

SFIFORUM

SUSTAINABLE FINANCE INNOVATION

Forum Recap and Key Takeaways
November 2, 2017



Reflecting on This Year's Sustainable Finance Innovation Forum

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Goldman Sachs hosted the Sustainable Finance Innovation Forum, which convened ~350 corporates, investors, public sector representatives and non-profit organizations to discuss key themes shaping environmental markets and sustainability.

Leaders from each of our business divisions moderated the conversations, reflecting how sustainable finance has become core to how we serve our clients across each and every one of our businesses and an imperative of long-term sustainable economic growth.

The Forum was held with the backdrop of shifting U.S. policy, including the pull back from the Paris Climate Agreement, juxtaposed with strengthening market drivers. From the increasing investor focus on Environmental, Social, Governance (ESG) integration to rapid ongoing technology innovation, the growing economic thesis around low carbon solutions and sustainable business models is reshaping industries and markets.

The Sustainable Finance Innovation Forum explored these themes over the course of a one day event. Watch a video with highlights from the day [here](#).

The Future of the Utility

The global power utility sector is undergoing dramatic change. The sector has passed an inflection point where renewables are now the majority of new global energy capacity installations, driven by increasingly compelling cost competitiveness. Distributed generation and digitalization are creating a new paradigm by enabling smarter, more efficient production and consumption, while energy storage is expected to be a game changer in the reliable scale-up of renewables.

In developed markets with legacy infrastructure, these trends can result in significant challenges and disruption to existing utilities, but also create opportunities for companies that successfully adapt. For example, in Europe, forward-leaning companies are restructuring their business models to focus on growth and value with cleaner, digital, consumer-focused models.

In developing countries, there is an opportunity to leapfrog to cleaner, more efficient solutions. Start-ups may be more nimble in capturing value from the rapid growth in renewables than incumbents, who can be strapped with conventional energy portfolios.

Policymakers at the forefront of this transition are focused on providing optimal policy signals that facilitate innovation and incentivize capital flows to smart, efficient and resilient opportunities, i.e., optimal value discovery.



Agenda

Low Carbon Economy: The Future of the Utility

- John Rhodes, New York Public Service Commission
- Sumant Sinha, ReNew Power
- Peter Terium, innogy SE
- Gonzalo Garcia, Co-Head of Natural Resources, Banking

Clean Energy Investing

- Hans Kobler, Energy Impact Partners
- Billy Parish, Mosaic
- Olivia Steedman, Ontario Teachers' Pension Plan
- Julian Salisbury, Head of Special Situations, Securities

Low Carbon Economy: Transportation Revolution

- Michael F. Ableson, General Motors
- Glen De Vos, Delphi Automotive
- Macy Neshati, BYD Motors, Inc.
- Ryan Popple, Proterra
- Chris Buddin, Head of Cleantech and IoT, Banking

Sustainable Finance: Certainty and Uncertainty

- Michael R. Bloomberg, Bloomberg LP
- Lloyd Blankfein, Chairman and Chief Executive Officer

Investing in Future Innovation

- Sue Siegel, GE Ventures
- Josh Wolfe, Lux Capital
- John Waldron, Co-Head of Investment Banking

Sustainable Finance: U.S. Policy and Politics

- Anthony Foxx, Former US Secretary of Transportation
- Jason Grumet, Bipartisan Policy Center
- Steve Strongin, Head of Global Investment Research

Mainstreaming ESG in Equities

- Bob Arnold, New York State Common Retirement Fund
- Jennifer Bender, State Street Global Advisors
- Jean-Luc Gravel, Caisse de dépôt et placement du Québec
- Tim O'Neill, Global Co-Head of Investment Management

Green Bonds & Sustainable Yield

- Olivier Irisson, Groupe BPCE
- Monish Mahurkar, International Finance Corporation
- Michael Rowan, Moody's Investors Service
- Ashley Schulten, BlackRock
- Susie Scher, Co-Head of Americas Financing, Banking

Impact Investing – Niche or Mainstream

- Maya Chorenge, The Rise Fund, TPG
- Reuben Munger, Vision Ridge Partners
- Warren Valdmanis, Bain Capital Double Impact
- Hugh Lawson, Head of ESG, Investment Management

Sustainable Infrastructure

- Brian Barlow, Sidewalk Labs
- Steven Johnson, AECOM
- Andrew Marino, Carlyle Group
- Rich Friedman, Head of Merchant Banking

Introductory and Closing Remarks

- Kyung-Ah Park, Head of Environmental Markets

Clean Energy Investing

The maturation of clean energy technologies, particularly in solar and wind, as well as their rapid and ongoing cost declines has enabled remarkable growth and diversification in funding sources – including from strategics, private equity and pension funds. The risk-return profile has evolved as the sector has become more stable and more investable. However, there are challenges alongside the opportunities as the utility system adjusts to policy and regulatory change and moves towards decarbonized, digital and decentralized models.

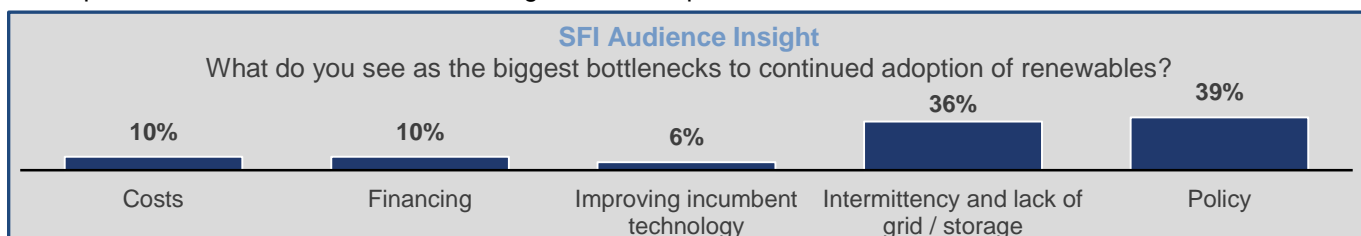
DID YOU KNOW?

Alternative energy is now mainstream

171 GW
renewable energy installed in 2016 accounting for
2/3
of global new energy capacity

Institutional investors have become active in clean energy as a sustainable infrastructure play that provides long-term yield. However, with greater competition, investible opportunities of sufficiently large size and yield are scarcer. This has led to strategies that integrate development platforms which provide pipeline visibility and aggregation of smaller projects. Similarly, there are successful business models that act as intermediaries which aggregate consumer solar financings and connect them with larger scale institutional capital, providing the market with a more efficient point-of-sale solution. Financial structures, including loans and securitizations, have mainstreamed residential solar and are poised to grow the larger smart home market.

Utilities are investing in new entrants to learn about and scale up technologies in priority areas such as EV charging infrastructure and energy storage, and to identify potential acquisition targets. Investing in clean energy can face challenges due to existing infrastructure, regulations, and capital intensity for the industry – and utilities are able to leverage their abilities across these areas to build value-additive partnerships with private equity investors and start-ups, who in turn benefit from the strategic relationship.



The Transportation Revolution

The automotive industry is adapting to fast and fundamental changes from the emergence and trajectory of three trends – electrification, digitalization, and autonomous driving. Declines in battery costs, government and corporate plans for EV deployment, and technology advances in autonomy and connectivity are transforming transportation from analog to digital, hardware to software, and ownership to mobility-as-a-service.

DID YOU KNOW?

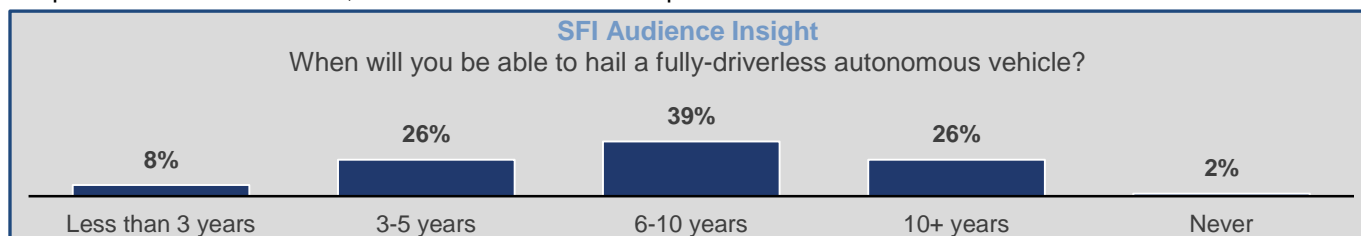
Electric Vehicles are approaching an inflection point

44M
Number of EVs expected to be sold in 2040
136x
Increased auto battery capacity by 2040
(from 17GWh to ~2300 GWh)

The future of urban transportation will be radically changed with the potential for zero emissions, zero crashes and zero congestion.

Electrification of mass transit in particular offers the potential for significant economic and environmental benefits globally. Battery innovation is critical to supporting electrification, not only technologically but also through financial innovations where battery leasing models can distribute the costs of transit over the life of use.

These trends are redefining the competitive universe across the value chain and broader ecosystem. New entrants and incumbents are looking to pinpoint emerging needs and innovations, creating opportunities for broader partnerships, investments, and acquisitions in pursuit of growth and value in the mobility of the future – a future that will provide for more efficient, safer and sustainable transportation choices for consumers.



Sustainable Finance – U.S. Policy and Politics

Policy tends to move slowly and look backwards, but has been forced to respond to a new pace of innovation particularly when it comes to transportation. Innovation in passenger mobility solutions, increased urbanization and greater public transportation requirements are driving the need for new approaches to policy. However, policy is faced with many challenges including partisanship, diverging needs between urban and rural communities, climate change and resilience, as well as large financing gaps with chronic underinvestment adding to the challenge.

Public and private investments are both needed to bridge the infrastructure divide – not “either / or.” Both sectors will need to be future-minded in crafting long-term solutions that anticipate the changing nature of technology, as compared to some projects that are currently based on decades-old planning and dated information. Job retraining and workforce development are crucial to economically sustainable communities and should be part of infrastructure policy and planning.

Natural disasters have been top of mind, but their costs have been consistently underestimated and there is no incentive in current planning and budgetary processes to take long-term sustainability and resiliency into account. Rebuilding with an ideal design is also difficult given the urgency immediately following a disaster. Private investment and the flexibility to rebuild with resilient improvements can enable sustainable, long-term infrastructure solutions.

Sustainable Infrastructure

Infrastructure plays a critical role in economic competitiveness, and yet there is a massive infrastructure deficit in the U.S., costing multiple trillions in lost GDP. There have been efforts to unlock capital, as state and local communities seek out public-private partnerships and innovative structures to move beyond traditional fee-based models, but there needs to be a broader shift in approach and innovation.

Sustainable infrastructure is about changing the paradigm to think holistically about how to make communities more livable, from affordable housing to clean water and effective communication systems to well-maintained, efficient transportation systems. Innovative technologies and new visions of urban planning can allow for a fundamental redesign of how infrastructure is conceived, developed and funded.

Much of the legacy brownfield infrastructure is degrading and requires significant investment to upgrade. Equitability, affordability and social justice are key considerations alongside the costs and investment requirements. This can be seen in water infrastructure, underappreciated because it is out of sight and too often with unsustainable economics. Investment is needed before a crisis occurs from decaying infrastructure. Local solutions are desired because of safety concerns, but there is generally insufficient pricing to cover the costs of delivery; greater regionalization of planning and improved economics can help deliver better outcomes.

DID YOU KNOW?

U.S. infrastructure is both a massive challenge and an opportunity

\$3.9T

Drain on U.S. GDP by 2025 from underinvestment in infrastructure

\$2T

Estimated infrastructure deficit in the U.S. over the next 10 years

Sustainable Finance – Certainty in an Age of Uncertainty

“When it comes to climate change, we know it’s happening, you know how to fix it, and it’s just a question of whether we have the courage to do so”

Michael Bloomberg in conversation with Lloyd Blankfein

Watch a clip from the discussion [here](#).



Investing in Future Innovation

“The pace of change will never be as slow as it is today.”

Sue Siegel, GE

Technological change is ever-accelerating and offering unique opportunities for investment. With ubiquitous data, connectivity and digitalization, technology advancements seem limitless and the potential for

societal benefit is enormous. The convergence of sectors and industries, such as the rise of the Internet of Things and big data in healthcare and energy, are examples of the broader disruption that is happening across every industry.

Technology development requires patient capital willing to take risks, a divergence from the traditional short-term nature of public markets and companies. Also reflective of pressures on R&D budgets, an increasing number of leading corporates have their own Venture Capital arms, which enables them to take broader bets over a longer time horizon and bring in innovation from “outside their four walls.” Corporate investors look for both financial and strategic return, including broader ways to monetize intellectual property and drive new approaches to innovation within the core business.

“The best way to predict the future is to invent it.”

Josh Wolfe, Lux Capital

Investors approach risk / return on a spectrum, and some investors are focused on high risk and high return approaches by investing in “moon-shots.”

These opportunities have significant scientific and

technical complexity, often in areas with scarce attention, but attract real value by addressing large market needs while solving some of the world’s most vexing challenges.

Governments play an important role in incentivizing investment and scale-up of technologies, particularly with respect to sustainability given the vast need, both through public-private-partnerships and optimal price signals. Many international governments are taking a more proactive role in spurring innovation to drive more sustainable economic growth and competitiveness.

Mainstreaming ESG in Equities

Integration of ESG into portfolio management is increasingly seen as core to long-term investing with a growing base of investors using ESG as an added filter to optimize risk and return – it can act as a strategic lens to identify the long-term direction of a company and the quality of the management team.

There are many approaches to optimizing portfolios for certain environmental and social outcomes versus divestiture. For example, articulating key goals and taking a more flexible approach enables ways to minimize market tracking error while reducing carbon exposure.

Investors are also increasingly engaging on ESG issues, with climate change and diversity having climbed to the top of shareholder proxy concerns. For example, index investors as long-term owners are focusing on direct engagement on ESG as an important part of promoting long-term sustainable returns.

The industry is still working through concerns over ESG data quality and benchmarks. ESG data is improving, particularly on the environmental side, while social data is still more subjective, but overall, there is “artificial precision” with still a lot of noise and inconsistency. However, ESG data is expected to continue improving as investors increasingly integrate ESG and look for better information.

DID YOU KNOW?

ESG-focused investing is mainstream

\$22.9T

Global sustainable investment assets at the start of 2016

25.2%

Increase in ESG assets globally since the start of 2014

Green Bonds & Sustainable Yield

Green bonds have continued to gather momentum, with total issuance nearing \$300 billion after four years of rapid growth. Capital needs in the trillions for the Sustainable Development Goals highlight the need for private sector capital, and green bonds are critical given the ability to tap into the deep and liquid fixed income markets.

Investors can have climate impact within fixed income portfolios without impacting risk given the ratings and liquidity of green bonds. Beyond credit analysis, investors consider transparency, governance and impact

reporting. Issuers look to green bonds as a way to align financing plans with corporate responsibility objectives, as well as for the broadening and deepening of investors. There is not yet evidence of a pricing differential, but some issuers are building programmatic green issuances into their forward funding strategies.

Countries are also encouraging green bonds to align capital flows with national environmental and climate goals, as evidenced by France. China is another example with promulgated green bond guidelines, which have catalyzed significant issuance. The One Belt One Road Initiative, as well as other new institutions such as the Asia Infrastructure Bank, is following a similar template of defining and encouraging sustainable investing.

Rating agencies offer assessments to verify the green credentials of a green bond separate from their ratings, but also integrate ESG into credit ratings via established methodologies. ESG integration ranges from industry-based, for example technology disruption in the automotive sector, to longer term cross-sector trends such as climate change. Rating agencies have been examining transition risk for long-dated financings, where regulatory, technological and societal responses to climate change are expected to impact many industries over time.

Impact Investing

Impact investing has grown rapidly with a variety of new funds serving as a proof point of the mainstreaming of the market. Growth has been enabled by the recognition that impact investing can serve as an additional lens to find attractive investments which address large societal challenges, and that it can be done without a trade off in return, i.e., have “co-linearity in financial return and impact.”

Impact investing requires deep focus and engagement, delving into a relatively smaller and more complicated market. However, when applied well, it also helps identify structural trends for growth and outperformance, provide improved stability of returns, and optimize risk calibration. In addition, impact investors can find improved sourcing and new opportunities with different kinds of companies, particularly mission-oriented founders, which often results in active governance and strong partnerships between investors and management.

The definition of ‘impact’ is an important first step for an investor entering the space, and measuring and reporting on impact is essential. The Sustainable Development Goals can offer a high-level framework, but impact is ultimately about defining one’s own values. Accordingly, there have been challenges in standardizing measurements. Ultimately, impact should be through core operations, not as an add-on. With a growing number of funds meeting market returns while having meaningful impact, impact investors will become part of the mainstream.



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