

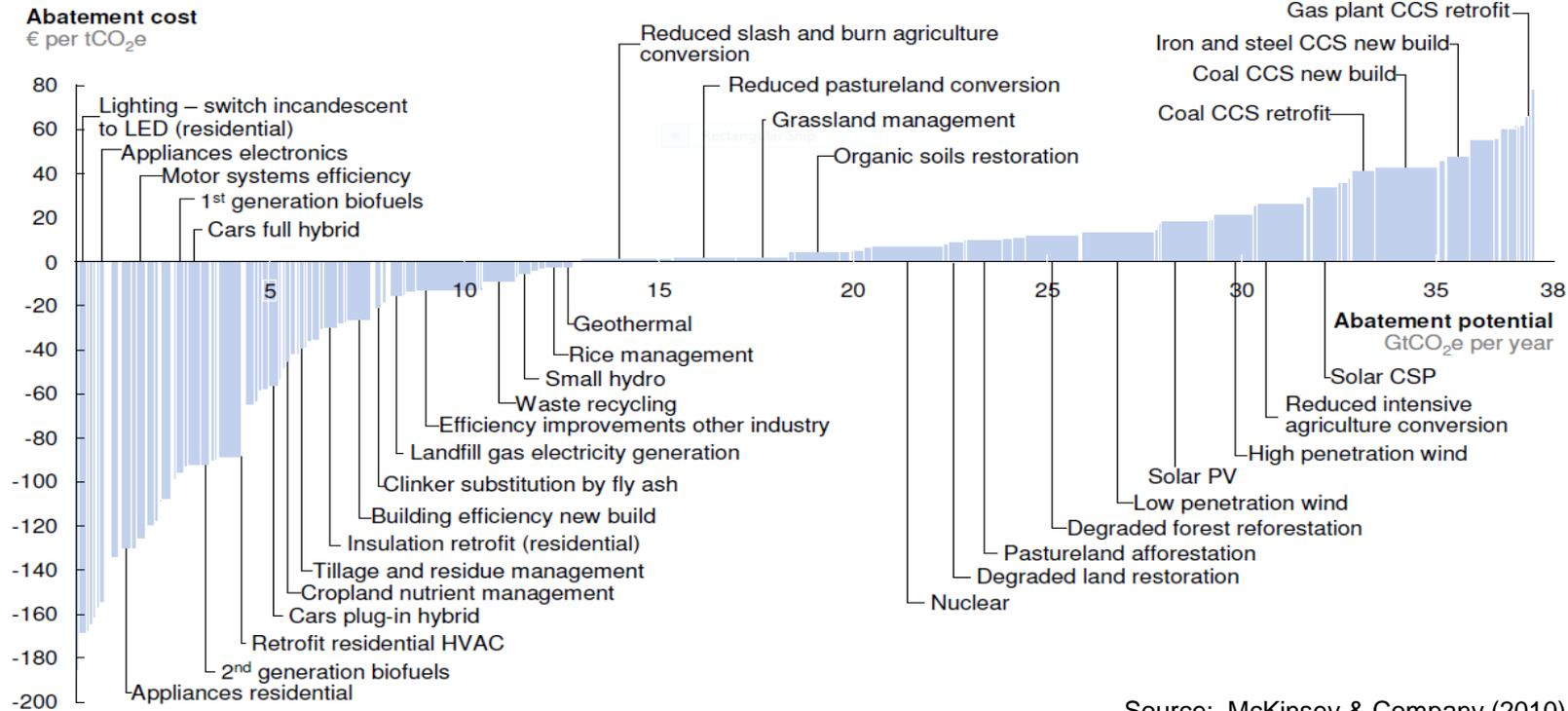
*CarbonCount*TM

quantitative carbon impact scoring system for “green” bonds



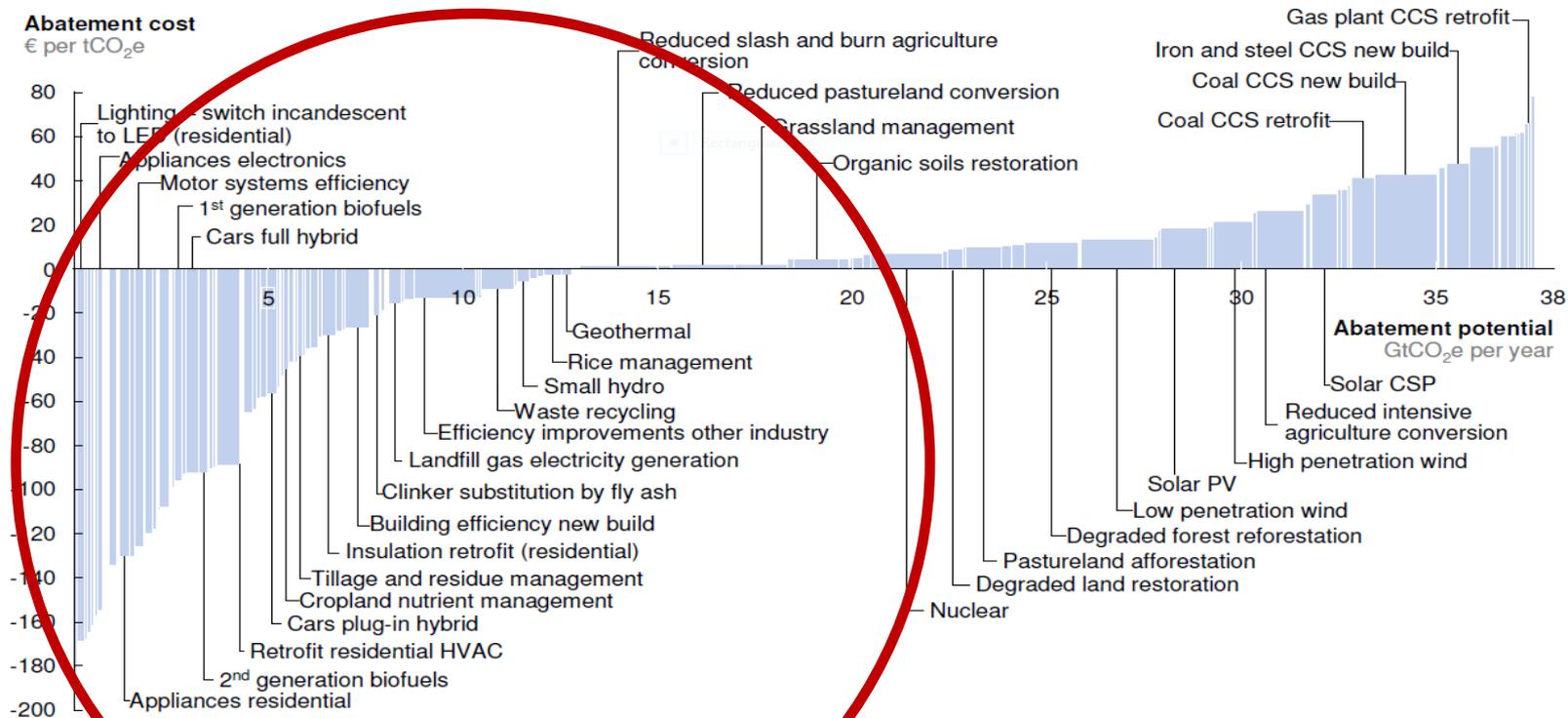
DAVID POSNER

€860 B per year over BAU needed to stabilize at 2 C° in 2030



Source: McKinsey & Company (2010)

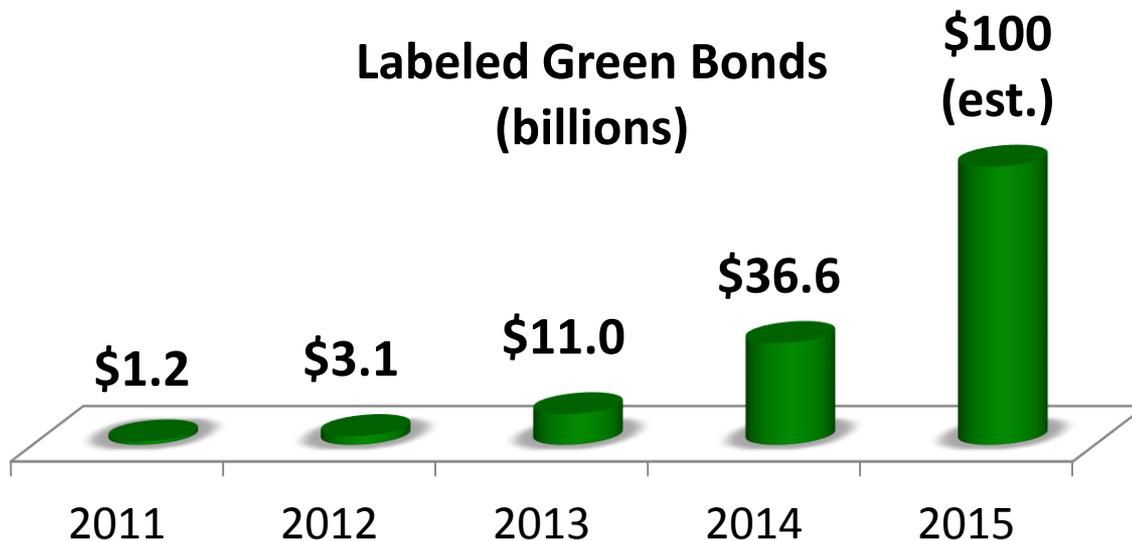
Abatement cost
€ per tCO₂e



Balancing the Capital Stack

- Debt is cheaper than equity (assuming equal technology risk). Availability of debt and attractiveness of terms increases with technology maturity and market acceptance.
- Recently tightened capital adequacy rules have caused banks to shorten the tenor of loans. This compresses amortization schedules, adversely (and disproportionately) impacting front-end capex-heavy renewable and efficiency projects.
- Bonds have advantages over bank loans in that they can combine longer repayment horizons and high liquidity. Issuance costs makes bonds less suitable for smaller capital needs (below ca. \$100 million).

Emergence of “Green” Bonds



For reference, total worldwide clean energy investment in 2014 = \$310 billion (BNEF)

By What Measure Green?

- Self-labeling
- External evaluation
 - *Credible?* Paid for by this issuer.
 - *Consistent?* Multiple providers.
 - *Coverage?* Only 60% of self-labeled green bonds were reviewed for climate impacts in 2013 and 2014.
- Green Bond Principles
 - Voluntary guidance developed by major underwriters.
 - No prescribed quantitative measures of “greenness”.
- Climate Bonds Initiative
 - Complex, prescriptive and still under development.

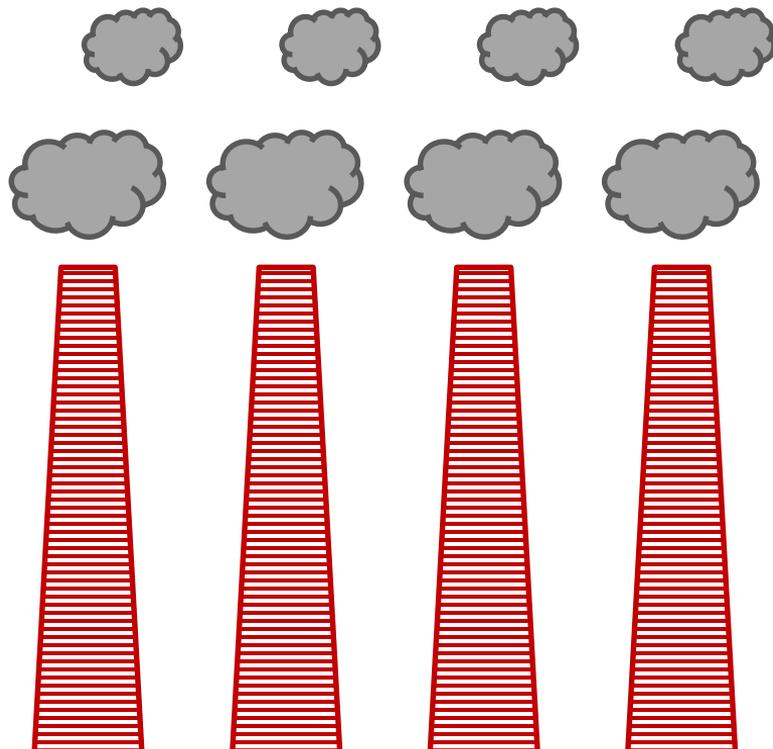
Need for a Hard Metric

- According to BNEF, “the concept of the green bond could become diluted to the point where investors have difficulty distinguishing what is genuinely making an impact on safeguarding the climate and what is not. That could one day carry big dangers for investors.”
- Our hypothesis: If carbon counts and capital is scarce, a carbon metric matters; this can be especially relevant for EE investments that lack infrastructure visibility.

“Scores” expected annual reductions in CO₂ per \$1,000 of investment.

Utilizes sophisticated EPA emissions model + NREL data to ensure accuracy, credibility, transparency.

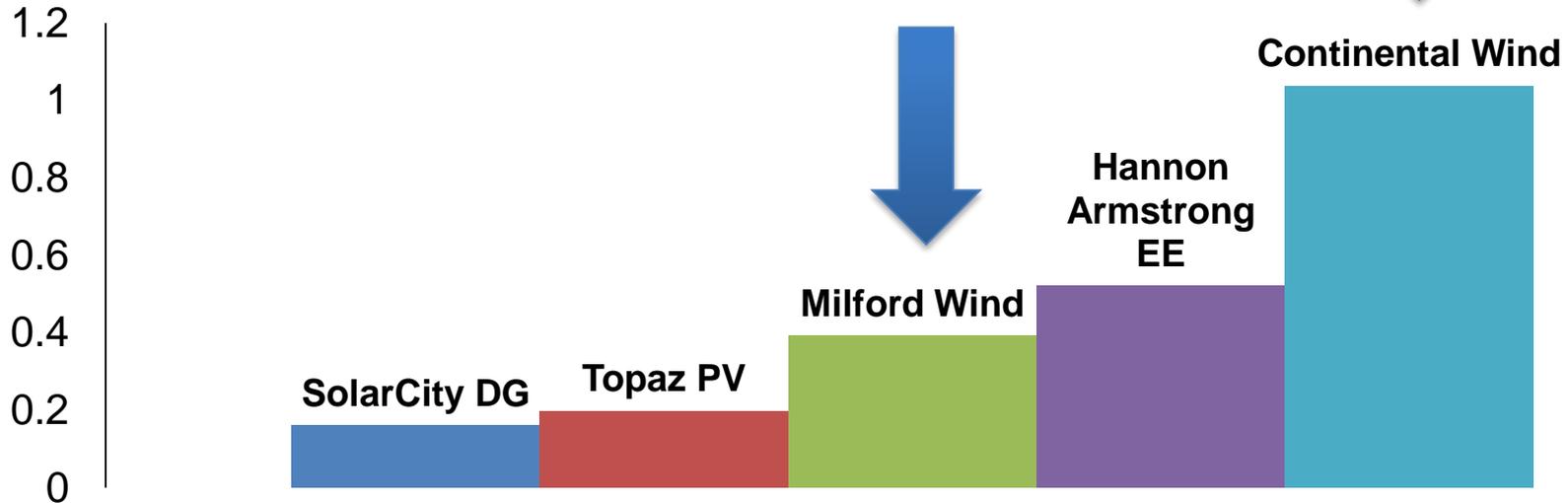
System is *LIVE* —
bonds being scored today.



How CarbonCount™ works

- Obtain Investment Grade Audit or Independent Engineer's Analysis for bond's underlying project[s].
- Estimate full-year hourly load impacts, allocated to each relevant region among EPA's ten regions in the **AVERT** model,
 - energy savings for efficiency projects
 - generation for renewables projects
- Run **AVERT** model to estimate electric sector CO₂ emissions reductions.
- Use EPA Emission Factors to Calculate CO₂ impacts for non-electric energy savings (e.g., thermal components of energy-efficiency projects).
- Calculate the share of total project capital funded through the bond offerings; allocate this share to individual bonds (\$1,000 face value).

CarbonCount™ Metric Tons CO₂ REDUCED per \$1,000





Goal: spectrum of green bonds ranked by *CarbonCount*™ score



Theory of Change

- *CarbonCount™* safeguards the integrity of green bonds, facilitating financial flows.
- Lays groundwork for market differentiation (e.g., pricing) to favor investments (EE) with superior carbon-reducing potential, differentially favoring high carbon-impact investments.
- Stimulates investor demand for carbon scoring. If investors request *CarbonCount™* scores for their due diligence, issuers and underwriters will be compelled to provide data for analysis and pay for scoring.
- Self-sustaining Market. *CarbonCount™* scores can be provided as follows:
 - *Alliance* creates and leads an independent, carbon-impact evaluation unit
 - *Alliance* collaborates with an established 3rd-party financial services/rating agency
 - *Alliance* makes *CarbonCount™* available as a public open-source tool.

CarbonCount™ Business Plan

- Develop methodology (**Status: complete**)
 - Score 5 existing or soon-to-be-issued bonds. ✓
 - EPA review/validation of CarbonCount™ use of AVERT software. ✓
 - Collaboration/information sharing with Green Bond Principles. ✓
- Public Introduction (**Status: complete**)
 - Release white paper, with associated socialization campaign (March 2015). ✓
 - **Winner, BNEF FiRe (Finance for Resilience) Competition (April 2015).** ✓
- Increase “inventory” of scored instruments (**Status: proposed**)
 - Seed market and create demand.
 - In negotiations with several issuers to “score” their bonds/projects.
 - Working with our BNEF mentor to encourage investors to “ask” issuers for CarbonCount™.
 - Transition to fee-for-service or open-source model, as conditions allow.