREENER CORPORATE AMERICA: SAVING THE ENVIRONMENT, SAVING MONEY

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**ABSTRACT:** By using LEED as the standard for green buildings, we were able to project NPV and payback periods for newly constructed buildings in 2020. This allowed us to see the potential impact green building can have as we move into a future that will be reliant on new sustainable technologies.

## CURRENT SITUATION

- **Topic in Context:** Businesses often perceive green buildings as too costly and, therefore, not worth the initial investment. If the environmental, health, productivity, and cost benefits of green building design can be translated into a sustainability sweet spot, then this trend may become mainstream. Currently, the U.S. Green Building Council's LEED certification system is the most universally accepted measure of a building's green initiatives in 5 areas: sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. Buildings are awarded points for meeting specific criteria and are then categorized as Certified, Silver, Gold, or Platinum, accordingly.
- **Stakeholders:** Businesses embarking on construction projects, the employees of these businesses, the government, construction companies, material and energy source suppliers, and the environment
- **Drivers of Change:** Initial costs, long-term savings of building green, and government regulation.

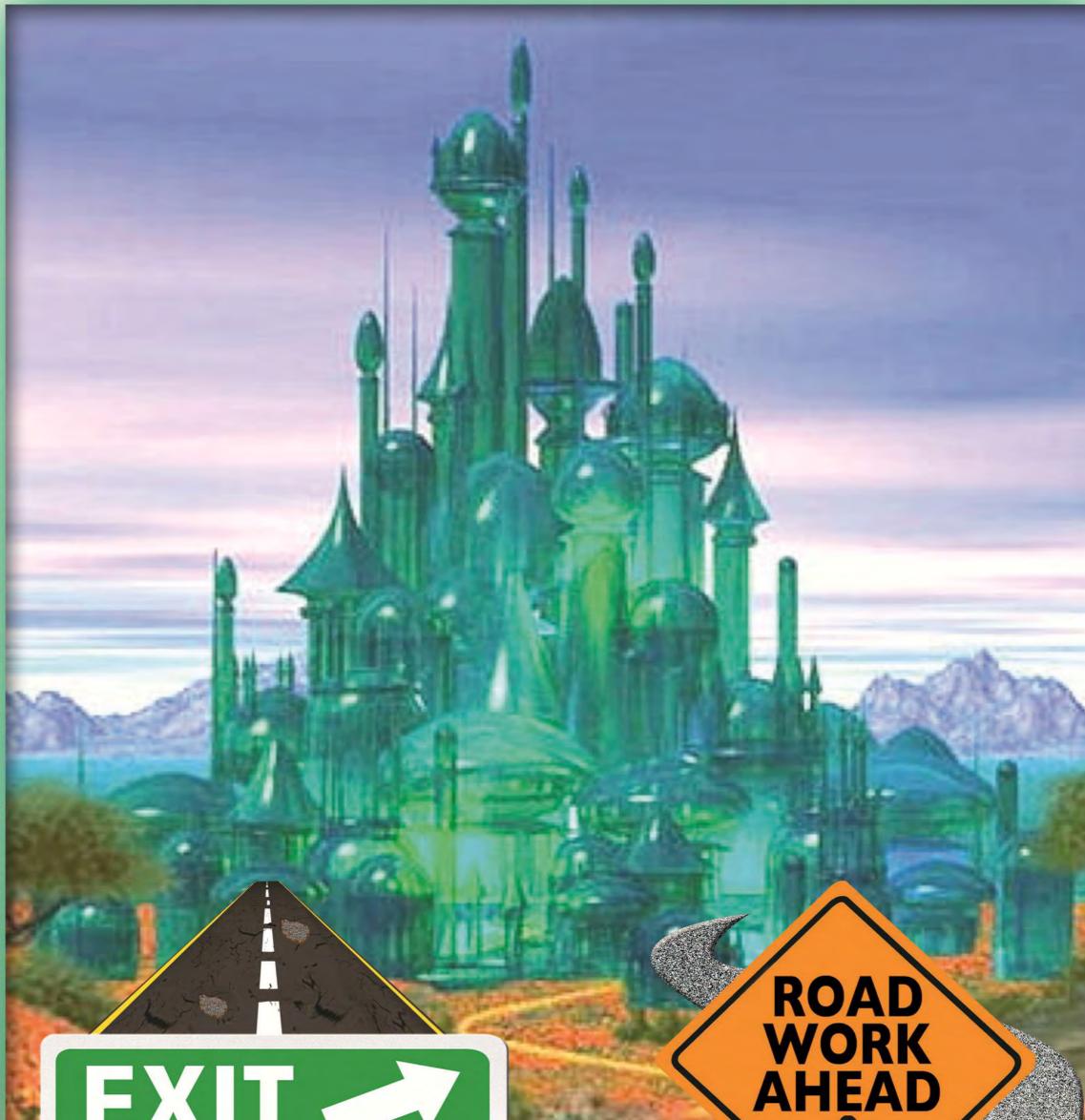
## RESEARCH & 2020 FORECAST

**Method:** In order to predict NPVs for LEED certified buildings in 2020, we quantified the relevant costs and savings associated with green buildings (construction, water, electricity, productivity) and standardized these data to 1 ft<sup>2</sup>. We collected this data through case studies from 2005 and 2010 across Silver, Gold, and Platinum categories in order to project this data for 2020.

### Findings:

Net Present Value in 2020 (Without Productivity Savings)			
	Silver	Gold	Platinum
Incremental Costs	-\$2.72	-\$0.85	-\$47.04
Incremental Savings			
Water	\$0.02	\$0.03	\$0.06
Electricity	\$0.22	\$0.49	\$0.51
Total	\$0.24	\$0.52	\$0.57
Net Present Value	-\$0.32	\$4.35	-\$41.34
Payback	11.3 Years	1.6 Years	82.5 Years

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	Silver	Gold	Platinum
Incremental Costs	-\$2.72	-\$0.85	-\$47.04
Incremental Savings			
Water	\$0.02	\$0.03	\$0.06
Electricity	\$0.22	\$0.49	\$0.51
Productivity	\$3.75	\$5.00	\$5.00
Total	\$3.99	\$5.52	\$5.57
Net Present Value	\$37.18	\$54.35	\$8.66
Payback	0.7 Years	0.1 Years	8.4 Years



**The Emerald City**  
Citizen-based emphasis on sustainability and the cost-effectiveness of building green leads to a complete transformation of society.  
**Implications:**

- Agent-based change
- Wide-scale adoption of green construction
- Fast payback means businesses are more profitable and innovative
- Health and productivity gains
- Transformation of the energy supply system
- Society becomes net zero

**Almost Green Road**  
Individuals become more involved with green, but no complete societal transformation takes place.  
**Implications:**

- Government does not enforce green practices
- Building green has a slow, but positive payback
- Steady but low levels of LEED adoption
- Reduced environmental impact
- Grid stays online, niche market for alternative energy
- No widespread health benefits

**Under Construction**  
Society demands sustainable practices, but businesses typically do not build green due to lack of cost savings.  
**Implications:**

- Government enforces green practices
- Businesses cut other costs such as employees
- Innovation reaches a ceiling
- Slight improvement in health
- Environmental impact is decreased

**Dead End**  
Society as a whole chooses to continue with traditional practices instead of developing green practices.  
**Implications:**

- Government does not enforce practices
- LEED standards are eventually abandoned
- Businesses invest little in R&D
- Non-renewable resources are depleted, driving their prices extremely high
- No improvement in health
- The environment is slowly destroyed