White Paper

Jump-Starting National Green Building Financing

Executive Summary

Background. Financing for green buildings and homes meets the substantial and pent-up green building market demand, and provides (1) a $1 trillion private sector stimulus as a hedge against continued economic uncertainty, (2) 30 year profitable business models, and (3) massive social benefits. This Paper is condensed from Wall Street due diligence released at the NYSE documenting added value in over 30 reports, consensus standards, and investor surveys with national statistically valid data, and market tested consensus underwriting standards measuring added value and uniquely meeting the national green building financing requirements. These data and underwriting standards were reviewed at national public meetings at Federal Reserve Offices.

The Market is Being Launched Now Solving Increased Obsolescence Risk from conventional buildings, securities, and ratings due to rapid green building growth in central business districts much like prior obsolescence risk to buildings without elevators and air conditioning (Deutsche Bank / Wells Fargo). Green buildings and homes are over 40% of new construction and retrofits.

Green Home Retrofit Secondary Market is Being Launched by Citi and the States.

Enhancing the Launch are New Profitable 30 Year Business Models, Discounted Green Building Insurance, & Reduced Climate Damages. Insurers' real estate investment portfolios receive a less risky and more profitable investment opportunity. National financing is a popular, highly effective, and noncontroversial means of reducing systemic dangerous climate damages existing in the following sectors: insurance, government, investment, forestry, built environment, agriculture, fisheries. Fireman's Fund shows improved green building loss ratios.

Rating Agencies Agreed to Rate Green Building Securities (GBS) with Underwriting *Green Value Scores*©, and are finalizing Higher Rating Criteria by aligning *Green Value Scores*© from 100 buildings with 13 real estate security economic evaluation factors.

Rating Agency Support of Secondary Market is Proceeding including financial data collection aligned with green building underwriting, and participation in secondary market launch. A data base of 125,000 commercial green buildings supports this effort.

Green Building Securities are Being Developed for Homes, Multifamily, & Affordable Housing & Cheaper Cost of Capital / Valuation Pilots are Underway.

- Multifamily. Single asset $100M LEED apartment complex cleared underwriting at the GSEs. Approaches include credit wrap or underwriting lead with investment banks and leading originators. About 100,000 buildings comply with the *Green Value Score*© to start GBS pools.
- Homes. Leading national homebuilders only make green homes whose mortgages are sold in bonds comprising 100% green homes. They are starting to be labeled as GBS.
- Valuation & Cheaper Cost of Capital & Insurance pilots are underway across the country using underwriting *Green Value Scores*© and appraisal valuations.

White Paper

Jump-Starting National Green Building Financing

This Paper consists of:

- Preceding Executive Summary
- Green Building Business Case
- Credit Rating Agency Treatment of Green Building Securities (GBS)
- Green Building and Home Valuation
- Cheaper Cost of Capital & Insurance
- New Profitable 30 Year Business Models
- Reducing Systemic Dangerous Climate Damages
- Appendix: Summary of Documented Added Green Building Value / Due Diligence

Appreciation is expressed to the Sponsors that helped make development of this Paper possible.

Green Buildings & Homes Are More Valuable

Peer-reviewed due diligence released at the NYSE with national statistically valid data, documents that green buildings are more profitable, less risky, preferred by investors, with highest rents, occupancy and valuation. The due diligence consists of over 30 reports, consensus standards, and investor surveys and was sponsored by Bank of America, JPMorgan, Federal Home Loan Banks, Fireman's Fund Allianz, Energy Foundation, and the Capital Markets Partnership. Consensus Green Building Underwriting Standards:

- Measure increased value
- Were unanimously approved in a national consensus vote
- Were market tested by JPMorgan, Jones Lang LaSalle, CBRE, Comerica Bank & Transwestern
- Uniquely meet Office of the Comptroller of the Currency, Federal Housing Finance Agency, Federal Trade Commission and Attorneys General national green building financing requirements:
    - respect existing lien priorities
    - require prudent underwriting
    - protect consumer interests with transparent *Green Value Score©* on each property
    - provide accurate and not misleading data prepared by qualified and competent professionals

The due diligence added value and underwriting standards were reviewed at national public meetings at Federal Reserve Offices sponsored by Federal Home Loan Banks, Home Depot, US Green Building Council, and Capital Markets Partnership.

Leading financial institutions stated at a White House briefing that first publicly traded security will jump-start a 30 year market because due diligence and underwriting are complete, and market is substantial, pent-up and growing.

Two trillion dollars are needed to renovate building stock and reduce carbon energy price volatility and systemic economic, health, and social damages from dangerous climate change. Substantial economic and social benefits will result including an expected $1 trillion economic stimulus.

Government sponsored financial entities (GSEs), JPMorgan and the Capital Markets Partnership completed successful underwriting for proposed $100M LEED apartment Green Building Security (GBS). GSEs like Fannie Mae and Freddie Mac can issue GBS credit wraps with investment banks with a presale credit rating agency option.

GBS is just a simple add-on underwriting *Green Value Score©* to Phase1 Environmental Site Assessment / Property Condition Assessment due diligence required for all commercial real estate securities.

Cheaper Cost of Capital, Insurance and Valuation Pilots are using the underwriting standards and allow the market to fully recognize the added green building value along with green home and building securities under development by investment banks.

Credit Rating Agency Treatment

The path forward for higher ratings was identified with Moody's, Citi, JPMorgan, Citi, Bank of New York Mellon, & Cadwalader: correlate underwriting scores on 100 buildings with 13 CMBS economic factors used to evaluate deals. Other rating agencies concur.

Rating Agencies have agreed to rate green building securities where the issuer discloses underwriting *Green Value Scores©* for each property in the security to comply with national green building financing requirements. Until higher rating criteria are finalized, rating agency economic evaluation for green building securities will be the same as for conventional real estate securities.

Green Building Valuation

Pilots are underway where banks require that green building appraisals are part of the appraisal scope of services. As a professional service industry, appraisers can determine added green building value where requested by banks to determine it.

Appraisal Institute resources including the *Residential Green and Energy Efficient Addendum (Form 820)* and the residential and commercial green building Underwriting Standards are used to determine value. Appraiser professional guidelines and the Underwriting Standards require that competent, qualified environmental or green building professionals are used in determining value.

Cheaper Cost of Capital & Insurance

Pilots are Underway in representative US markets for green homes and buildings to achieve cheaper mortgages based on use of the underwriting standards, Appraisal Institute guides, and relevant data provided on green home and building performance.

Value is determined by requiring in the appraiser's scope of work, that green home and building value be determined. To ensure value is maintained over time, a *Green Value Score©* is conducted prior to and a year after mortgage execution and by comparing utility bills.

Multiple levels of cheaper cost of capital are identified by the underwriting standard's 25-100 *Green Value Score©* differentiating homes and buildings based on recognized green attributes increasing value.

Benefits. Green homes and buildings that are part of the Pilots are expected to enjoy and create:

- Cheaper financing based on the underwriting *Green Value Score©* and other relevant data
- An appraiser scope of work requiring green valuation and a green value appraisal report
- A replicable means to document increased value and reduced risk
- Improved branding and added value to green home and building owners
- A rational basis for larger scale green home and building financing
- Substantial incentive for financing now for much needed retrofits
- Increased market recognition of added green building/homes' value, accelerating a comprehensive secondary market / securitization

- New jobs and wages
- Substantially reduced carbon energy use necessitated by historical and globally validated rising carbon costs at 20%/yr. due to regulatory constraints on carbon and global population growth and carbon depletion, as documented in the due diligence
- Reduced unmanageable dangerous climate change systemic damages in major markets: insurance, government, investment, agriculture, fisheries, forestry, built environment
- Water efficiency and reduced operating costs
- Five-15% increased occupant productivity which is more valuable than the total capital and operating costs over the life of buildings and homes
- Reduced construction and operating costs and risk by use of ANSI Integrative Process

Fireman's Fund℠ Insurance Company
A company of Allianz

<u>The Added Value is Measured</u> by valuation identifying attributes increasing cash flow for commercial and value for homes using the *Green Value Score©* including:

- Energy efficiency
- Onsite renewable power
- Commissioning
- Integrative process
- Improved indoor air quality
- Proximity to transit
- Climate neutral operations

The Added Value is Also Recognized by the Market

- Fireman's Fund's 5% Discounted Green Building Insurance policy provision to rebuild to LEED where there is a complete loss, based on Fireman's improved loss ratios for green buildings. Liberty Mutual provides 10% discounted green building insurance.

- Capital Markets Partnership's (CMP) Green Building Financing Program with leading banks ensures the appraisal fully reflects the *Green Value Score©*

- Credit rating agencies are pursuing ratings for green home and green building securities.

- The States and Citi are issuing green home securities.

- Leading Home builders are building green homes with all of the mortgages being securitized as 100% green home mortgages, and are starting to label these bonds as green home securities.

NOTE: More background on the added value from the Wall Street due diligence is in the **Appendix**.

New Profitable 30 Year Business Models

National financing is creating new profitable business models:

- Financial institutions originating, issuing, rating, and servicing green building bonds backed by mortgages of green buildings and homes

- Investment managers helping clients purchase green building bonds

- Investors with long-term returns from many new issuances of green building bonds.

- Valuation and environmental due diligence professionals needed to provide their opinions for green homes and buildings whose mortgages are backed by the bonds.

- Equity investors in green buildings will have greater opportunities due to increased green building demand by market recognition of added value from green building bonds. Green building private equity funds can be more easily capitalized.

- National financing will commercialize green building insurance. Insurance is required by the green building security.

- Companies involved in planning, design and construction of new and retrofitted green buildings. It is estimated that $2 trillion are needed to retrofit the building stock.

- Green home and building developers that plan, design, and construct green buildings and homes, and raise capital from bonds, can achieve better ratings due to the higher valued and less risky service and product they deliver.

- Integrative Process (IP) professionals are needed. IP is a green home and building attribute that brings all parties in the building design and construction process together in workshops at pre-design and other key stages to decide on green building achievements. IP substantially reduces construction and operating costs and risk.

  Fireman's Fund's issued an IP Risk Reduction Statement acknowledging IP's added value. In fact green homes and buildings at higher levels of achievement are cost prohibitive when using conventional design and construction.

- Due diligence released at the NYSE on added value and consensus transparent underwriting standards cover all buildings and products over the global supply chain. This consists of about 80% of global economic activity. Thousands of new financial products and business models can emanate from these standards.

  For example, manufacturers and retailers complying with the Sustainable Manufacturing Underwriting Standard are more profitable and less risky business partners and investments. Increased interest rates from business banking are being explored with banks for manufacturers achieving high underwriting *Green Value Scores©*. See Figure 1, Forbo Linoleum Profitability Case Study.

Figure 1. Increased Profitability From Certified Sustainable Products.

Reducing Systemic Dangerous Climate Damages

National Financing is Uniquely Stopping Imminent Irreversible Unmanageable Dangerous Climate Change

- Dangerous climate change is causing systemic damages in insurance, government, investment, agriculture, forestry, fisheries, and the built environment.
- We need 5.923 Gigatons of Carbon (GtC) reductions by 2015 to stop Irreversibility based on peer-reviewed Wall Street Due Diligence released at the NYSE with National Wildlife Federation and Sierra Club support, as documented with State of California, IPCC scientists, NASA, Harvard, and the Capital Markets Partnership.
- Three million commercial green buildings and one million certified sustainable products will achieve the 5.923 GtC by 2015 which accounts for growth and includes a 60% margin of safety. This ensures the required pollution reductions to where net levels minus growth start declining to year 2000 levels, i.e., below 9 GtC/yr. (NASA data).
- Only Wall Street has the needed $2 trillion to retrofit the building stock, and is poised to stimulate the global products market with 40 Fortune 500 manufacturers.

National Green Building Financing Can Achieve the Needed 3 Million Green Buildings by 2015.

40 Fortune 500 Company Global Sustainable Product / FSC Certification With OgilvyEarth Was Launched on Sept. 12 at the NYSE, and Can Achieve the Needed 1 Million Sustainable

Products by 2015.

- OgilvyEarth is the global sustainable marketing leader advising hundreds of Fortune 500 manufacturer clients.
- The sustainable product standards are FSC and SMaRT. SMaRT requires FSC and covers materials in addition to wood over the supply chain.
- FSC and SMaRT as leadership standards reduce the most pollution as independently verified by the National Wildife Federation, Sierra Club, Perkins+Will, Corporate Responsibility Association and Eaton, and are consensus and transparent.

These Activities Uniquely Are on Their Way to Stopping Irreversibility and the Federal government will follow. Otherwise, government will not act in time.

The Amount of Pollution Reductions Needed are Enormous, Achievable, but Must be Accelerated.

How Do We Greatly Accelerate the Market Right Away?

- Secure top management support from financial institutions to accelerate the market due to the profitable and less risky business models.
- Engage additional leaders recognizing the urgent economic and risk reduction need.

APPENDIX

Summary of Documented Added Green Building Value / Due Diligence

Fireman's Fund Provides a 5% Premium Credit for Green Buildings, and will rebuild to LEED for covered buildings where there is a complete loss due to superior loss ratios compared to conventional properties.

The Green Building Underwriting Standards / *Green Value Score©* Measuring Added Value are Corroborated by Fireman's Fund's Green Building Risk Analysis, Loss Ratios and Resultant Premium Credits.

The Memo to Treasury and the Federal Reserve Board Summarizes Capital Markets Partnership's Due Diligence Findings. Both Treasury and the Fed concurred with these findings as communicated to Capital Markets Partnership and Fireman's Fund. The Memo transmitted 30 reports, consensus standards, and investor surveys with key conclusions based on national statistically valid data that green buildings have top of the market rents, highest occupancy, highest valuation with the differential increasing in today's down market. Statistically valid data also document that green homes sell for 9% more.

Sustainable Real Estate Solutions (SRS) Provides Online Value Calculation for 125,000 green buildings calculating the ASTM Building Energy Performance Assessment (BEPA) result, Energy Efficiency Measurement & Verification cost benefit analysis, *Green Value Score©*, ENERGY STAR Score. This provides the data needed for LEED EB / retrofit gap analysis.

Capital Markets Briefing Paper & Executive Summary. The Paper peer-review was initiated by 20 national and global financial, government and ENGO leaders, released at Capital Markets Partnership's NYSE Meeting, and concludes that green buildings are more profitable, less risky, and preferred by investors.

The Due Diligence Process is Summarized in Capital Markets Partnership's Fact Sheet.

The Due Diligence Covers Dangerous Climate Change Which Moody's and the Mortgage Bankers Association Call a Serious Credit Risk. *Creating an Economic Stimulus & Stopping Climate Credit Risk / Irreversibility* and Updates also released at the NYSE, was initiated with the State of California, IPPC scientists, and NASA. It concludes that Green Building Securities (GBS) / national green building financing will create a $1 trillion private sector financial stimulus, and stop imminent irreversible unmanageable dangerous climate change and the current systemic financial market risks and damages in the insurance, government, agricultural, fisheries, forestry, investment, and built environment sectors.

Deutsche Bank / RREEF, Wells Fargo & JPMorgan Cover Obsolescence Risk Green Buildings Present to Conventional Real Estate. RREEF reports on obsolescence risk are covered in the due diligence. JPMorgan's LEED private equity fund managers stated that their fund outperformed the firm's conventional funds, and advised their investors that if they are conducting any renovation or new construction and it's not green, they are throwing their money away. Wells Fargo stated at the September 10, 2010 LA Fed Green Building Underwriting Public Meeting that obsolescence is a serious risk. This obsolescence risk is not only for building owners, but also for conventional investors, securities, and ratings.

PNC & Notre Dame Documented That PNC's LEED Branches Have Higher Dollar Assets From More Deposits & Business. Customers prefer banking at green branches. The study controlled for newness of the branches. PNC also documented that its staff turnover rate was drastically reduced in its green buildings.

Productivity Gains From Green Buildings are Substantial. Building occupants are worth more than the capital and operating costs over the life of the building. Wachovia used a very conservative 0.5% productivity gain for all of their LEED branches that took the payback period from two years to six months. Productivity gains based on studies over the last 15 years range from 5-15%.

Lippincott Mercer's Study Concludes that Intangibles Comprise About 40% of Share Value & Sustainability is Most of this Intangible Value.

There is a Policy Understanding that in Addition to the Need to Make the Building Stock More Energy Efficient, it Simultaneously Needs to Be Made Resilient to Address Safety Risks from increasing extreme weather events from dangerous climate change.