

## THE POLITICS OF THE SOLAR AGE: 1975-2015

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The global transition to sustainability is fundamentally based on the current transition from the fossil-fueled Industrial Era to the low-carbon, knowledge-richer, more inclusive economies, “green” technologies and infrastructure now underway worldwide as Ethical Markets tracks. I published *The Politics of the Solar Age* in 1981, outlining the struggle observed as a science policy advisor from 1975 through 1980<sup>1</sup> as incumbent industries in fossilized sectors fought to retain their tax advantages, subsidies and legislated rent-taking. I witnessed how the many viable technologies in solar wind, geothermal, ocean systems as well as organic, low-till and halophyte agriculture were suppressed by money in political processes, lobbying, regulatory capture and cognitive capture of compliant commercial media. I reviewed these political processes in the USA, Brazil and worldwide in [Mapping the Global Transition to the Solar Age](#), foreword by NASA chief scientist Dennis Bushnell, co-published by the Institute of Chartered Accountants of England and Wales and Tomorrow’s Company (London, 2014, downloadable at [www.ethicalmarkets.com](http://www.ethicalmarkets.com)).

2015 is the year when all the issues of global sustainability are now mainstream and becoming key agendas in the politics of most of the 193 United Nations (UN) member countries. The global transition from fossil fuels and nuclear power to efficient use of renewable energy and materials is now accelerating, as we expected when Ethical Markets launched our Green Transition Scoreboard® (GTS) in 2009.

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<sup>1</sup> From 1975-1980, the author served on the Technology Assessment Advisory Council to Congress and the US Office of Technology Assessment (OTA); the National Science Foundation’s Research Applied to National Needs (RANN) and the Committee on Public Engineering Policy (COPEP) of the National Academy of Engineering of NAS.

Anticipating the disappointments of the UN Climate Summit in Copenhagen, we identified the trends in private sector investing in all the new companies and technologies in solar, wind, efficiency, storage as well as geothermal, wave power and research in the \$1.2 trillion total worldwide in 2009. We projected that if the pace of at least \$1 trillion annually continues until 2020, that the world's economies would shift into the more sustainable, cleaner, knowledge-rich technologies of the next era as described in the aforementioned *Mapping the Global Transition to the Solar Age*. This transition is well underway as evidenced by numerous reports from [Financing the Transition](#), Long Finance<sup>2</sup>; [Fiscal Policies and the Green Economy Transition](#)<sup>3</sup>; and [Greening China's Financial System](#).<sup>4</sup> Even the fall in oil prices is not derailing the transition to renewable energy and efficiency, especially in developing countries where solar is growing and oil accounts for only 1.5% of electricity generation in the key markets where solar is growing.<sup>5</sup> These trends can address the needs of the 1.3 billion people lacking electricity, particularly when combined with information technologies like mobile phones and virtual financial services.<sup>6</sup> Even the natural gas from shale in the USA can no longer change the direction of the transition to renewables, while its current role usurping coal in electric utilities' fuel mixes is leading to new risks and vulnerabilities.<sup>7</sup>

So far, the drivers of this global transition have been the 1) growing risks of fossil fuels and nuclear energy, unaccounted rising costs of resource-degradation, waste, pollution and health impacts (still "externalized" from company and government accounts); 2) pressure on water supplies, collapsing fish stocks, spreading desertification and loss of forests and biodiversity; and 3) the growing recognition of the benefits of the green transition to sustainability in public health and safety, environmental quality, more

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<sup>2</sup> Mainelli, M. and von Gunten, C. *Financing the Transition: Sustainable Infrastructure in Cities*, Z/Yen Group, Long Finance and WWF, March 2015.

<sup>3</sup> "Fiscal Policies and the Green Economy Transition: Generating Knowledge – Creating Impact," OECD Green Growth Knowledge Platform Third Annual Conference Report, Ca' Foscari University of Venice, The Energy and Resources Institute, United Nations Environment Programme, the Government of Switzerland, the Government of the Netherlands.

<sup>4</sup> Chenghui, Z., Zadek, S., Halle, M. "Greening China's Financial System: Synthesis Report," IISD and DRC, March 16, 2015.

<sup>5</sup> Gilbert, K. "The Bright Side," Bloomberg, Institutional Investor, p. 44, March 2015.

<sup>6</sup> Alstone, P., Gerhenson, D. and Kammen, D., "Decentralized Energy Systems for Clean Electricity Access," *Nature Climate Change*, vol. 5, pp 305-314, April 2015.

<sup>7</sup> Deyette, J., et al. [The Natural Gas Gamble](#), Union of Concerned Scientists, March 2015.

equitable decentralized technologies – all of which are available and when scaled could provide unlimited sustainable energy for all countries.<sup>8</sup> *Better Growth Better Climate*, the Synthesis Report of the Global Commission on the Economy and Climate, a global consortium of eight research institutes, documents that this green transition will also provide opportunities for jobs and boost sustainable global development.<sup>9</sup>

Since 2009, the rising awareness of these new global possibilities grew worldwide among the grass roots, in academia and at last reached politicians and traditional financial centers. These crises of unsustainability humanity faces were seen more clearly as caused by limited perception of planetary processes and our place in its living biosphere. As we humans began accepting our role in these crises, including climate change, many became empowered to take responsibility to act in this new Age of the Anthropocene. Scarcities of water, arable land and forests which had fueled “resource grabbing” by multinationals and government sovereign wealth funds increasingly meet with local resistance. A report by The Guardian demonstrated the failure of such privatization models.<sup>10</sup>

The tipping point was in 2012 where 50,000 civic leaders met with leaders of 193 UN member countries and many enlightened businesses and investor groups at the UN Summit Rio+20 in Rio de Janeiro, Brazil.<sup>11</sup> Our GTS was presented at this summit in many venues with our 2012 total at \$3.3 trillion. Corporations and institutional investors signed [The Natural Capital Declaration and Roadmap](#) which has since then added hundreds of organizations.<sup>12</sup> Pension funds, particularly in Europe, joined the transition.<sup>13</sup>

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<sup>8</sup> See for example the Green Transition Scoreboard® reports from 2012 and 2013.

<sup>9</sup> *Better Growth Better Climate*, Global Commission on the Economy and Climate, World Resources Institute, EDRI, Tsinghua University, Climate Policy Initiative, Global Green Growth Institute, Stockholm Environment Institute, CRIER, LSECities, September 2014.

<sup>10</sup> Vidal, J. “Water privatization: a worldwide failure?” *The Guardian*, January 30, 2015.

<sup>11</sup> Report of the United Nations Conference on Sustainable Development, [UNCSD](#), Rio de Janeiro, Brazil, June 2012

<sup>12</sup> *The Natural Capital Declaration and Roadmap*, UNEP and GCP, 2014.

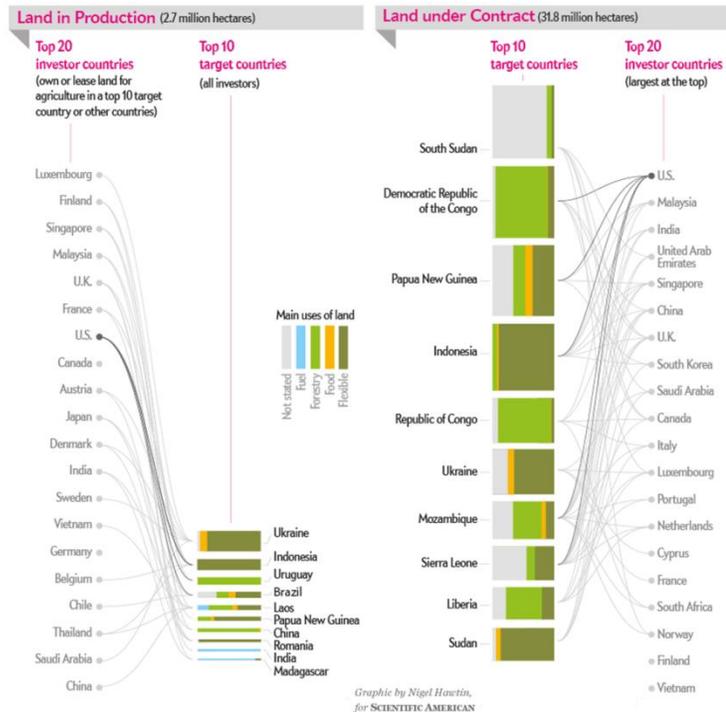
<sup>13</sup> Denmark, F. “The Greening of European Pensions,” *Institutional Investor*, p. 56-9, March 2015.

## Countries "grabbing" land outside their borders<sup>14</sup>

The alarming weather events and natural disasters of 2013 and 2014 finally brought widespread recognition of anthropogenic climate change and the growing debate about mitigation and inevitable adaptation to rising sea levels and security risks.<sup>15</sup> [Global Insights on ESG in Alternative Investing](#) were provided by Mercer and LGT Capital

Partners.<sup>16</sup> Many pension fund managers who formerly cited financial risks in divesting from fossil fuels now cite the risks of "stranded assets."<sup>17</sup>

Thus, defensive, rearview mirror responses gave way to more proactive approaches. Forward-looking financial groups<sup>18</sup> promoted the wide range of new investments<sup>19</sup> and the need to shift portfolios from fossil fuels and "stranded assets" to market reforms, including carbon taxes and writing down "proven reserves" which clearly could not be exploited without increasing global warming beyond 2°C.<sup>20,21</sup> While solar PV and thermal CSP, wind and efficiency became increasingly attractive and prices, particularly of solar PV continue to fall, even *The Economist* acknowledged the new circumstances in their special report "Let There Be Light".<sup>22</sup> All this was made even more attractive by the drop in oil prices below \$50 a



<sup>14</sup> Fischetti, M. "This Land is My Land," Scientific American, May 2015.

<sup>15</sup> Henderson, Hazel. "Mapping the Global Transition to the Solar Age," ICAEW and Tomorrow's Company, UK, February 2014.

<sup>16</sup> Global Insights on ESG in Alternative Investing, Mercer and LGT Capital Partners, March 2015.

<sup>17</sup> Rose-Smith, I. "Big Difference," Institutional Investor, p. 41, April 2015.

<sup>18</sup> Ceres [Investor Network on Climate Risk, Portfolio Decarbonization Coalition and others.](#)

<sup>19</sup> Ceres "[Clean Trillion](#)".

<sup>20</sup> Carbon Tracker, UK.

<sup>21</sup> McGlade, C. and Ekins, P. "The geographical distribution of fossil fuels unused when limiting global warming to 2 °C," Nature, January 8, 2015.

<sup>22</sup> "Let There Be Light," The Economist, Jan. 17, 2015

barrel by January 2015, allowing governments to withdraw costly subsidies to consumers. Unfortunately, subsidies to producers have largely stayed in place. However, London's FTSE launched its ex-Fossil Fuels Index series, and the UN's \$53 billion Joint Staff Pension Fund has seeded two low-carbon exchange-traded funds (ETFs).<sup>23</sup> As carbon assets are downgraded in portfolios, we recommend that these be repriced as "in situ chemical feedstocks reserves" to soften the blow.

Looking ahead, this acceleration of the green transition is powered by fundamental shifts in human perspectives leading to paradigm shifts in science, academia, governance, leadership, finance, business, social norms, media, communications and network structures. The role of space and Earth-observing satellites led to a greater focus on exploration of [earth systems science](#).<sup>24</sup> The computerized digital revolution and social networking underlie all these shifts as efficiency in energy, manufacturing, urban redesign, transport, healthcare, finance and many other sectors of post-industrial societies are digitized and dis-intermediated. Harvard physicist Mara Prentiss links efficiency advances and renewable energy to show how the USA can be 100% powered by these cleaner, healthier systems in *Energy Revolution* (2015).<sup>25</sup>

While we are seeing ourselves anew as one confused, troubled human family, trying to adjust to each other's differing experiences, beliefs and cultural practices, we are also acknowledging the globalization and technologies we have created which we must now address and manage if we are to survive. As we deal with the resulting conflicts, inequality, social fragmentation and mindless violence, humans are learning and survival strategies are emerging. We recall that stress has been a basic tool of evolution in all species, including our own.

**Breakdowns drive breakthroughs.** There is much good news, submerged in mainstream media, still operating on the old commercial formula: violence, sex, scandal as weapons of mass distraction – "if it bleeds, it leads." In *The Better Angels of Our Nature* (2011), Harvard psychologist Steven Pinker tells the

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<sup>23</sup> Gilbert, K. "Performance Anxiety," Institutional Investor, p. 49, May 2015.

<sup>24</sup> [NASA](http://www.ethicalmarkets.com/category/earth-systems-science/) and <http://www.ethicalmarkets.com/category/earth-systems-science/>.

<sup>25</sup> Prentiss, M. *Energy Revolution*. Belknap-Harvard University Press, Cambridge, MA, 2015.

more hopeful story based on millennial historical trends including the feminization of societies, “gentle commerce”, expanding reason and sympathy and social order. Charles Johnston, MD, sees these trends as leading toward cultural maturity in *Hope and the Future* (2014). Even in the face of rising sectarian conflicts in the Mid-East, similar reports from *BusinessWeek* and *New Scientist* document how humans are “changing the juice we use to run our civilization” and “witnessing a complete transformation of the world.”<sup>26, 27</sup> Even US populations are beginning to see climate change as a threat and surveys now show bipartisan support for government regulation of greenhouse gases and majorities now favor solar energy.<sup>28, 29</sup>

Key drivers in 2015 accelerating the green transition to more equitable, peaceful, sustainable societies are knowledge-intensive, paradigm shifts – new source codes now steering social, political, financial, corporate and academic decisions and changes:

- Beyond quantitative economic models to qualitative growth, systems approaches to human development, wellbeing and happiness
- Beyond short-term gain to long-term sustainability
- Beyond competition to collaboration and cooperation

These more inclusive systemic paradigms are re-shaping:

- Markets and commons in new global agreements
- MOOCs revolutionizing academic-based learning<sup>30</sup>
- Beyond scarcity economics to abundance and embracing earth systems science

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<sup>26</sup> Kenny, C. “The Economic Power of Positive Thinking,” *Bloomberg BusinessWeek*, p. 8-9, Jan. 12, 2015.

<sup>27</sup> Brathic, C. “Climate for Optimism,” *New Scientist*, p. 24, Dec. 27, 2014.

<sup>28</sup> Polling the American Public on Climate Change, Environment and Energy Study Institute, April 2015.

<sup>29</sup> U.S. Homeowners on Clean Energy: A National Survey, SolarCity, Clean Edge and Zogby Analytics, March 2015.

<sup>30</sup> See for example, Carey, K., *The End of College*, Riverhead/Penguin, New York, 2015.

- Beyond mining the Earth for energy to harvesting the Sun's free photons – that safely sited nuclear power 93 million miles from Earth

These new source codes are now pervading our organizations, new strands of cultural DNA deep in our operational hard drives, leading to new strategies, assumptions and decisions:

- Accounting and internalizing all social and environmental costs into public and private balance sheets (beyond GDP and “externalizing,” toward full-spectrum, truthful accountability and circular economies).<sup>31</sup>
- Transforming finance beyond short-term, money-based [fossilized asset allocation](#) still mispricing energy and risk<sup>32</sup> to long-term value creation standards based on use of six forms of capital: human, intellectual, financial, social, built and natural ([IIRC](#), [SASB](#), [GRI](#) and Ethical Markets’ [Principles of Ethical Biomimicry Finance](#)®).
- Market-based reforms – pollution taxes (including carbon)<sup>33</sup>; democratizing financial services; reforming electronic markets and trading<sup>34</sup>; [crowdfunding](#), cellular phone banking, revival of public banks, time banking, credit unions, cooperatives, worker-owned companies, hybrid social enterprises and the rise of shareconomies and the [circular economy](#).<sup>35</sup>
- Focus on inequality, technology-based unemployment and the globalized power-law race-to-the-bottom; new forms of distribution of purchasing power, aggregate demand, guaranteeing minimum basic security, incomes, contingent cash transfers.<sup>36, 37</sup>
- Focusing on technological threats – artificial intelligence (AI), cybercrime and terrorism, synthetic biology, geo-engineering, nanotechnologies, space race for helium 3 and other minerals, gene

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<sup>31</sup> Capra, F. and Henderson, H. [Qualitative Growth](#), ICAEW and Tomorrow’s Company, London, UK, October 2009

<sup>32</sup> Henderson, H. [Fossilized Asset Allocation Still Mis-Pricing Energy And Risk](#),” SeekingAlpha.com, Jan. 22, 2015

<sup>33</sup> Henderson, H. “2015’s Winning Coalition,” CSRWire, Jan. 7, 2015

<sup>34</sup> Henderson, H. “Reforming Electronic Markets and Trading,” CSRWire, Nov. 19, 2014

<sup>35</sup> Sanquiche, R. “Beyond Wall Street: the encouraging growth of new financial models,” TheGuardian.com, Jan. 14, 2015

<sup>36</sup> Henderson, H. “Facing Up To Inequality: New Approaches Beyond Economism,” *The Globalist*, Dec. 31, 2013

<sup>37</sup> Henderson, H. “Reforming Money and Banking: Keys to Debt and Jubilee,” Tikkun, Jan. 21, 2015

driving<sup>38</sup>; beyond the unsustainable animal protein diets to plant protein, more insect-based foods for energy and resource efficiency and human health.

- Designing and financing urbanization, efficient infrastructure,<sup>39</sup> focusing more on “infostructure” (broadband, expanding internet access, online education, tele-democracy),<sup>40</sup> public goods and services, mobility, food, cultural and environmental amenities.
- Beyond fresh water intensive glycophyte agriculture to salt-loving halophyte-plant foods, fiber and fuels (based on four underutilized, abundant resources: 40% desert lands, 97% seawater, 10,000 halophyte varieties and free photons).<sup>41</sup>

These broadened approaches to sustainability are tracked in our GTS under our section: Life Systems, including technologies protecting nature, human wellbeing, food, water, education and quality of life. We continue to cover green infrastructure finance by green bonds<sup>42</sup> and purposes to which such funds are applied. Long-term sustainability requires redesign of major infrastructure from past eras – now no longer fit for purpose: from national electricity grids, urban infrastructure, obsolete dams, crumbling bridges, over-investments in roads and private vehicles versus rail, public transit, bike lanes and pedestrian malls to the massive global fossil fuels apparatus and trade facilities for shipping material goods in our increasingly digitized 21<sup>st</sup> century Information Age. All these system-wide transitions toward efficiency, information and communications technologies (ICT) are now digitizing many sectors of economies worldwide.

Systemic awareness of vital interconnections is now crucial, such as between energy, water, food and other tightly coupled systems of agriculture, forestry, ecosystem services, financial speculation and climatic changes (all monitored daily by 120 Earth-observing satellites of many countries cooperating through GEO and the International Space Station). For example, the Inter-American Development Bank

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<sup>38</sup> Global Risks 2015 10<sup>th</sup> Edition, World Economic Forum, Geneva, January 2015

<sup>39</sup> Henderson, H., Sanquiche, R. and Nash, T. “Green Bonds Growing Green Infrastructure,” Green Transition Scoreboard Update, Ethical Markets Media, August 2014.

<sup>40</sup> See for example, Henderson, H. Global Infrastructure Fund Conference, Tokyo, Japan, 1998.

<sup>41</sup> Henderson, H., Sanquiche, R. and Nash, T. “Plenty of Water,” Green Transition Scoreboard Report, Ethical Markets Media, March 2014

<sup>42</sup> Henderson, Sanquiche, Nash, op. cit. 2014.

is financing smart transportation solutions through new public-private partnerships.<sup>43</sup> Even California's drought is producing new approaches such as generating the electricity to run water and waste water system with solar energy.<sup>44</sup>

### System-wide Transitions



The Global Infrastructure Basel conference is revealing its first selection of sustainable infrastructure between \$5 and \$400 million on May 27, 2015, allowing investors to connect with partners and opportunities including wind farms in Vietnam and Senegal, energy and water-saving projects in China, Tanzania; public transit projects in Accra, Mexico City and Fortaleza, Brazil.<sup>45</sup>

The rapid digitization of legacy industries, manufacturing, retail, traditional banking toward mobile-payments systems like Kenya's M-PEA, crowdfunding sites like Kickstarter and crypto-currencies like Bitcoin are now spreading to healthcare, legal services and the new "shareconomy" hybrids like Uber, AirBnB, Couchsurfer and employment sites like E-Lancer and Task Rabbit. While these new ICT services help consumers' budgets and provide casual work for struggling people in developed economies, they can also exacerbate inequality in countries applying austerity, cuts to public services, pensions and healthcare. In addition, electricity-gulping, inefficient server farms are at last being addressed by a consortium of IT industry leaders formed in 2007 in their Green Grid initiative<sup>46</sup> and a Power Usage Effectiveness (PUE) effort with EPA's Energy Star program.<sup>47</sup>

<sup>43</sup> Public-private partnerships offer smart transportation solutions for Latin America and the Caribbean, Economist Intelligence Unit, Inter-American Development Bank and the Multilateral Investment Fund, April 15, 2015.

<sup>44</sup> Hales, R. "A Partial Solution to California's Water Problems," Sun Xtender, April 10, 2015.

<sup>45</sup> First Infrastructure Projects Announced, Global Infrastructure Basel, April 15, 2015.

<sup>46</sup> "PUE to Become Global Standard for Data Center Efficiency," GreenBiz, April 5, 2010.

<sup>47</sup> Siegel, R. "New Server Technology Reduces the Power Required to Save Energy," Just Means, April 9, 2015.

The International Telecommunications Union (ITU) has tracked these trends in ICT and how different countries provide infostructure: internet, broadband, fiber-optic cables, WiFi, phone services and how communications networks are provided and under what standards. For example, Scandinavian countries rank highest in providing standard access to this ICT infostructure while Finland defines such access as a human right. The World Economic Forum (WEF) in Davos, Switzerland, since 2001, has produced its Global Information Technology Report comparing progress in ICT across 143 countries because “ICTs have become key enablers of business and employment creation and of productivity growth.” While “ICTs have significant potential for supporting inclusive grow ... paradoxically, ICTs have opened up new digital divides.”<sup>48</sup> This is seen both within and between countries, largely due to different standards and politics. ICTs can exacerbate inequality of access, condemning many rural and poor communities to structural poverty and unemployment.

In the USA , for example, access to internet and broadband falls behind many countries, where small cities can be stranded without minimum broadband speed for their small businesses and job creation. Left to the private market, large telecom and cable companies have duopoly or monopoly power and simply will not provide access. The [Financial Times](#) reported on how these policies deny service to millions of consumers and small businesses, and which US neighborhoods, small cities and rural areas do not have broadband connections.<sup>49</sup> The WEF report ranks the USA 7<sup>th</sup> behind Singapore, Finland, Sweden, Netherlands, Norway and Switzerland for networked readiness; 14<sup>th</sup> in access standards behind New Zealand, Britain, Canada and the United Arab Emirates (UAE); 12<sup>th</sup> on infostructure and affordability and only 10<sup>th</sup> on business usage.<sup>50</sup>

According to the US Federal Communications Commission, “High-speed Internet access has become fundamental to modern life. Broadband connectivity can overcome geographic isolation and put a world of information and economic opportunity at the fingertips of citizens... Forty-one percent of America’s rural schools couldn’t get a high-speed connection if they tried... Connectivity is only available at an

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<sup>48</sup> The Global Information Technology Report 2015, WEF, 2015.

<sup>49</sup> Crow, D. “Digital divide exacerbates US inequality,” *Financial Times*, October 28, 2014.

<sup>50</sup> Global Information Technology, op. cit.

unreasonably high price.” Yet, the Connect America Fund will invest \$20 billion in broadband through 2020, paid by small fees on consumer bills.<sup>51</sup> Google, Facebook and new entrants into providing internet and broadband connectivity to all humanity are gearing up with new technologies. Google is developing globe-girdling balloons; Facebook has launched its internet.org and will provide access to basic services in tandem with several governments in Africa and hopes to develop solar-powered drones. OneWeb, a Florida-based start-up, aims to provide fast connectivity to all with swarms of cheap, low-flying satellites.<sup>52</sup> However, these innovations are unproven and years away. This huge underlying transition enabling smarter energy, water, cities, online education, waste recycling and more inclusive green growth is tracked in our GTS, currently totaling over \$876 billion.

This array of deeper issues is now emerging in thousands of top-level, global scientific conferences and will be the subject of at least three major UN summits in 2015: 1) Financing for Development in Addis Ababa, Ethiopia, July 2015; 2) the UN General Assembly, New York, September 2015, to debate and ratify the new Sustainable Development Goals (SDGs) which build on the Millennium Development Goals (MDGs) which succeeded in advancing education, women’s and all human rights and reducing poverty; and 3) the Climate Change Summit in Paris, France, December 2015. The SDGs, launched in 2012 at Rio+20 placed all human goals within the framework of ecological sustainability and inclusive, equitable, low-carbon green economies in member countries and supported open working groups (OWG) in all these countries. A global Stakeholder Forum was initiated to review the goals [see insert]. Its report on achieving a better balance between economic, social and environmental dimensions produced deeper research and clarification in a systems-based synthesis ([OWG Outcome Document](#)).<sup>53</sup> An inter-governmental negotiating session at the UN, New York, January 19-21, 2015, conducted a “stocktaking” in preparation for adoption of the final SDGs at the September General Assembly.<sup>54</sup>

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<sup>51</sup> Wheeler, T. Closing the Digital Divide in Rural America, Official FCC Blog, November 201, 2014.

<sup>52</sup> “Expanding the Internet: Sky-Fi,” The Economist, April 11, 2015.

<sup>53</sup> Open Working Group proposal for Sustainable Development Goals, United Nations, 2014.

<sup>54</sup> “First Intergovernmental Negotiation on the Post-2015 Development Agenda,” IISD Reporting Services, January 21, 2015.

The report, “Sustainable Development Goals and Integration,” Stakeholder Forum 2015, by Amy Cutter, et al.,<sup>55</sup> identified cross-cutting issues and where some goals could be focused and integrated with others, for example, how **Goal 7**: “Ensure access to affordable, reliable, sustainable and modern energy for all” was related to **Goal 12**: “Sustainable consumption and production patterns” (closely followed in our GTS). All the SDGs are related and may be further integrated into a smaller group as advocated by some economists and politicians. However, we agree with those who take a systems view beyond economics and money-based measures, such as Secretary-General Ban Ki-moon, Bill and Melinda Gates and others.<sup>56</sup> We have reported on **Goal 2**: “Promote sustainable agriculture”; **Goal 6**: “Ensure availability and sustainable management of water and sanitation”; **Goal 8**: “Promote inclusive and sustainable economic growth, full productive employment and decent work for all”; **Goal 9**: “Build resilient infrastructure, promote inclusive, sustainable industrialization and foster innovation”; **Goal 11**: “Make cities and human settlements inclusive, safe, resilient and sustainable”; **Goal 14**: “Conserve and sustainably use the oceans, seas, marine resources for sustainable development”; **Goal 15**: “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss”.

Ethical Markets supports all these and the other SDGs which relate to gender equity, human rights and social justice which are fully embraced in our [Transforming Finance](#) initiative and [TV series](#), our Principles of [Ethical Biomimicry Finance](#)® and our [EthicMark® Awards](#) raising the ethical bar for advertising, our [Quality of Life Indicators](#) and the [Caring Economy Indicators](#) of our partner the Center for Partnership Studies. We have promoted such goals since the launch of the [Earth Charter](#) and its 16 Principles of Human Responsibility at the 1992 Earth Summit in Rio de Janeiro which I have supported ever since.<sup>57</sup> Our coverage continues with daily updates on investments in quality-of-life access to basic needs, including water, healthier agriculture and food, as well as infostructure: internet access, broadband, electronic education and political participation.

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<sup>55</sup> Cutter, Amy, Derek Osborn, John Romano and Farooq Ullah. “Sustainable Development Goals and Integration,” Stakeholder Forum, German Council for Sustainable Development, 2015.

<sup>56</sup> “Economics of optimism,” *The Economist*, p. 61, Jan. 24, 2015.

<sup>57</sup> The Earth Charter, [Earth Charter International](#), San Jose, Costa Rica.

GOAL 1 END POVERTY

GOAL 2 END HUNGER

GOAL 3 WELL-BEING

GOAL 4 QUALITY EDUCATION

GOAL 5 GENDER EQUALITY

GOAL 6 WATER AND SANITATION FOR ALL

GOAL 7 AFFORDABLE AND SUSTAINABLE ENERGY

GOAL 8 DECENT WORK FOR ALL

GOAL 9 TECHNOLOGY TO BENEFIT ALL

GOAL 10 REDUCE INEQUALITY

GOAL 11 SAFE CITIES AND COMMUNITIES

GOAL 12 RESPONSIBLE CONSUMPTION BY ALL

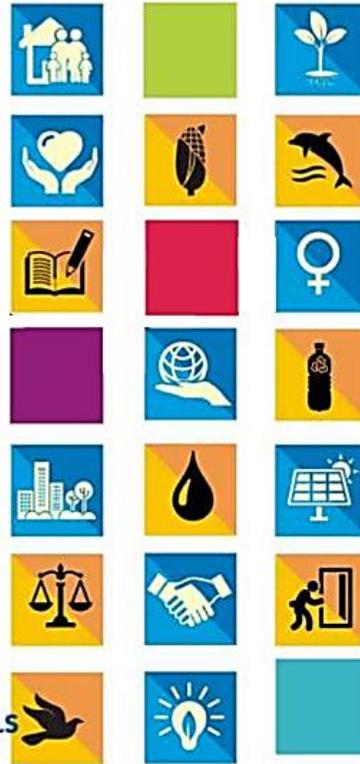
GOAL 13 STOP CLIMATE CHANGE

GOAL 14 PROTECT THE OCEAN

GOAL 15 TAKE CARE OF THE EARTH

GOAL 16 LIVE IN PEACE

GOAL 17 MECHANISMS AND PARTNERSHIPS TO REACH THE GOALS



### United Nations Sustainable Development Goals

The UN Secretary General Ban Ki-moon’s report “The Road to Dignity by 2030: Ending Poverty, Transforming All Lives and Protecting the Planet” synthesizes the widespread deliberations of the 193 country members of the United Nations in RIO+ 20, in Rio de Janeiro, Brazil in 2012, with the over 50,000 civic, business and investor groups, including us, also participating.<sup>58</sup> The global consultations since then led to these new SDGs to expand on the Millennium Development Goals’ progress since 2000. The Rio Outcome document *The Future We Want* summary states “We recognize that people are at the center of development and, in this regard, we strive for a world that is just, equitable and inclusive, and we commit to work together to promote sustained and inclusive economic growth, social development and environmental protection and thereby to benefit all.”

Secretary General Ban Ki Moon masterfully synthesizes all these global debates and agreements into “A Universal Call to Action to Transform Our World Beyond 2015”. It contains many of the proposals and

<sup>58</sup> Secretary-General. “The Road to Dignity by 2030,” United Nations, New York, December 2014.

new paradigm approaches, new metrics beyond GDP, new Principles and Standards for guiding ethical businesses and investors, cooperatives, NGOs, auditors, accountants and financial firms which we have produced and advocated, both in my books and papers since the 1970s, and those of our company Ethical Markets Media (USA and Brazil), a Certified B Corporation since our founding in 2004.

Thus, we intend to continue fully supporting these unfolding transformative processes, including the UNEP [Inquiry on Design of a Sustainable Financial System](#) and its 3<sup>rd</sup> Report “Pathways To Scale”,<sup>59</sup> to which we contributed and posted, and continue reporting on them in our Daily Headlines, as well as our Green Transition Scoreboard®, our Ethical Money Directory, our Quality of Life Indicators, our Principles of Ethical Biomimicry Finance®, our TV series “Transforming Finance” distributed worldwide by [www.films.com](#) to colleges and libraries (free at [www.ethicalmarkets.tv](#)) and our EthicMark® Awards for Advertising that Uplifts the Human Spirit and our Future Potentials, now accepting nominations for our 10<sup>th</sup> annual Awards at [www.ethicmark.org](#), as well as our MOOC: the Ethical Markets Exploratorium, free to students, lifelong learners and global citizen activists.

We believe that 2015 can be a year where these transformations are truly launched in academia, public, private and civic sectors worldwide, because the stresses now occurring globally are largely due to limited perspectives, ancient ideologies and defunct economic models. These transitions show that stress is evolution’s tool and



<sup>59</sup> Zadek, Simon and Nick Robins. “Pathways to Scale,” Inquiry: Design of a Sustainable Financial System, UNEP, January 2015.

that breakdowns do drive breakthroughs! We favor the “cap and dividend” policies as more equitable and carbon taxes as preferable to carbon trading.<sup>60</sup>

2015 will see the December Climate Change Summit to be held in Paris, France, focus on hammering out a set of agreements succeeding the earlier Kyoto Protocols (on which I commented in [“From Rigged Carbon Markets to Investing in Green Growth”](#), 2011).<sup>61</sup> Hopes lie in the US Obama administration’s agreements with India’s Prime Minister Narendra Modi and their compact with China’s President Xi Jinping to reduce emissions and shift to more renewable energy use. The GTS focuses on this key shift from fossil fuels, carbon emissions and their huge subsidies to inclusive, knowledge-richer, green economies. As we show in this latest GTS report, private investments are still leading in financing this global transition with our new total at \$6.22 trillion. Fossil-free portfolios now outperform those with coal, gas and oil, while MSCI, a well-known financial provider is launching a family of fossil-free indexes.<sup>62</sup>

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For full disclosure, principals in Ethical Markets invest their personal funds in renewable, efficient companies as listed in our Green Transition Scoreboard® 2015 report.

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<sup>60</sup> See for example, Kunkel, C and Kammen, D. “Design and implementation of carbon cap and dividend policies,” *Energy Policy* vol. 39, pp. 477-486, October 2010; and Barnes, P. *With Liberty and Dividends for All*, Berrett-Kohler, San Francisco, 2014.

<sup>61</sup> Henderson, H. “From Rigged Carbon Markets to Investing in Green Growth,” *Real-World Economics Review*, no. 57, September 6, 2011.

<sup>62</sup> “Fossil-Free Portfolios Outperform Those With Coal, Gas, Oil,” *SustainableBusiness.com*, April 13, 2015.