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SUSTAINABLE BRANDS

The Bridge to Better Brands

NEXT GENERATION SUSTAINABILITY TARGETS:

Toward Big, Context-Based Goals

An E-Book Compilation of the #SustyGoals Dialogue Series on the Sustainable Brands #NewMetrics Channel

Curated & Edited by

BILL BAUE

Sustainability Context Group

Next-Generation Sustainability Targets: Toward Big, Context-Based Goals

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Curated & Edited by
Bill Baue | Sustainability Context Group

Featuring Dialogues with

Bob Willard | Sustainability Author and Speaker | **Sustainability Advantage**

Allen White | Founder | **Global Initiative for Sustainability Ratings**

Gretchen Hancock | Project Manager, Corporate Environmental Programs | **GE**

Judy Sandford | Senior Strategist of Sustainability Communications | **Addison**

Ory Zik | CEO, Founder | **Energy Points**

Andrew Winston | Author, Founder | **Winston Eco-Strategies**

Pankaj Bhatia | Deputy Director, Climate and Energy Programs; Director, GHG Protocol | **World Resources Institute**

Mark McElroy | Founder & Executive Director | **Center for Sustainable Organizations**

Hector Rodriguez | Senior Director of Global EHS & Sustainability | **Biogen Idec**

Stephen Harper | Global Director of Environment and Energy Policy | **Intel**

Jeff Gowdy | Adjunct Professor of Management | **Vanderbilt University**

Emma Stewart | Head of Sustainability Solutions | **Autodesk**

All interviews took place between September 2013 and May 2014.

INTRODUCTION
by Bill Baue

I can't remember the precise moment, but at a certain point during the third annual Sustainable Brands #NewMetrics Conference in September 2013, I discerned a theme (or perhaps even a meme) threading through the sessions. Goals, goals, goals. And not just any goals. Indeed, running thoughout was an un- dercurrent critiquing the inherent incrementalism of what currently passes for "sustainability" goals. No, the focus again and again was on next-generation goals, leapfrog goals, end-zone goals, context-based goals, science-based goals, reality-based goals... in a word, goals that catapult past business-as-usual, squarely into the realm of true sustainability or even past that, to regeneration or "net positive" impacts.

And I can't remember exactly when, but soon after the conference ended, the idea of launching a series of dialogues on this trend toward true sustainability goals dawned on me, for inclusion in the Sustainable Brands #NewMetrics Channel that I co-curate (with Paul Herman of HIP Investor and the SB team) And somewhere along the line, as the number of dialogues stacked up to ten, it became obvious that we should bundle them up into a package – the e-book you now have in your "hands" (virtually speaking) I'm glad that the great folks at SB jumped on this opportunity – thanks Melissa, Jen, Dimitar, and KoAnn!

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GOOD ENOUGH GOALS

Gil Friend, the MC for Day One of the #NewMetrics '13 Conference, set the frame right away in his opening remarks with an anecdote about Tesla, which "hit perfect scores on every safety rating for the Transportation Safety Board" of California.

> People thought that was pretty cool; I thought what was remarkable was not that they achieved that rating, but that nobody else ever has.
>
> It's clearly not impossible. Tesla achieved it. I think the difference was that Elon Musk said to his company, "We will achieve perfect scores on all these. Please create a car that does that." And I imagine that the other companies said, "We're going to do as well as we can within the constraints of engineering and financials and the competitive market situation. Maybe four out of five is good enough; maybe three and a half is good enough in our competitive niche in the marketplace." Well, to hell with that. What if only "perfect" is good enough? What does it take to accomplish that?
>
> One of the things that it takes is design—declaring in your own minds what perfect is, what the aspiration is, what the goal is and then doing what business does so well—orchestrating resources and know-how and capital, in order to produce the goal that's been named, and aimed at.

What's good enough? That's the key question. And when it comes to sustainability, what's good enough is synonymous with what's sustainable, properly defined. That definition is set not by the "constraints of engineering and financials and the competitive market" but by thermodynamic and cultural reality. Yet all too often, so-called "sustainability" goals fudge on this test, hitching to these kinds of subordinate constraints, instead of to the true constraints of ecological and social reality.

CONTEXT-BASED SUSTAINABILITY GOALS

In the first breakout sessions, Climate Counts Executive Director Mike Bellamente and Center for Sustainable Organizations Executive Director Mark McElroy continued the drumbeat, reporting preliminary results of the world's first science-based study of corporate carbon emissions performance. The session introduced McElroy's notion of Context-Based Sustainability, which translates into practice the Global Reporting Initiative concept of Sustainability Context, which calls for "discussing the performance of the organization in the context of the limits and demands placed on environmental or social resources at the sectoral, local, regional, or global level." In this instance, the environmental limit is the global biosphere's carrying capacity of carbon, as measured by the thresholds set by climate science for achieving a 2° decarbonization pathway. And as it turned out, more than half of the 100 companies studied fell short of this threshold.

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FINISH-LINE GOALS, NET POSITIVE GOALS

Day Two of #NewMetrics '13 solidified the theme throughout the program:

- Allen White of the Global Initiative for Sustainability Ratings spoke about the need to rate companies on their performance against "finish-line" goals as measured by the Sustainability Context Principle that GISR has also adopted;
- Bob Willard of Sustainability Advantage gave a sneak peak at the Gold-Standard Benchmark for ESG Performance (which has since then been renamed to the Future Fit Business Benchmark), calling for building business models that manage to the "goal-line" of material, science-based KPIs;
- I discussed how sustainable investing currently falls short of the promise embedded in its name, as it would need to screen company performance against environmental and social thresholds;
- Kevin Moss of BT presented twice (once in plenary and once on a panel) on the Net Good program he runs that seeks to leverage value chain influence to create net positive impacts, and, in the panel, Roberta Barbieri of Diageo recounted how her company set ambitious goals of 50% carbon emission reduction by 2015 – and surpassed it in North America with 73% reductions!

DIALOGUING ON THE FUTURE OF SUSTAINABILITY GOALS

Harnessing this momentum to explore next-generation sustainability goals through the dialogue format (that I had already used extensively on the #New-Metrics Channel) proved easy, as there are a wealth of initiatives and experts working on this front. For example, Gretchen Hancock of GE (which placed in the top 10 of the Climate Counts #CarbonScore study) spoke about how the context-based approach to goal-setting aligns with common sense, as well as her company's approach as it prepares to re-set goals after the current batch sunsets. *The Big Pivot* author Andrew Winston and Jeff Gowdy of Vanderbilt University each spoke about the setting "big, science-based" goals, as well as research on those goals from the PivotGoals website they launched this year. And Stephen Harper of Intel talked about its new Climate Policy, which is firmly grounded in the science.

We're publishing this e-book in the wake of Sustainable Brands '14 San Diego, to inform and continue the conversation I moderated on New Opportunities for Leadership in Goal-setting: On to the Next Level of Science-based Goals, featuring Autodesk Head of Sustainability Solutions Emma Stewart, GHG Protocol Director Pankaj Bhatia, and Vanderbilt University Professor Jeff Gowdy (all of whom are represented in dialogues in this volume.) And this tees up the conversation at the #NewMetrics '14 Conference, taking place in Boston on September 24-26th in partnership with MIT Sloan School of Management, which will focus on new ways to value risk and impact, next-generation corporate sustainability goals and KPIs, and evolving strategies for effective stakeholder engagement – a set of themes and memes that we hope will propagate throughout the culture of corporate sustainability (and beyond)!

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#SUSTYGOALS

Dialogue Series on the Sustainable Brands #NewMetrics Channel

GOLD-STANDARD #SUSTYGOALS 1:
A DIALOGUE WITH BOB WILLARD

Here, we launch the #SustyGoals series with Bob Willard, author of *The New Sustainability Advantage*, who is spearheading the effort to articulate the Gold-standard Benchmark, (more recently re-named to the Future Fit Business Benchmark) for sustainable business, in conjunction with The Natural Step Canada. This project is developing a framework to enable answering the question, "What would a sustainable business look like if you saw one?"

One key path toward achieving sustainability is goal-setting against real-world, science-based thresholds, such as the 9 Planetary Boundaries on the ecological front, as well as social foundations such as those articulated by Oxfam in its idea of "Doughnut Economics." The intention of the Gold-standard Benchmark is to create a systemic intervention that helps reorient the

way that organizations consider their business performance — relative to the desired future state of sustainability, rather than relative to past 'unsustainable' performance.

Bill Baue: The Gold-standard Benchmark calls for companies to set sustainability goals that take into account the "goal line" of science-based, context-based KPIs that measure corporate performance against the carrying capacity of real-world social and natural resources. First off, why is this so important?

Bob Willard: It's important for three reasons. The first one is personal. At our current course and speed on environmental and social trends, the future is looking bleak for my three young grandsons. Companies need to share my sense of urgency for their sustainability efforts. Once

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they see the gap between their current level of sustainability performance and where the science-based benchmark goals say they need to be in order to be deemed as truly sustainable firms, I am hopeful that they will put a higher priority on their sustainability initiatives.

Second, current rankings of companies on their sustainability progress is lulling companies into a false sense of security. Corporate leaders think they are doing fine because we have not provided them with a rigorous science-based performance benchmark against which to compare themselves.

Once they see how far they are lagging behind the clear goal line for where they need to be, they can unleash the innovation of their important stakeholders to help future-proof themselves against global sustainability megaforces, in large part by redesigning their business models to better avoid associated risks and capture associated opportunities.

Third, there are too many indicators in play. Companies are being rated and ranked against — and being asked to report on — hundreds of different indicators. We need to get our act together and identify a critical subset of indicators that are material to important stakeholders, including the environment, society, and shareholders.

The 20-30 material indicators, with their associated science-based performance goals, will provide that "gold-standard" benchmark. So the Gold-standard Benchmark is important because it will help create a sense of urgency, unleash a tsunami of innovation, and identify a critical subset of material ESG indicators.

Baue: On the first two fronts, how are you going about embedding "grandkid urgency" into your benchmark goals —both for companies and for

raters? And on the third front, how do you reach a common ground understanding of the truly "key" KPIs — and how do you meld this sense of materiality with the scientific context of real-world goal lines?

Willard: I expect that the sense of urgency will be a by-product of the education and awareness that occurs as companies wake up to how far away they are from the sustainability goal lines for the 20-30 indicators in the benchmark. I expect that many business leaders have no idea how seriously close we are to ecosystems thresholds. At first, they will question the thresholds and the necessary rigorous goals that they drive.

However, being very smart people, as they revisit some basic science about how the world works, they will accept that the goals are necessary and that we need to accelerate our collective efforts to attain them. That's how they will come to share my "grandkid urgency."

Executives will also recognize that some goals are "mission impossible" for their current business model. Then, they will have a business decision to make: Will they continue down their current unsustainable downward spiral, or will they innovate their way onto the high road and position themselves to capture their sustainability advantage? I'm betting that some will opt to redesign their business models, reinvent their products and services, and future-proof themselves to capitalize on the global sustainability megaforces on the horizon.

On the materiality issue, "material" issues traditionally represent information necessary for a reasonable investor to make informed decisions. These days, sustainability factors that are material to other important stakeholders are, by definition, also material to company success. Company suc-

cess is material to investors. So, if science tells us that companies are overshooting their fair share impacts on ecological limits and undershooting on maintaining social foundations, that's material to important stakeholders such as employees, communities, customers and the environment – as well as investors.

When investors realize this materiality domino effect, they will become a powerful driver of C-suite attention to sustainability. What interests investors fascinates C-suites. That's how materiality concerns help raise the bar.

Baue: Traditional thinking assumes a financial hit from meeting ambitious, science-based goals, but your work — as well as the 3% Solution from WWF & CDP — finds hidden profit linked to bold sustainability initiatives. How does this counterintuitive logic work?

Willard: After I finished my first book in 2002 about the compelling business case for sustainability strategies, a question was screaming in my head: "If the business case is this good, why isn't every company embracing sustainability strategies?" To research the answer to that question, I undertook a doctorate at the University of Toronto, completing my PhD in 2005. My 410-page dissertation answered my question. Here's the one-word version of that answer: mindset.

Most executives' mindsets about sustainability/ESG initiatives are set when they move for the Pre-Compliance Stage to the Compliance Stage on their sustainability journeys. The bureaucratic hassle and expense associated with end-of-pipe solutions to meet environmental regulations pre-condition them to assume that any further environmental initiatives would just be more hassle and more expense. It is almost inconceivable to them that going to the next Beyond Compliance Stage would be a good thing.

However, as they wake up to how much they can save on their energy, water, materials and waste bills with smart sustainability strategies, they start to see the upside, despite how counterintuitive it seems to them.

To reap the full benefits, they need to move to the Integrated Strategy Stage. At this fourth stage, the firm has transformed its business model into a sustainable design aligned with closed-loop, circular economy principles.

It re-brands itself as a company committed to sustainability. It injects sustainability principles into its values and company's DNA. And it embeds sustainability approaches into key business strategies. Instead of seeing "green" costs and risks, it sees business investments and opportunities.

At this stage, the company makes cleaner products, embraces life-cycle stewardship, unleashes employees' innovation and productivity, and enjoys even larger competitive advantages from its sustainability initiatives.

My book is called The Sustainability Advantage, not The Sustainability Sacrifice, for a reason. Our primary role as sustainability champions is to change executive mindsets so that the benefits are self-evident, not counterintuitive.

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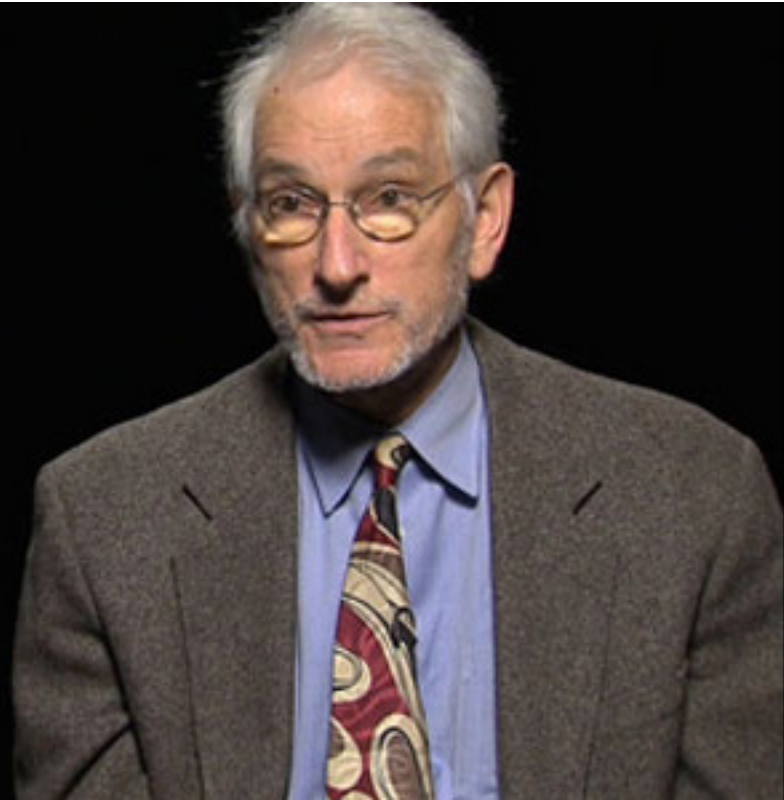
#SUSTYGOALS 2: A DIALOGUE WITH ALLEN WHITE OF GISR, THE GODFATHER OF SUSTAINABILITY CONTEXT

You could call Allen White the Godfather of Sustainability Context. A Senior Fellow with the Tellus Institute, White co-founded (with Bob Massie, who headed Ceres at the time) the Global Reporting Initiative (GRI) in the late 1990s, and acted as CEO in its early years. He was largely responsible for the inclusion in early versions of the GRI Sustainability Reporting Guidelines of the Sustainability Context Principle, a concept he helped coin. Here's how the idea was defined at its inception:

Many aspects of sustainability reporting draw significant meaning from the larger context of how performance at the organisational level affects economic, environmental, and social capital formation and depletion at a local, regional, or global level... For some users, placing performance information in the broader biophysical, social, and economic context lies at the heart of sustainability reporting and is one of the key differentiators between this type of reporting and financial reporting... Where relevant and useful, reporting organisations should consider their individual performance in the contexts of economic, environmental and social sustainability. This will involve discussing the performance of the organisation in the context of the limits and demands placed on economic, environmental or social resources at a macro-level.

Now, a dozen-odd years later, White is heading up the Global Initiative for Sustainability Ratings (GISR), a project that seeks to bring the same kind of rigor and consistency to the field of sustainability ratings that GRI seeks to bring to sustainability reporting. That includes the integration of the Sustainability Context Principle into the GISR Standard, which is slated for its first iteration release this month.

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As with the early GRI definion, GISR frames Sustainability Context in terms of assessing a company's impacts across multiple capitals (natural, social, human, etc) in order to determine sustainability performance at the corporate level.

Interestingly, as the GRI definition of Sustainability Context evolved in G3 and G4, it dropped reference to impacts on vital capitals, precisely as emerging standards in the field — including the International Integrated Reporting Council (IIRC) and Sustainability Accounting Standards Board (SASB) as well as — are embracing the multi-capital framing.

Bill Baue: GISR is essentially advancing a new articulation (or re-articulation) of GRI's notion of Sustainability Context, and in particular you are envisioning corporate sustainability target-setting that takes a context-based goal line into account. So, first off, can you explain why GISR is incorporating this into its protocol, and describe how GISR does so?

Allen White: From the outset, we at GISR felt that any standard defining what excellence in sustainability ratings means should have an element that reflects the notion of boundaries, thresholds, and limits — otherwise known as Sustainability Context.

As discussions amongst the GISR Technical Steering Committee — plus a vast amount of public input over the last eight months — have evolved, the Context idea has survived many rounds of comments and debates to emerge as one key element of our standard, alongside the more traditional assessments of performance, such as backward-looking, peer-related, and internally defined goal-related performance metrics. As a result of this intense vetting, Sustainability Context is now one of the twelve Principles finalized for release in a full GISR Principles Version 1.0 document in November.

Baue: You mention the historical view of looking at corporate sustainability, but I want to take a quick step back to the genesis of Context — my understanding is that you played a prominent role in the original articulation of that concept, and the embedding of it into the GRI's initial framework in the early 2000s. Can you give us some background of what went into that and in particular why it's important — why do we need to assess corporate sustainability in the context of these thresholds, limits, and boundaries?

White: The genesis of the Principle in GRI's history began in the late '90s, prior to the release of G1 in 2000. At that point, we had considered what role principles should play, as they did in many other sustainability standards and frameworks at that time, such as the Earth Charter. But the precise principles relevant to a reporting framework that GRI proposed to develop were unsettled. We believed the principles had to be an under-girding, a scaffolding, if you will, around the disclosure framework.

They would serve as a beacon for all reporters when they inevitably came to decisions regarding which indicators to use and how to communicate performance. As head of GRI at that point, I felt very strongly that an initiative that purports to be a sustainability initiative could not simply frame its work along the lines of, shall we say, incremental performance assessment.

That is, companies that were improving each year in regard to water management, energy management, living wages and occupational health and safety should be recognized in the evolving GRI framework. But incrementalism alone, at the end of the day, was insufficient to be faithful to a sustainability reporting framework.

We would have to take a further step and include a principle that would call for assessing — in addition to disclosures on backward-looking

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benchmarks, peer group comparisons, and improvements against a company's own goals — performance against thresholds and limits. So that Principle appeared for the first time in 2002 in G2, the second iteration of the guidelines, which we released amidst an enormous amount of attention at the World Summit on Sustainable Development in Johannesburg. It was a turning point for GRI, which was one of only two initiatives of any kind specifically mentioned in the official statement of the conference.

It was an historic moment for reporting principles in general, and for the Sustainability Context Principle specifically, in that a worldwide audience was exposed to Sustainability Context for the first time, as far as we knew. I was realistic — I knew it would be a struggle from day one to bring Sustainability Context to life in an operational sense. But that was no reason for us to defer our commitment, to put a stake in the ground and say, Context matters.

Baue: So fast-forward to the present: what's your sense of the current state of implementation of Sustainability Context in both ratings and corporate sustainability reports?

White: On the ratings side, Sustainability Context is, to my knowledge, virtually invisible. It is a rarity. SustainAbility's Rate the Raters project found 100+ sustainability raters of all types, both integrated and topic specific. And one would be very hard pressed to find even a single example in any rating where such Context is seriously represented.

So when we decided early on in GISR's life to carry forward the Context flag and embed it in the emerging standard, we knew this would be new territory for most raters, that it would be a high bar, it likely would be met with some skepticism. Unfortunately, we were right. But after multiple rounds of public comments, it remains intact and will appear in Version 1.0 of the Principles.

While to this day in the reporting world, as you well know, Sustainability Context is incipient, uneven, and occasional. In the best of worlds, reporting would have evolved to supply ratings with Context-based disclosures.

But this is not the case. We hope that inclusion in the GISR standard will spur a new wave of attention to Context in the reporting area. Think of ratings as a customer of reporting. If the demand side speaks loudly enough, the suppliers will respond.

Baue: And to pause from one moment on that. All of these things, both the ratings and the reports themselves, are all framed as sustainability — they use that term. Just a brief comment on the semantic or linguistic logic of that framing.

White: It's important! When we developed GISR, there were some voices that said, "Look, the conventional language of financial markets (which are the primary target for GISR) is ESG. So why are we calling these sustainability ratings? Let's just call them ESG ratings, as the language of the market.

But we said — I said particularly — that we want to reach beyond ESG ratings. ESG does not, by nature, carry a true sustainability gene. A company may rate very highly on an ESG score, but do so just because it has performed well against its own internal goals or against a peer group.

But to say this company is an excellent sustainability performer is a very fundamentally different statement. It means that the company is positioned to prosper for the long-term and in a way that respects limits, thresholds, and norms that are externally defined, not simply defined by peer group comparison or internal targets and goals. Sustainability requires contextualization within thresholds. That's what sustainability is all about.

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Baue: That's really where the notion of a goal line beyond the corporation's own targets really comes in. So looking towards the future, gazing in a crystal ball, most of the empirical evidence says that we have a ways to go to reach that externally defined goal line. So as a last question, what's the role that you see ratings playing in moving us towards that goal? What function do they serve in the landscape of change?

White: I'd say they can serve two basic functions. One is a messaging or positioning function. As GISR evolves, if the principle of Context is prominently displayed, and embedded in the ratings accreditation process, we are making a statement that Context is indispensible. And if we're faithful to our mission as a sustainability ratings standard, there's simply no avoiding its presence.

So we're signaling to the market — the ratings community, accreditors, investors, and companies – that the GISR subscribes firmly and unequivocally to the notion of Sustainability Context. It's a voluntary standard, of course, so those who don't believe in Context — or any other part of the standard, for that matter — will decide which path they wish to take: adjust their beliefs or elect not to accredit. But at this moment, I believe it would be a disservice to the entire sustainability movement to retreat or soften GISR's commitment to Context.

We recognize the challenge ahead, just as GRI did a decade ago. I anticipate GISR will devise an accreditation process that enables a gradual adoption of the Context principle, an "on-ramp" that allows for experimentation, adaptability, and learning. But the core commitment to Context I believe will remain intact.

GISR must collaborate with those who are serious about seeking methodological advances for both the environmental and social aspects of Context. No one has the lock on the science or

applications of the concept. But we must refine both, sooner rather than later. We don't have decades to get serious about Context in light of the ecological and social perils that lie ahead.

I think the time for procrastination has passed and the time for aggressive movement is upon us. The world is issuing a collective wake-up call on the issue of thresholds and limits. We've lost precious time dawdling in the last decade. We can't afford another decade of the same.

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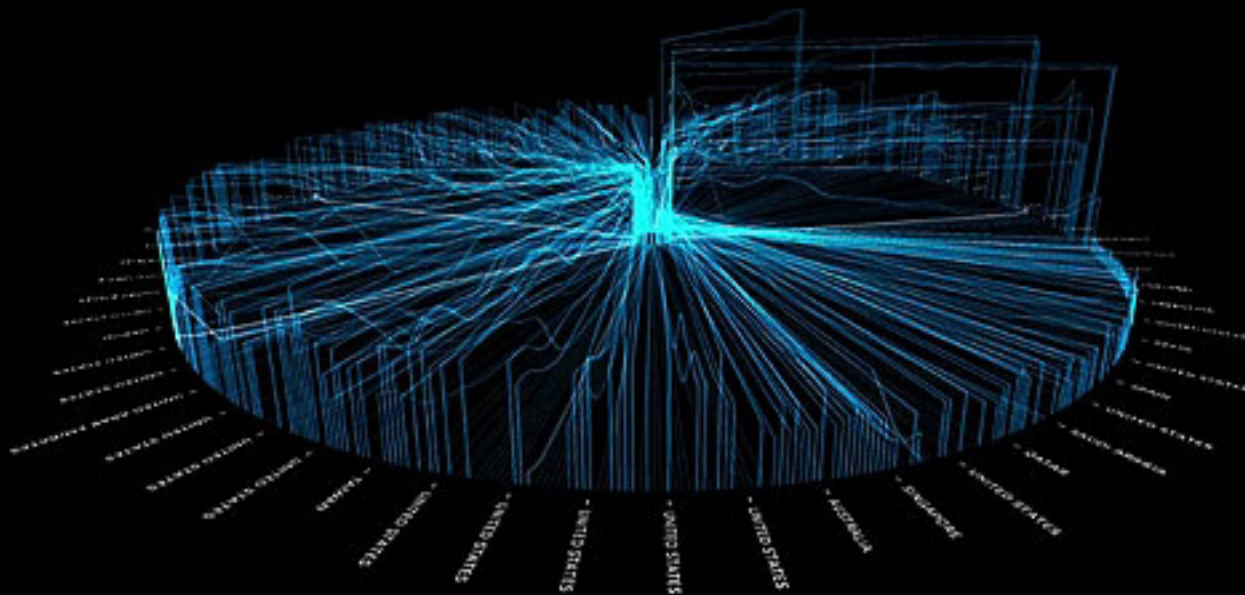
This data represents energy usage from 713 GE gas turbines around the world, measured every 15 minutes for 15 days in 2012.
Image credit: GE Data Visualization blog

#SUSTYGOALS 3: GE'S GRETCHEN HANCOCK ON CONTEXT-BASED GOAL-SETTING

As with many companies, General Electric is nearing the end-date for many of its sustainability goals — such as its goal to reduce absolute greenhouse gas (GHG) emissions 25% by 2015 (from a 2004 baseline) — and so is actively gearing up for a new round of goal-setting. This process got Gretchen Hancock, GE's Resource Optimization Manager in charge of company-wide energy and GHG emissions inventory and reduction programs, to ask herself, "How do we know what's good enough?"

Echoing in her ears were the words of the GE Citizenship Advisory Panel delivered in the 2012 Sustainable Growth Report issued earlier this year:

GE's current "approach is one of incremental change, improving the social and environmental performance of existing business models year on

year [which] is important, but it is not disruptive... GE must continue to set and update global goals that are truly stretching. Moreover, both GE as a company and the sectors, value chains and national economies it is involved in need to find ways of measuring themselves routinely against a benchmark of "what is needed" to deliver sustainable prosperity for all. Governments are continuing negotiations to narrow the gap between the current targets for reducing greenhouse gas emissions and the levels that scientists tell us are needed to limit climate change to a rise of $2^{o}C$."

One answer to this question came when Climate Counts, a non-profit that rates corporate climate performance, announced preliminary results of its Context-Based Carbon Metric that ranked GE seventh of 100 companies. Impor-

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14

tantly, it found that GE's carbon emissions reductions are well in line with science-based targets — in other words, that GE's performance when it comes to carbon is sustainable. This context-based method piqued Hancock's interest as a potential means for setting the next generation of GE's goals. In this third installment in the #SustyGoals Dialogue Series, #NewMetrics channel co-curator Bill Baue is joined by Judy Sandford, Senior Strategist for Sustainability Communications at Addison, where she works on GE's Citizenship reporting (along with Baue).

Judy Sandford: As one of the largest companies in the world, what is GE's philosophy on accountability for its environmental footprint?

Gretchen Hancock: The reason we feel strongly accountable for our environmental footprint is one of example-setting in the marketplace, and a signal to both peer companies and our partners in the regulatory arena that you can be a good company and a great company (to quote Jeff Immelt) by doing the right thing for the environment and for business at the same time.

And in fact, so many of the actions that reduce our environmental footprint are great business decisions, and our great business decisions also end up reducing our environmental footprint in many situations. We find this interesting synergy between the two.

So it's very important for us to be focused on our environmental footprint, not only in our own operations, but also in our value chain, including our customers and our suppliers, to share this notion that business and the environment can live together in a mutually beneficial place.

Baue: That aligns with the preliminary results of the Climate Counts Context-Based Carbon Metric, where GE ranks in the top 10 for carbon emissions reductions in line with science-based targets. And that study finds

evidence of decoupling carbon contraction from business growth. So, what's your reaction to your standing on this rating?

Hancock: First of all, results like this in the marketplace are always fantastic to hear. We shared the information internally and were all excited about the findings. This kind of external validation echoes so strongly these folks' internal passion that has driven this progress.

It's a testament to the hard work of literally thousands of people in our operations around the globe. Its humbling for me to interact with them, and to hear their stories about the decisions that they've made, the collaborations that they've formed both internally and with partners in their communities that makes GE a really great place to work.

Sandford: What initiatives and projects have been most responsible for GE's performance in reducing your GHG emissions?

Hancock: Like any good GE project, we start out by taking a deep look into our data set, which we've been doing since 2004. We have carbon emissions that are driven through fuel-use and combustion, and we have carbon emissions that result from process activities in our manufacturing operations.

We've done a number of projects on the non-carbon side of the house associated with changes in our manufacturing operations, resulting both in material substitution in our processes, and reclaim of chemicals that have a reasonably high global warming potential, so we now reuse those instead of emitting them to the atmosphere. On the combustion side, we've driven projects in our largest operations, getting out of coal and going to natural gas.

At some of our plants, we've found it more efficient and better for all involved to go from generating our own electricity to powering off the grid. GE has

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changed so dramatically since we launched our goals in 2004, when we thought a couple of really big projects would get us to our goals.

We've divested and acquired businesses, so energy use in particular is broadly diffused across the organization. In response, we've had to enlist the support of thousands of people around the globe to make those incremental changes that we find really add up — minimizing and optimizing energy use in operations by shutting off the lights and turning off the compressors, for example.

Sandford: What role did your branded programs, such as energy treasure hunts or Ecomagination, play in this culture change?

Hancock: Our whole initiative on enhancing the environment and business simultaneously sprung from the Ecomagination strategy that GE launched in 2005. That strategy has been a real catapult for employee activity and engagement, as well as the great gains we've seen on the commercial side.

The other thing that we've done is to apply lean manufacturing processes we leveraged from Toyota Motor Manufacturing North America. We owe them a great debt of gratitude; they're a terrific partner on our lean transformation journey that taught us how to engage employees to think differently about our energy use in our operations, for example through the energy treasure hunt process.

We've now done over 300 energy treasure hunts at GE facilities, suppliers, partners, and customers around the world. This lean process improvement tool set gives those folks a voice who know the right answer for our operation, and it aggregates projects so that the leadership team can take a look and see both the environmental and cost-saving benefits. The projects that we've driven through treasure hunting normally have a payback period of about a

year when you aggregate them across the portfolio. So it's been a real win for us and they continue to happen now out in the businesses.

Sandford: Is there any particular guidance you would offer to other companies that are similarly looking to reduce their carbon footprints?

Hancock: This notion of driving energy treasure hunting throughout our organizations — and a similar process that we also learned from Toyota on the water side — is facilitated by GE's corporate culture. There are some corporate cultures that are going to be amenable to publishing a cookbook from a central organization sending it out so that everybody follows the same approach.

Part of the beauty of GE is this notion of innovation in each of the operations, so the energy treasure hunt process really opens that up and gets folks' creative juices flowing. It's exciting and it really leverages who we are, so when I think about other companies, it may not work the same way other places. There are probably other tools and strategies that are going to work more effectively for companies that have a different corporate culture, but this continues to be a great fit for us.

Baue: Many of your environmental targets and goals are sunsetting in the near future. So you're starting a new round of target setting — how do you go about determining them, and in particular weighing in such factors as climate science?

Hancock: It's interesting you bring that up, because forums like those Sustainable Brands hosts — as well as other external NGO partners like WWF and CDP — that's where we look to see what's going on in the marketplace, what sort of expectations are out there, what else folks have been learning — since we've all been working in this space for the past decade.

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Embedding climate science and context into our targets also makes a ton of sense, while also being mindful of the fact that GE is going to continue to grow. We face an interesting conundrum in that our net absolute greenhouse gas emissions have gone down dramatically, but we also set an energy intensity target which is baselined on millions of dollars of revenue. We've got some head wind to our final target and we're figuring out what we can reasonably contribute to making progress at achieving a safe level of CO2 in the atmosphere according to the science.

We're mindful that climate science and the grid are changing over time, and that our products are a big part of contributing to solutions, helping our customers achieve their own targets. Of course, GE operates across a bunch of different sectors, so we need to explore targets that are sector specific or business unit specific to motivate the right behavior internally. It's critical that targets make economic sense to the company, so we can make good business decisions.

Baue: So how do you know if your GHG reductions are making a real difference in the world, particularly as your business continues to grow?

Hancock: This notion of context-based metrics that integrate market share makes a ton of sense, asking if we're really reducing our emissions faster than we're growing the business. For example, when we set our first absolute target, we thought it was going to be hard to achieve that 1 percent emissions reduction. Now, we're at 32 percent absolute emissions reductions. The fact that we completely blew that initial target out of the water signals to me that we've got the power and the creativity and the innovation to decouple emissions reductions from economic growth.

Sandford: Once you have this information, how do you tackle the challenge of accurately reporting and graphically depicting — in easily understandable ways — your performance in areas as complex as GHG emissions?

Hancock: This is really hard! My background is as a geologist — I've spent my life as a scientist working for manufacturing companies, and translating complex science into a business context is something you learn over time. But one of the things we haven't yet harnessed is the power of data visualization to help folks wrap their heads around what we're doing.

There's huge opportunity here to blend big data with graphical representation that depicts the science accurately. In terms of communication, simple is better, but when you think about context-based, science-based metrics, they're not necessarily simple — that's something we're wrestling with, along with other companies. We don't have an answer yet — it's a work in progress.

Baue: Our last question brings us full circle — what is GE doing to encourage and incentivize aggressive GHG reductions across its entire value chain, both upstream to suppliers and downstream to customers and consumers?

Hancock: This is a really exciting area for us to be dealing with right now. There are a lot of models out in the marketplace for how to do this. Many companies send questionnaires to survey suppliers on their numbers, and we answer those when we receive them from our customers. What we really want to do is compel action across the value chain.

First, we approached our sourcing community that interfaces directly with our supply base and asked how they've encouraged projects with collateral benefit, for us and for the suppliers.

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We wanted to identify co-benefit projects where we've worked together to redesign packaging, where have we done something different in terms of logistics, where have we helped our supply base reduce their value chain emissions.

I get a lot of questions around what's GE's Scope 3 emission base; I don't have a single answer for that, but what I can tell you is that the reductions we've driven in our own operations are dwarfed by the progress we make when we partner with our suppliers.

That really opened my eyes, on the water front, on the GHG front, on waste reduction generally and on packaging waste reduction more specifically. The opportunity throughout the value chain, if you motivate people properly, is remarkable. I believe it was seven times the benefit of the reduction projects we saw in the supply chain versus our own reductions, which aren't inconsequential either, so it's been exciting.

The other thing we do is look out the value chain towards our customers. We're starting to think now about how we should articulate the aggregated benefit of our installed base more effectively. A lot of that intersects with our service platforms, which have a carbon reduction and an eco angle that we are exploring. We know transparency and accounting around our own operations is important, but we really want to turn our eyes outside of our own fence line in a way that compels action and behavior change.

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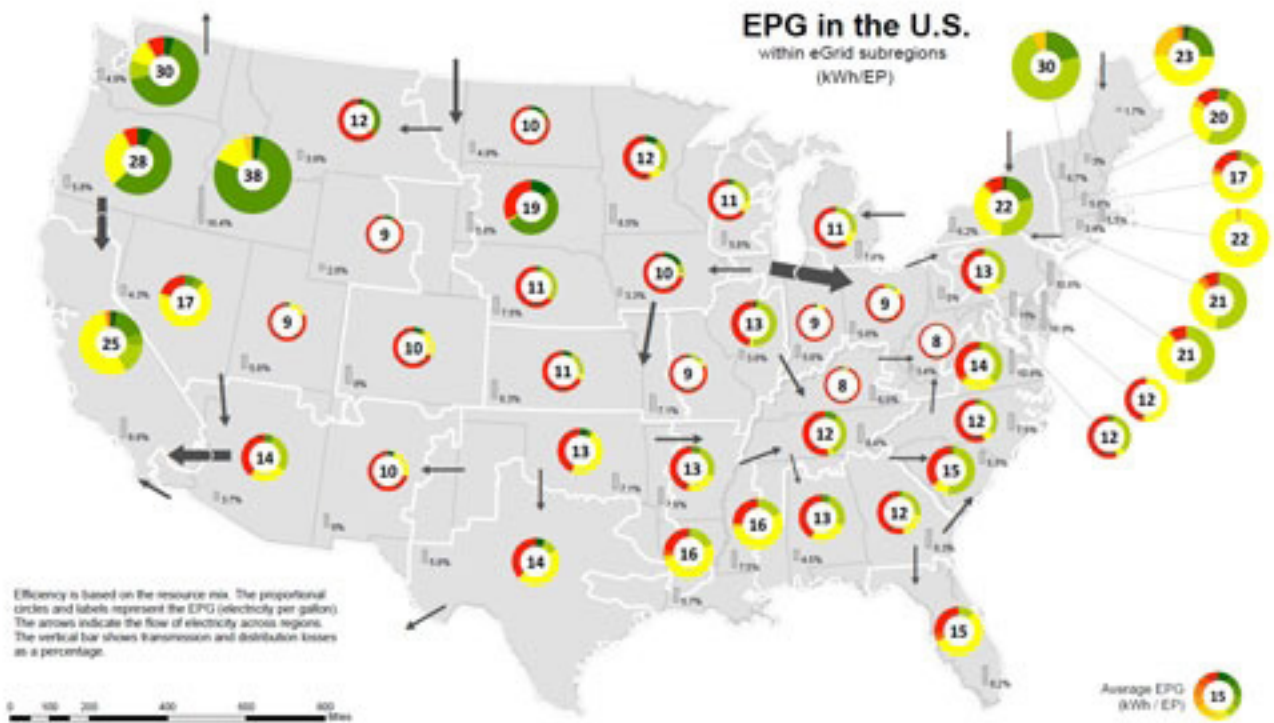
EPG in the US ([click for full infographic](#)) | Image credit: Energy Points

#SUSTYGOALS 4: MATH NOT MYTH—ENERGY POINTS' ORY ZIK ON NORMALIZED ENERGY TARGET SETTING

Companies committed to sustainability typically set amitious energy use goals in order to reduce their environmental impacts while also enhancing financial savings — but given the host of variables involved, accurately measuring and tracking such performance represents a major challenge. Late last year, Cambridge-based Energy Points, an energy resource management firm, relaunched its Software as a Service (SaaS) Platform to specifically address this challenge.

The new version of the platform enables companies to set and track energy goals on a user-defined, normalized basis. Normalizing measurements based on building attributes, production volumes, corporate KPIs, employees, even weather, allows companies to analyze their entire supply chain and achieve more precise energy efficiency and cost savings.

As part of the #SustyGoals series, Bill Baue recently chatted with Energy Points CEO Ory Zik.

Bill Baue: What benefits does the new Energy Points Saas Platform offer corporate users, specifically when it comes to setting and tracking energy consumption-related goals and targets?

Ory Zik: Using Energy Points SaaS platform, organizations can, for the first time, set energy-related targets from the source through the site in an integrated way. This means that, using Energy Points, organizations can optimize their environmental and financial performance.

Today, organizations cannot know what is the impact of water consumption in Phoenix versus Boston. What is the local impact of energy efficiency in relation to distributed generation?

What is the impact of wind turbines made in the US — meeting strict environmental standards — versus those made in China with polluting coal while emitting effluents to the nearby river? There are many more questions one needs to answer rigorously with math, not myth, if we want to be serious about mitigating climate change.

Without Energy Points, the industry is setting goals using metrics that are fragmented, inaccurate and incomprehensible

Baue: Why do you say current metrics are fragmented?

Zik: Because, before Energy Points, the industry measured energy and water, for example, separately. But we know that energy, water, fuel, waste and other environmental resources are connected. They have to be measured in a unified way to allow optimization.

Think about trying to run your business with different currencies without a currency converter. It is impossible to optimize. This is the situation in environmental and energy goal-setting, before Energy Points. The Energy Points SaaS platform normalizes all resources to one unified metric. This holistic approach — the only one in the market today — allows organizations to set goals and optimize across all resources.

Baue: Why do you say current metrics are inaccurate?

Zik: Because, with the state of the art before Energy Points, organizations had to measure only what is billed — what they consume within the four walls of their facilities. For example, electricity is measured in kWh, whether your plug is fed by coal, solar or hydro. You are what you measure. The utility bills you for the kWh that enters your facility. You measure kWh and

you try to optimize it, although it doesn't tell the story of what happens outside of your facility — where your environmental performance is actually determined.

Outside of your facility emissions are polluting the planet and the real environmental impact occurs. If you have a site that consumes electricity from coal, it warrants a different energy efficiency plan than a site that consumes electricity from solar. You will not know this if you just focus on what happens 'inside the box,' within your facility.

Similarly, water in Phoenix and water in Boston are different, and measuring how many gallons your facility consumed without factoring in the energy that went into producing those gallons is a very limited approach that will not take you far in your attempt to set environmental and resource goals. The Energy Points SaaS platform takes massive geospatial data (more than 1.8 billion of data points) and uses applied math and physics to take into account local generation mixes, emissions, water scarcity, contamination etc. and make your site measurement meaningful all the way to the source.

This means, by the way, that energy decisions will not be based on adjectives such as 'green' or 'renewable.' Renewable energy has to be quantified for its life cycle impact, compared to other sources and be put in context. Your energy goals need to take into account where you would like to get off the grid with renewable energy to maximize the environmental benefits of a limited budget, and where the same budget can be deployed in a more effective way.

Baue: And why do you say current energy metrics are incomprehensible?

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Zik: Because most decision makers are not trained to think in kilowatt hours, BTUs, mega joules and other engineering units. The electrician may think in kWh ,but if you run an organization and would like to set and meet energy and resource consumption goals, these goals better be in units that are meaningful to you.

Preferably units that relate to a known cost. Most people don't know the cost of a BTU (do you?) To allow organizations to effectively set and meet goals, the Energy Points SaaS Platform converts all resources to a simple unit which we call an Energy Point, or EP. An EP is equivalent to a gallon of gas.

People understand gas gallons and mpg and have a notion about the cost. This puts an end to the 'emperor is naked' presentations where the energy manager explains that we have saved 10 million kWh and installed 500kW of renewable energy and the audience is too shy to say, "We don't really understand what these numbers mean."

Once you have a system that is simple, unified and accurate from the source through the site (such as the Energy Points SaaS platform) you can:

- Compare yourself to your industry benchmark
- Set and meet corporate goals
- Normalize those goals to your industry's performance indicators
- Identify the outliers in your portfolio
- Choose what projects to implement to maximize performance
- Track the success of these projects and improve performance as you go

Baue: Can the platform help goal-setting that normalizes performance compared to external realities, such as operating within planetary boundaries?

Zik: To improve their environmental performance, organizations need to analyze all their resources (electricity, water, waste etc) at the source, outside the walls of their facilities or in other words — behind the utility meters andwith a unified metric. This is where most of their environmental impact is actually determined — at the source, as explained above.

Once this is done, there is another factor at play — how can the manager know that the environmental performance is improving across all resources, independent of the business cycles (sales, production)? For example, production may go up and so will environmental impact. The right way to look at it is normalize per product.

Many other platforms allow the manager a per product (normalized) analysis of one resource. The Energy Points SaaS platform is the only one that provides a normalized view across multiple resources.

Similarly, how can the manager know where is the organization relative to other similar business units or companies? The normalization capability in the Energy Points SaaS platform allows manager to do this, across resources, for the first time.

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#SUSTYGOALS 5: THE HARDCORE BUSINESS CASE FOR SETTING SCIENCE-BASED GOALS—A DIALOGUE WITH ANDREW WINSTON

One of the key messages in the upcoming book *The Big Pivot: Radically Practical Strategies for a Hotter, Scarcer, More Open World* is the "need to set goals in companies based on science, not on what we think we can do, not bottom-up," says author Andrew Winston. In other words, companies need to set sustainability goals based on "how much we have to do to meet what the physics and math of climate change are telling us."

Unfortunately, most companies have yet to embrace this approach. In this installment in the #Susty-Goals series, #NewMetrics channel co-curator Bill Baue conducted the following dialogue with Winston, to find out more about why and how to set science-based goals.

Bill Baue: In writing your next book, The Big Pivot, your focus on reality-based corporate sustainability goals prompted you to research which companies had set science-based targets on carbon, water, waste, etc... First off, why set reality-based goals, from a sustainability perspective?

Andrew Winston: From a sustainability perspective, if we're not setting goals that put us on the path to actually tackling the biggest challenges, then we're not going to make it — by definition, we won't be sustainable. Of course, the important caveat is that setting goals is not the same as taking action, and that works both ways — meaning, even if we set science-based goals, we may not meet them; but on the other hand, it's possible that we will hit the reductions we need without specifically setting goals.

But I wouldn't hold my breath on the latter path, since "what gets measured gets managed" is trite because it's true. So we need to set goals based on what's going on in the physical world, because that's the reality, as silly and tautological as that sounds.

The metaphor I use in The Big Pivot is of a lifeboat filling with water. You wouldn't ask everyone in the boat how much the think they can bail in the next hour and then perhaps give them a "stretch" target. No, you'd figure out how much water needs to be bailed and divide up the labor as equitably as possible.

Baue: How about from a hard-core business per-spective – what's the business case for setting reality-based goals?

Winston: This question is clearly more difficult to answer. If moving at the pace of science—what McKinsey, PwC and others suggest is about 6 per-cent improvement in carbon intensity per year (or 3 percent absolute reductions in emissions) — were clearly profitable in the simplest of ROI terms, we'd likely be doing it already (I say "likely" because we can't claim that business is always 100 percent rational, especially around "green" initiatives, and there are many reasons companies do not pick up the proverbial $100 bills sitting around, from orga-nizational to cultural to psychological hurdles). At the macro level, the business case is that busi-ness has to live within the means of the planet because it's a wholly owned subsidiary of the plan-et. It may not be satisfying to everyone to hear this, but as many have said, business can't succeed on a planet that fails. That's the big picture answer.

Baue: How about on the ground — what's the more tactical answer?

Winston: The more tactical answer is that a good percentage of the reductions we need are flat-out profitable (a recent study from WWF, with McKinsey, calculates that moving at the required pace will save the economy hundreds of billions of dollars).

Even if you think that's pie-in-the-sky, clearly we have major inefficiencies in our economy where we can cut energy use dramatically and thus carbon. For the rest of the challenge, investments that may require a longer time horizon, part of the answer is in redefining how we think about and use the mea-surement tool of ROI. We currently don't value many aspects of "return" — consider the reduced risk from not relying on volatility-priced resources and knowing your energy costs (the zero variable cost of renewables), or the brand value of participating

aggressively in the clean economy, or the resilience benefits of onsite energy that keeps your business up and running while others are down during a storm or grid outage. Calling those benefits 'zero' value is absurd, but it's basically what we do when we let a pure ROI calculation make the call on, say, investing in renewables.

So what I'm saying is there is a hard-core business logic, aside from the "wouldn't it be nice to ensure our survival and prosperity" point that encapsulates it all. I believe the companies that go down this path will build more resilient, profitable enterprises.

Baue: You mention the absolute-based goal of about 3% reductions and the intensity-based goal of about 6 percent reductions. What are the differ-ences between these two goal-setting approaches, and how do companies translate these goals into targets they can implement?

Winston: The absolute target is the simplest to understand and easiest to implement — either your carbon emissions are dropping at about 3% per year, regardless of what else happens in your business, or they're not. But that's a very blunt instrument. The reality is that the world needs to reduce emissions that fast, but not necessarily every company.

Some sectors are providing solutions that help reduce emissions in the rest of the economy — from old-school technologies like insulation, to IT and big data tools that enable reductions in buildings, transportations systems, and much more. We very likely need more of those companies' products, and thus their emissions should grow with their increasing share of the global economic pie (we're assuming here that these problem-solving technol-ogies are growing faster than the overall economy.)

It's that logic that leads to a carbon calculation based on a company's contribution to the economy.

As you and Mark McElroy from the Center for Sustainable Organizations have been working on, the right metric is a company's value-added contribution to GDP. And this is where the 6 percent carbon intensity number comes in — the models that PwC and others have used already assume some aggressive growth in the world economy, especially in China, India, and elsewhere in the developing world.

Given that growth and the need to cut emissions 80-90 percent by 2050, you get a 6 percent per year intensity improvement, which may sound like a low number but is very, very fast (about 9 times the pace of decarbonization the world is currently on).

So, all that said, companies need to consider this relative intensity goal, then calibrate that with their own growth expectations — honest growth goals, not world-domination hockey-stick projections. Then they can figure out an absolute target. I talk about this all in an appendix to The Big Pivot.

Baue: In advance of the book publication, you launched the PivotGoals website, and as part of that process, you took a look at the current state of science-based goal-setting. What did you find?

Winston: My research team has been collecting the environmental and social goals of the world's largest public companies (all searchable at pivotgoals.com). Of the Fortune Global 200, more than 50 companies — including Nokia, Vodafone, Unilever, Mitsubishi Chemical, UBS, Volkswagen and Coca-Cola — have set goals on par with what we need to do (either in absolute or intensity terms).

Another handful, among them Deutsche Bank, P&G, Noble Group and Walmart, have established carbon-neutral or 100 percent renewable energy goals, but without a specific date. Besides these longer-term thinkers, our corporate carbon goals are wholly inadequate to the task at hand.

Baue: In The Big Pivot, you also note that the slow development of carbon regulation in the US has created an uneven playing field. What approach makes most sense for companies to take vis-a-vis regulation, and why?

Winston: This is another huge topic. Look, all the above discussion about cutting emissions at a certain pace aside, we need a playing field that encourages that change. Again, companies can go a long way on the low-carbon road with projects that are 'in the money' (using power purchasing agreements for solar, for example). But the pace of change may require doing some things that don't meet the normal two-year hurdle rate in companies. Clearly, a price on carbon can help make those calculations a lot more favorable to the clean investments we need.

I believe that companies need to get off the sidelines — or in many cases off the opposing team — and actually push for a price on carbon. We could debate the means, a cap and trade or a carbon fee/tax, but I'm partial to the latter.

I think it's the cleanest option and we can shift taxes away from things we want more of, like income. But companies should also push for other policy shifts, such as public-private investments in the clean economy, higher cleantech/efficiency standards (like auto fuel efficiency), and an elimination of fossil fuel subsidies. We need to make the market work correctly by pricing the things that are not currently valued in the marketplace.

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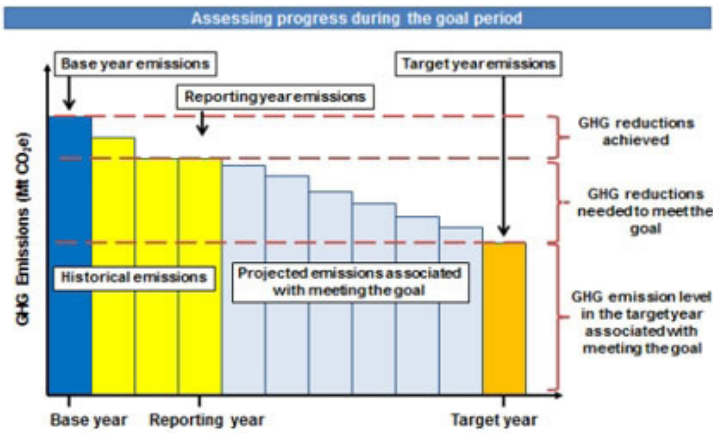**Figure 3.5. Example of assessing progress during the goal period for a single year base year goal**

Image credit: GHG Protocol

#SUSTYGOALS 6: SETTING STANDARDS FOR AMBITIOUS CARBON TARGETS—A DIALOGUE WITH GHG PROTOCOL'S PANKAJ BHATIA

"Given that carbon footprinting is predicated on climate science, why doesn't the Greenhouse Gas Protocol include guidance on setting science-based emissions goals and targets?" That's the question I asked Janet Ranganathan, Vice President for Science and Research at the World Resources Institute (and founding director of the GHG Protocol at its outset), at the 2012 Ceres Conference (she's a Ceres boardmember).

Her response has unfolded in words and actions over time, first by introducing me to Pankaj Bhatia, the current director of the GHG Protocol, at lunch in Washington, DC in the fall of 2012, where we discussed this gap and potential ways to fill it.

I next ran into Pankaj at the Global Reporting Initiative Conference in May 2013, where he announced that the GHG Protocol is "creating guidance on setting science-based GHG reduction targets," and we've been in dialogue since then. As part of the #SustyGoals series on the #NewMetrics channel, here's a deeper view of this ongoing dialogue that points toward the future of sustainability goal-setting on the carbon front.

Bill Baue: What's the next frontier in terms of goal-setting for GHG emissions?

Pankaj Bhatia: The next frontier for goal-setting is bringing GHG reduction goals in alignment with the scale required by the climate challenge, and goals which will lead to transformative change in the economy. This is relevant for all entities that generate GHG emissions but for now we are focusing on national, city and local governments and companies.

Baue: What gaps in current best practice need to get filled, and what are some of the promising ideas emerging for filling those gaps?

Bhatia: Historically, many companies have set modest absolute GHG reduction goals or intensity goals. In many cases, intensity goals allow the company to increase their production and their emissions, while making some efficiency improvements that reduce the GHG emissions emitted per unit of production or revenue. The total amount of GHG emissions may still increase. Both of these types of goals are often designed to be a slight stretch, and be mostly achievable with relatively

small changes and investments required to meet the target. Climate change demands something more. Part of the scale-alignment could mean targets based on or consistent with science, since climate science is what will tell us what the total, global levels of greenhouse gases should be to maintain climate stability.

Some companies, such as Autodesk and Mars, are recognizing the importance of reducing emissions to the levels called for by science and have taken an important first step in committing to use science to inform their long term goals.

Autodesk's goal is to align their GHG reduction target with the IPCC science and have a fiscal year 2014 target of 23.4% absolute reduction from a 2009 baseline. Mars has committed to selecting reduction targets based on the best science, with their current goal to reduce emissions from their direct operations by 2015 by 25% from a 2007 baseline and a long term goal of 100% below that same baseline by 2040.

This is a step in the right direction and it is important that companies continue to implement effective and ambitious GHG-reduction goals. When companies take risks and set aggressive reduction targets, it often spurs high levels of innovation and investment that causes them to not only meet, but even exceed their targets. Various levels of governments are also beginning to align their reduction goals with climate science.

These include the UK government who committed to an 80% reduction of GHG emissions by 2050 and a carbon budget approach that caps emissions levels for multiple years in the shorter term. Several cities including Chicago, Berlin, and Melbourne have set similar targets.

The GHG Protocol is developing a Mitigation Goals Accounting Standard, which can assist governments and organizations in setting these goals.

What is missing is a clear way to translate the global "cap" on emissions that science tells us is necessary into individual targets for companies, organizations, and governments based on their individual GHG inventories, and to specify the right time frame in which these need to occur.

Even if individual companies were to entirely transform their value chains and achieve "zero emissions," would this mean we are on track globally? Probably not, unless all sectors of the economy in major emitting countries were covered by such goals and they were effectively implemented. It is important to translate the global target into country targets as well as other kinds of targets — cities, residents, organizations, etc that together serve to ensure we are all on a level playing field and provide a common transformative signal to the market.

Baue: You stated at the GRI Conference in May that the GHG Protocol is "creating guidance on setting science-based GHG reduction targets," and I understand that this guidance will tackle the issue you just mentioned of translating global targets to the organizational level. Can you tell us more about this initiative, and how it's addressing these challenges?

Bhatia: WRI is collaborating with CDP to develop a working paper that will make the case for increased ambition on corporate target setting. With no widely accepted method available to set ambitious GHG targets and an uncertain future legislative environment, companies lack incentives to achieve significant reductions in line with current climate science.

The aim of the working paper is to provide recommended approaches to goal setting to raise the ambition on target setting levels, drive more bold business solutions, and increase the level of reductions achieved by companies worldwide. Once the working paper is complete, WRI and CDP will collect input on it from stakeholders through workshops and a survey. WRI will use the input to determine the next steps for GHG Protocol, which could include case

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studies or launching a multi-stakeholder process to develop a GHG Protocol Guidance.

Baue: GHG Protocol released its Scope 3 guidance before making strides on setting science-based targets. What are the challenges of applying science-based targets up and down the value chain, and what's your preliminary sense of solutions?

Bhatia: The same principles would apply in implementing science-based targets in scope 3 as it would in scope 1 or 2. While there are currently no standardized approaches for setting science-based scope 3 targets, it is important that companies identify opportunities within scope 3 and set ambitious scope 3 targets accordingly. A truly ambitious target would include the full value chain (scopes 1, 2, and 3).

Setting scope 3 targets could pose new challenges in data availability and quality, but since this is often where the majority of emissions are located for a company there could be significant opportunities for identifying hot spots for emissions reductions. Focusing reduction targets on scope 3 could help companies collaborate with their value chain partners on GHG reduction efforts as well as help companies focus their attention and efforts most strategically. However a key challenge in including scope 3 targets could be around how to design allocation and how to determine accountability of emissions and emissions reductions in the value chain.

Baue: You mentioned the gap of translating the global "cap" on emissions that science tells us is necessary into individual targets for companies, which echoes what WBCSD has been saying. What are some of the promising emerging solutions on this front?

Bhatia: The IPCC fifth assessment report provides a good framing for the discussion of the need to translate the global "cap" on emissions to individ-

ual targets for companies and countries. Allocating these targets to specific companies, however, is challenging; solutions for doing so vary widely and have not yet reached consensus from companies. Obtaining consensus around these methodologies is essential. Some of the solutions that are currently discussed include looking at historical emissions, allocating emissions amongst industries, or allocating based on revenue.

WBCSD has begun to address this challenge through Action2020, which defines Societal Must-Have for Climate Change i.e with the goal of limiting global temperature rise to 2°C above pre-industrial levels, the world must, by 2020, have energy, industry, agriculture and forestry systems that, simultaneously meet societal development needs and implement the necessary structural transformation to ensure that cumulative net emissions[1] ;do not exceed one trillion tonnes of carbon. Peaking global emissions by 2020 keeps this goal in a feasible range, and are becoming resilient to expected changes in climate.

GHG Protocol and CDP in partnership with other leading experts and institutions including the Center for Sustainable Organizations and WWF are beginning to work on creating a methodology for more ambitious goal setting. In some respects, providing methodologies that demonstrate potential cost-savings and benefits of both reducing emissions and minimizing the corporation's resource consumption could be more successful than allocating reductions from the global cap. Convening will be a key element of this work stream and will include working with companies to determine the approaches and methodologies that can be rapidly adopted.

[1] Anthropogenic CO2 emissions from preindustrial levels as outlined in the IPCC Working Group I Fifth Assessment Report. One trillion tonnes carbon = 3.76 trillion tons of CO2.

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When Biogen realized water scarcity was an issue at its manufacturing facility at Research Triangle Park in North Carolina (pictured), the company turned to context-based metrics to develop site-specific water-saving initiatives
Image credit: Research Triangle Park

#SUSTYGOALS 7: HOW BIOGEN USES CONTEXT-BASED SUSTAINABILITY TO SET ENVIRONMENTAL GOALS

In January 2014 at the World Economic Forum in Davos, Corporate Knights unveiled its annual Global 100 Most Sustainable Companies rating, with biotechnology company Biogen Idec placing second. What's behind this strong showing? One likely reason: Sustainability Context, an approach to corporate management Biogen has embraced by measuring its performance "in the context of the limits and demands placed on environmental or social resources at the sectoral, local, regional, or global level," according to the Global Reporting Initiative (which coined the concept in 2002).

You see, four years ago Corporate Knights shifted its Global 100 methodology toward a context-based approach (as I pointed out at the time) by embedding a screen calling on companies to increase their resource efficiency by a factor of four (400%) over 2 decades, or about 6% per year. In other words, the

Global 100 uses a proxy of Sustainability Context as one of its primary criteria, so it makes sense that a company such as Biogen using this approach would score highly. And the ratings world is only heading further in this direction, as the Global Initiative for Sustainability Ratings (GISR) recently codified 'SustyContext' as one of its 12 Principles, and a just-released survey in the SustainAbility Rate the Raters series asks if ratings are "appropriately considering sustainability context."

So, what's the story behind Biogen Idec's adoption of Context-Based Sustainability? And more importantly for advancing the #SustyGoals series, exactly how is Biogen using CBS to set its sustainability goals and targets?

To find out, I spoke with Hector Rodriguez, Senior Director of Global EHS & Sustainability at Biogen

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Idec, which generated about $6 billion in sales in 2013 from medicines that address diseases such as multiple sclerosis, non-Hodgkin's lymphoma and rheumatoid arthritis. As well, I spoke with Mark McElroy, Executive Director of the Center for Sustainable Organizations (CSO), which is helping Biogen with this work. My dialogue with both follows below.

Bill Baue: How did Biogen decide to employ Context-Based Metrics to set its sustainability goals and targets?

Hector Rodriguez: Our first exposure to context-based metrics was in 2008 when we started thinking about how to set goals. As with most companies, we were simply struggling with the question of what goals to set and how we should set them. We wanted to avoid setting fixed or arbitrary goals such as reducing our energy use by 10%, water by 15%, waste by 20%, simply because the numbers sound good. We saw that as being a kind of uninformed way of setting goals, and so what we did back then was employ a variant of Context-Based Sustainability.

Baue: A variant of CBS — how so?

Rodriguez: We set goals in what we referred to as an Environmental Index. We took the position that as we moved on into 2009, 2010, and beyond, we would only invest in those projects that had the greatest potential benefits from an environmental perspective. And while none of the underlying environmental investments was fixed, the overall Index was. Specifically, we wanted to target a 15% reduction in our environmental footprint by 2015. But how we got to that target was not prescribed.

It was then that we heard Mark McElroy speak when he was at Deloitte while attending a training program there, which is where we gained a fuller appreciation for CBS. It helped us to think about

how best to allocate our 15% target to specific areas of impacts. Then and now, of course, we feel it's the most appropriate and correct form of sustainability metrics, because it takes into account local conditions and ecological thresholds.

Baue: How does CBS take local conditions into account in ways that align with Biogen Idec's needs?

Rodriguez: In our case, the environmental variable of greatest importance to our company is water, because we use tremendous amounts of it in making our products. So we started by looking at our manufacturing facilities in Denmark, North Carolina and Massachusetts, and quickly recognized that in Denmark and Massachusetts, water wasn't much of an issue. In North Carolina, however, particularly in the area where our plant is located in the Research Triangle Park (RTP) area, water had become a significant issue, especially in the recent past.

To us, that was context right there — why should we be investing in water-saving initiatives in Massachusetts and Denmark, when it was in North Carolina where we were facing water scarcity issues? Of course we were and still are investing in improving our efficiencies in all of our facilities, but the question was, why prioritize those two facilities when the issues or concerns or problems were most likely to come out of our facility in RTP?

Baue: So, the way CBS focuses on local conditions helped you identify the North Carolina facility as the highest priority in terms of using water more sustainably. And that required setting context-based sustainability goals and targets by modeling future social, environmental, and economic conditions. Turning next to Mark, then, how does CBS handle these intertwined challenges?

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Mark McElroy: Well, first, practitioners and managers are left to their own devices to forecast their future environmental impacts, surrounding social conditions, their revenue, GDP, etc. Once these projections have been made, context-based metrics make it possible to determine whether or not future scenarios will be sustainable, as well as what future scenarios would have to be in order to be sustainable.

Once future scenarios have been modeled, CBS then makes it possible to translate context-based performance into conventional terms, such as carbon intensity, total water consumption, etc.

It is in this way that CBS not only supports goal-setting from a sustainability perspective, but also target-setting from an operational perspective. Conventional target-setting, by contrast, supports the latter but not the former. Indeed, unless context-based metrics are being used, there is no way to tell if even the most aggressive intensity or absolute targets will lead to sustainability. Only the use of context-based metrics makes that possible, while also expressing results in conventional terms.

Baue: Ok, I want to delve into the details of just how you're enacting this modeling at Biogen Idec, but first, can you explain this distinction? How is it that context-based metrics enable sustainability goal-setting and operational target-setting, whereas conventional intensity and absolute targets can't discern sustainability performance and therefore can only be used for operational target-setting?

McElroy: Well, the answer lies in your question. Conventional intensity and absolute targets are devoid of limits or thresholds, and thereby do not express sustainability targets at all. To say that an impact target is lower or less intense than some other level is not to say that it will be sustainable at all. Rather, it's just different from the status quo

and only begs the question. Sustainability targets must be expressed relative to social and environmental conditions on the ground, as it were. That is what context-based targets (and metrics) are designed to do. They describe what impacts would have to be in order to be sustainable, because they bring contextually relevant social and environmental thresholds explicitly into play.

They tell us what a sustainable rate of water consumption would have to be, for example, by comparing actual or target rates of use with actual rates of availability — in other words, they compare levels of demand with allocations of supply. Intensity and absolute targets do no such thing.

What's more, once context-based targets have been set at levels that are empirically sustainable, we can then express them in conventional terms. It is in that way that context-based target setting allows us to finally answer the question of how much is enough, or how much is not enough, when attempting to set goals in conventional terms.

Every level of impact that is sustainable in context-based terms, that is, has its corresponding levels of absolute and intensity performance. But we must first determine the former before we can define the latter, assuming it is sustainability performance we're talking about.

Baue: So that tees us up to dig into the details. Walking us through step-by-step, how specifically do you go about determining threshold-based models for future impacts – how do you then express those as context-based goals and targets; and how do you translate those context-based targets into conventional metrics that managers can implement?

McElroy: First, context-based metrics, like performance metrics in general, are more or less time-independent. In other words, they can be applied to the past, present or future at a practitioner's discretion.

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Future applications simply require projections for the data values of interest. In the case of GHG emissions, for example, our context-based carbon metric calls for an organization to project or estimate its future emissions, and also its revenue and gross margins.

We use the financial data to help set thresholds for what an organization's thresholds or allowable emissions should be in future years, and to also express performance in relative or intensity-based ways. From there, the metric then calculates performance in the same way it does for years in the past, except of course with forecasted data we're calculating performance in the future.

Next, by modeling different combinations of values for future emissions and financial data, we are able to determine what the right combination(s) would have to be in order to score or perform sustainably from a context-based perspective. Once we have done that, we simply observe what the corresponding measures are from an absolute or intensity perspective, since our metric simultaneously calculates performance in those terms as well.

The first step, then, is to model a future scenario that is sustainable. For areas of impact like water use or GHG emissions, a "sustainable" context-based score is defined as any value of 1.0 or less, since it would mean actual water use or GHG emissions are no more than a maximum allowable level according to a science-based standard. Exceeding such a threshold would produce a score of greater than 1.0 (a bad thing), since it would mean that water use or emissions are actually above sustainable levels.

So the most conservative (worst) case would be to model future performance such that the score achieved in a given year is 1.0, and then simply observe what the corresponding measures would be in conventional terms (absolute and intensity). This would make it possible for organizations to say something like, "Well, in order to achieve a minimally sustainable score (1.0) in the year 2020, our absolute emissions would have to be no more than 'X tonnes' and our emissions intensity would have to be no more than 'Y tonnes per dollar of revenue,' " or some such.

Forecasting performance in context-based terms thereby makes it possible to determine what maximum allowable emissions can be (in conventional absolute and intensity terms), while still being sustainable. Targets can then be expressed in such terms (absolute and intensity) for use by managers at the plant and operational levels. It is in this way that context-based metrics can be used to both set and validate targets in conventional terms, and at the same time answer, in definitive ways, the questions of how much is enough or how much is not enough.

Baue: And Hector, this is precisely what drew you to CBS, right?

Rodriguez: Exactly! Context-based sustainability is logical, it's rational, it demands some thought, it demands analysis, and to us it's the smart way of setting goals. My only wish is that it was easier to explain to internal and external stakeholders, because once you understand it, it's plainly obvious that it's the only way to go.
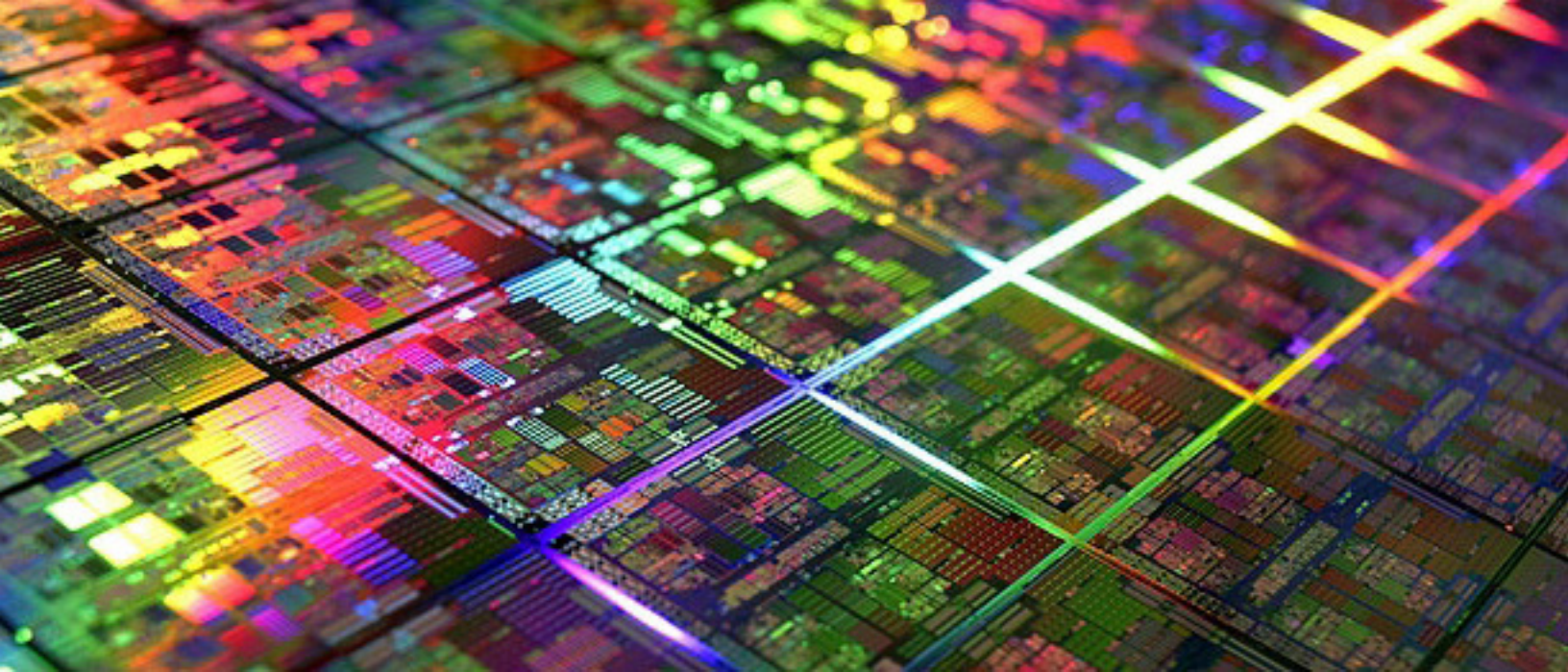
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#SUSTYGOALS 8: FOOTPRINTS AND HANDPRINTS— STEPHEN HARPER ON INTEL'S NEW SCIENCE-BASED CLIMATE POLICY

In this installment of the #SustyGoals series, Baue speaks with Stephen Harper, Global Director of Environment and Energy Policy at Intel, about the tech giant's new science-based climate policy, released last month.

Bill Baue: What prompted Intel to create this new climate policy and to tie it so closely to the science?

Stephen Harper: We've had several iterations of climate policy statements over time and I realized, to my chagrin, that the most recent one was 6 or 7 years old. So we decided to update it to bring it into the 21st century.

We do a lot of consultations and engagements with socially responsible investment groups and NGOs in the energy efficiency, climate, and environmental space generally. A clear message from them is for companies to have a climate policy based upon the science, to strongly support the validity of the science, given that there continues to be a lot of misinformation out there.

What we stated about the science in the document got strengthened over time as a result of us reaching out to 5 or 6 NGOs to get their input on earlier drafts. One of the things we heard from them was where we had perhaps not stated the science as clearly or strongly as possible. So the draft went through some evolution over time from strong to stronger on that particular element.

Baue: Your policy calls climate change a classic economic externality, and the solution is to find ways to "price carbon and the damaging climatic impacts of greenhouse gases."

How do you see setting the price for the carbon being linked to what the science says needs to

happen? If there is just a price, is that enough of a signal to the marketplace? Or does that price itself need to be linked to the science?

Harper: There are a lot of ways to price carbon. There are elegant ways — like a carbon tax. EPA taking action on Section 111(d) of the Clean Air Act, for example, is going to set a price on carbon and it's going to make it more expensive for utilities to emit carbon dioxide. The so-called "command and control" regulatory approaches are not as elegant or direct, but they still have the effect of pricing the resource or pricing the damage to the resource.

I think a great theoretical question is "what is the price?" That's true not just of carbon in the climate change context, but it's true of pretty much any environmental problem because almost all environmental problems are externality issues.

I don't think anyone knows what the "right" price is. The key is to make it expensive enough that people's behavior changes. Part of the problem in the European trading system is that, both directly and indirectly, they set the price for carbon too low and as a result very little behavior has changed.

Baue: What I'm hearing you say is making it based on science would be an inexact science because it is a dynamic interplay with the marketplace.

Harper: Right. Determining the "right price" is inexact in a number of ways. We don't know exactly how far we have to reduce our emissions to get to what the right atmospheric concentration or the right trajectory of what carbon emissions should be. In part, that's something we can never know because that's a political judgment. There is no bright line that says this is good and that is bad. It is a decision about risk.

There is a lot of uncertainty in the science about

if you reduce concentrations to that level, what does that mean in terms of global temperatures and extreme weather events, etc... You start with inexactitude in the science, the fact that the "right" outcome is to a significant degree a political decision, and then you've got the question of, once you decide what the goal is, what is the right price to get you to that goal? There's imprecision involved there, as well.

One of the nice things about cap and trade as opposed to carbon tax is that you set the goal. You can screw it up like the Europeans have. But, assuming you don't run into problems like that, you can decide as a society that we want to have our total level emissions of carbon, or CO_2 equivalent, in the following years to be X and we're going to ratchet that down by 5 percent every year.

You can set up a system that will guarantee that result. As opposed to a carbon tax where you say this is the level we want to get to and we will start with a tax at this per unit of emission and adjust based on experience.

Baue: What's displayed in the policy is that very trajectory, where you represent what the science is telling us around the emissions pathway that needs to be followed, and how Intel's emissions line up with that historically. You've gone from being over the curve to being under the curve — you're within the threshold, so to speak.

How are you planning to stay within that trajectory, in line with the scientific pathway? I know you have a 10 percent reduction per processor. How does that translate to absolute emissions?

Harper: Let me back up. Our direct emissions really have two components. There is a little bit of CO_2 emitted from our boilers on site and there are emissions associated with our use of fluorinated gases. You can't make semiconductors without fluorinated gases.

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The fluorine atom is very stable and that stability is very useful when you are making products that are as small in size and exact in manufacturing as our products are. Everyone in our industry depends on fluorinated gases. Unfortunately, the stability of the fluorine atom that makes it useful for our purposes is what makes it problematic environmentally. They live forever, which is why a lot of the fluorinated gases have very high GWPs.

We're in a situation that's very different from other industries where their emissions are waste. Our emissions are associated with the use of these gases in the production process.

We have dramatically reduced our total emissions of fluorinated gases, both Intel and the industry, under a voluntary agreement with the EPA. At one point, we reduced our total emissions by over 50 percent as a company and the industry was well ahead of its 10 percent reduction commitment. That goal ended in 2012 and the industry was ahead of it. We're doing even better.

We're also not a big part of the overall emissions picture. The entire semiconductor industry is a small fraction of a fraction of 1 percent of the whole US Greenhouse Gas Inventory. What has driven us is a fear that people will ban the use of fluorinated gases.

You'll see in the policy statement a lot of emphasis should be on emissions, not use. That's where we've put our focus. We try to substitute lower GWP gases for higher GWP gases, and to be more efficient in recycling and reuse, and where it is needed, develop destruction technologies that turn those gases into other things that are less harmful.

Baue: That's all focusing on the footprint side and the risk-mitigation side. It's interesting that you pair that with the ICT handprint, in essence how your products act as a solution and opportunity. There are others in the field who are also heading in that direction. Can you speak about how that component plays into your business strategy?

Harper: Yeah, and it's an ever more important part of what we do. I think if you combined our footprint and our handprint — I'm not just talking about Intel, or just semi-conductors, but the high-tech industry — if you combined the degree to which we are part of the problem and the degree to which we are part of the solution, I think we are a much greater part of the solution, and the combination of our handprint and footprint would be net good, rather than net bad, because of the growing evidence that the Internet and ICT in general is a big part of what's behind the energy-efficiency actions that one could take that are the cheapest and easiest initial steps to reduce the threat to the climate.

We started about seven years ago. The terms we use are macro-story and micro-story, I'm not sure they're very poetic, but the micro-story is things that governments have traditionally focused on — that's the efficiency of the device itself. So, the EPA has Energy Star and Europe has their Energy Related Products Directive.

Governments around the world have spent a lot of time putting pressure on all manner of products that use electricity to become more efficient. And our industry's products have become more efficient also just because of the change in form factors — the more mobile the technology has gotten, the more critical it is that the devices be energy-efficient.

People don't want a laptop that's as hot as a nuclear reactor, they want their Mac[book] Air to have a powerful Intel chip in it that doesn't require a fan and doesn't have hazardous chemicals in it to cool the chip. And they want mobile phones and notepads that run all day on a single

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battery charge. So those imperatives have driven a lot of progress — along with government regulations and programs like Energy Star.

Baue: And the macro-story?

Harper: The macro-story is, how do those more efficient devices networked together drive greater efficiency through the rest of society. And it's not just energy; we're also focused on other natural resources like water. So this is the smart grid, Internet of things, intelligent logistics, building energy management systems, the smart water grid. All this stuff is driven by our technology – our industry's technology. One great example is the increase of late in the availability of so-called smart grid-ready appliances.

The ideal would be to live in an area where you have time-of-day pricing and utilities want to reduce peaks and so the energy would be more expensive at traditional peak times of the day and because of weather events and whatnot, the grid would communicate with your dishwasher to run at this time rather than that time. It would cycle air-conditioning units off 15 minutes at a time during a hot summer day to shave off the peak — that's the sort of stuff that's increasingly out there.

So what we did about 7 years ago is we created a group called the Digital Energy and Sustainability Solutions Campaign — DESSC. It's a group that includes most of the major IT companies, the communications firms like AT&T and Verizon, a lot of companies like Johnson Controls and Schneider Electric, General Electric, that embed a lot of IT in their solutions, and a lot of NGOs in the climate and energy world like the Alliance to Save Energy and the Climate Group. So we founded that group and it's grown over time and focuses on telling the macro-story and getting government to help develop policies to enable more of that kind of contribution to the solution side.

Baue: How do the micro- and macro-stories relate with one another?

Harper: One of the important messages that we try to convey, is that it's not the macro versus the micro. We're not telling governments, 'don't worry about the efficiency of the device — like, look over here not over there.' We need to do both. The reality is that the gains to be gotten are much greater on the macro side than on the micro. But in order for us to be credible as an industry, we need to be doing as much as we can to make our own devices as efficient as possible.

Baue: Andrew Winston, who clued me into this policy, requested that I ask: What kinds of conversations needed to take place in order to go public with a policy like this — and in particular, was there any push back or any dynamic tension in the creation of this policy?

Harper: So this is probably the third iteration of a formal corporate policy statement we've had and all three have gotten the attention of, and been cleared by, the highest levels of our management. We have a senior management committee that meets quarterly that looks at our actions related to sustainability.

I'm on the Policy side, my colleagues who are on the Environmental Health and Safety operations side and my colleagues who are on the Corporate Social Responsibility side — we kind of jointly use that senior management committee as a sounding board and as an approval body for any major changes that could be material to the company. Two months ago now, we reviewed the new statement with that committee — which includes our CEO, president, general counsel, and a variety of other senior managers — and got 100 percent support for what's in the document.

Pivot Goals
Beta
The sustainability goals of the world's largest and leading companies:
An initiative of Winston Eco-Strategies

#SUSTYGOALS 9:BIG, SCIENCE-BASED PIVOT GOALS—A DIALOGUE WITH JEFF GOWDY

In conjunction with the publication of his new book, The Big Pivot, Andrew Winston partnered with sustainability consultant and Vanderbilt University business professor Jeff Gowdy to create the PivotGoals website, a database tracking thousands of corporate sustainability goals and targets. Bill Baue conducted the following dialogue with Gowdy about PivotGoals, including detailed research on science-based sustainability goals.

Bill Baue: First, the background: What inspired you and Andrew to compile corporate sustainability goals — what underlying objective are you trying to achieve, and how does PivotGoals do the trick?

Jeff Gowdy: The inspiration to create PivotGoals.com came from Andrew and his consulting work. We were working together on another project, and it made sense for me to help manage Pivot-Goals. In terms of objectives, we envision a few key uses (for PivotGoals.com):

Benchmarking: Corporate managers and executives can compare their goals to others in their sectors and from a wider comparison pool.

Driving Performance: Closely correlated to benchmarking, employees and managers can use the goals they've set, along with others their peers have posted, to light a fire under the organization.

Research: Students and academics studying how companies manage our mega-challenges can utilize the data as input to new research projects/publications on corporate sustainability. We hope some will submit their analyses to the site.

Accountability: NGOs and other stakeholders can use this data to hold companies accountable to what they've publicly stated now or in the recent past.

PivotGoals does the trick by presenting the goals along with other key, relevant characteristics of each goal including Focus Area(s) and Date Due. We also provide multiple search criteria, including Industry and Value Chain (stage).

Baue: Scoping in, what prompted you to launch a subset of inquiry on science-based goals? Did the objective (and research tactics) differ from the overall PivotGoals objective — if so, how?

Gowdy: The prompt to track science-based goals comes from Andrew's latest book, The Big Pivot. One of the "Vision Pivots" is the need for companies to set big, science-based goals. Why? Because, on the whole, corporate sustainability goals fall way short of what the world's leading scientists are indicating we need to do to attain sustainability.

Science is the driver of our global economy and likely will continue to be. Science needs to be the driver for how we set our goals to best protect our economy's input resources, our "playing field," our one shared system (Earth). I think this speaks to the objectives of Driving Performance and Accountability.

Baue: Before delving into your findings, I want to push back a bit on the notion that "science is the driver of our global economy and likely will continue to be." It could be argued that commerce is agnostic (or even sometimes hostile) to science. Indeed, if science were a driver of our global economy, then one would expect corporate goals and performance to align with science — but your findings suggest otherwise. So how do you reconcile your stance on science-as-economic-driver with your findings? And as part of this response, please share your top-line findings.

Gowdy: One would expect corporate goals and performance to align with science (in an economic system that internalized and priced all costs — but that is another discussion). And some corporate goals do align with science, and more and more are getting there. But much more progress is needed. From PivotGoals.com we have found the following top line results*:

- 154 of the global Fortune 200 (77 percent) companies have sustainability goals
- There are 2,104 sustainability goals across the Fortune 200
- 60 of the Fortune 200 (30 percent) companies

have at least one science-based goal
- There are only 117 of the 2,104 (5.6 percent) sustainability goals that are science-based
- Unilever has the most science-based goals with 20
- Regarding science driving the global economy, I think our difference is a nomenclature thing. By "drive" I meant "run," i.e. our economy (airplanes, stock markets, energy grids, etc) runs on hardware and software technology created by computer science.

I, too, would argue that the general public is agnostic or even sometimes hostile to science (again, that is another discussion).

Baue: Very interesting — given how business places such faith in science as the foundation of our infrastructure (I'd extend your software/hardware logic beyond computer science to apply to other forms of infrastructure), one might expect this scientific alignment to extend to sustainability goals.

But your research finds the opposite — sustainability goals largely untethered from science. Before hearing more about the science-based goals, what explanation does your research suggest for this disconnect between sustainability goals and science in general?

Gowdy: I think the disconnect is lessening. The relationship between business and science-based sustainability appears to be a situation of "catch up" in terms of behavior change. From what I surmise from social psychology, Step 1 is "awareness." Most businesses seem to now be aware of the great sustainability challenges we face. Step 2 is "education" and many businesses are in the midst of this step. Step 3 is taking action or behavior change. And science-based goals represent wide and deep behavior change. In other words, science-based goals are usually difficult.

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They are often not the first sustainability goals a company sets. It takes a progression of awareness, education, initial and intermediate action before the deep, science-based goals are set --- "crawl ... walk ... run."

Also, we see that the science-based goals are inherently on the environmental side of sustainability, i.e. not social and governance.

The science-based goals found in our PivotGoals.com research are primarily around 1) Carbon and 2) Water and then a smattering of goals on toxics, chemicals, forest products, packaging and waste. Carbon is really the most important one and also the one with the clearest science-based target.

The others might also be called "reality-based" goals, as Andrew refers to them in The Big Pivot, since the science is not always as definitive as it is with carbon.

Baue: Interesting analogy on this progression! Let's see how it applies to your research findings. One thing I'm particularly interested in is the difference between explicitly setting goals based on science (or reality, to cast the net wider), and setting goals that happen to align with the science.

How does this distinction apply to your findings? In other words, how many (or what percentage) of susty goals are explicitly science-based, compared to those that don't make explicit claims yet comply with the science? And what does this distinction suggest about the psychological progression model you propose?

Gowdy: Great question. I think the best way to answer it is to create three buckets that the goals could fall into:
A.) Non-science-based goals
B.) Science-based goals that are explicitly based on science

C.) Science-based goals that are not explicitly based on science (but could be)
For "C," here's what I mean — we pull each goal explicitly from the company Report or Website (and then do slight edits for sizing purposes). It may be that the reference to Science is in a preceding Report paragraph or that the company actually considered the IPCC's latest findings but chose not to state that in their Report. Therefore, the "but could be" ending to "C."

Let's start with the statistic presented before: 2,104 sustainability goals among the Fortune 200. Of those goals, here is how the buckets fill up:
A.) Non-science based goals: 1,974
B.) Science-based goals that are explicitly based on science: 13
C.) Science-based goals that are not explicitly based on science (but could be): 117

I think these results support my point on the psychological progression model – science-based goals are difficult and are likely set after multiple iterations of goal-setting.

We are about to "circle back to the start" again, i.e. scan the Fortune 250 for recently released Reports and pull newly released goals. Hopefully, the sums will tick up for "B" and "C."

*Note: Results presented were taken from a search in April 2014. Data research, review and upload is continuous, thus, results will change over time due to new Report releases.

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#SUSTYGOALS 10 : URBAN EMISSIONS—AUTODESK'S EMMA STEWART ON SCIENCE-BASED GHG GOALS FOR CITIES

Autodesk helped pioneer the corporate practice of setting science-based greenhouse gas (GHG) emissions reduction goals with its open-source methodology, C-FACT, or Corporate Finance Approach to Climate-Stabilizing Targets.

The effectiveness of this approach was validated late last year when Autodesk topped the ranking in the Climate Counts report Assessing Corporate Emissions Performance Through the Lens of Climate Science. Now, Autodesk has taken the next logical step by customizing its C-FACT metric for use by cities, a key customer group for the company.

In this tenth installment of the #SustyGoals series, Bill Baue speaks with C-FACT co-creator Emma Stewart, Head of Sustainability Solutions at Autodesk.

Bill Baue: What prompted you to modify the C-FACT science-based GHG reduction target-set-ting methodology (originally geared for companies) for use by cities? Do cities represent a particularly effective "leverage point" for creating systems change (to riff on Dana Meadows)?

Emma Stewart: We are now an urban species. For the first time in human history, over 50 percent of humanity lives in cities and, by all accounts, this percentage will only continue to grow.

Cities are clearly the world's engines of economic growth, accounting for about 70 percent of global GDP today, and even more as the balance of humans tips from 50 percent to 70 percent urban between now and 2050. In some regions, The Brookings Institute recently pointed out, trade between cities even outstrips trade between nations. Indeed, quite like the ancient city-states of Athens and Rome, today's cities such as Beijing, Delhi, London and New York have become the political and economic nucleus of their respective regions.

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In resource terms, cities have historically represented an opportunity to do more with less. Urban density leads to efficiencies of scale — economic growth can be produced with less land and basic needs such as food, water, shelter and security can be provided through networks, rather than generated in isolation.

But on the flip side, cities represent the majority of humankind's energy and natural resources consumption. Now home to half the world's population, today's cities represent roughly 60-80 percent of the world's energy consumption, according to Pike Research.

I was speaking at a conference on the subject of sustainable cities, and asked the Mayor of Manchester how his city had set their GHG target, which is one of the few that roughly aligns with scientific recommendations. He explained that the city had relied on the Tyndall Centre on Climate Change at the University of Manchester, a world-class institute for scientific research on the subject.

It dawned on me that most cities aren't lucky enough to have such a center, let alone have them derive the city's targets, so I started investigating whether tailoring C-FACT for cities might be worthwhile. CDP Cities, which works with over 100 cities globally, assured us it would, so we embarked on the project.

Baue: For background, can you give a brief overview of the basics of C-FACT for companies?

Stewart: It is a scientifically-based, business-friendly approach to GHG target setting that recognizes companies are GHG emitters but also simultaneously create economic value.

In other words, companies should aim to reduce their GHGs in line with scientific and policy climate stabilization targets but do so proportional to their relative contribution to global GDP, not more, not less. It is best explained by the 6-min video tutorial, white paper and FAQ at www.autodesk.com/c-fact.

Baue: What changes did you have to make to apply this methodology to cities? Are there ways that the two work synergistically, or are they really quite separate?

Stewart: As with the original C-FACT for corporations, the C-FACT methodology offers city leaders a step-by-step method for calculating GHG reduction targets that are in line with scientific climate-stabilization targets from the Intergovernmental Panel on Climate Change (IPCC), and in proportion to cities' relative GDP growth.

It seeks to offer a fair, verifiable, and flexible methodology that uniquely combines intensity and absolute targets for cities of varying sizes, GHG footprints and growth prospects.

It allows cities to align their targets with the reduction pathways recommended by the scientific community for stabilizing the climate, but also in proportion to their cities' relative contribution to the economy. In other words, it is aggressive only to the degree needed to attain climate stabilization, not more, not less.

In tailoring C-FACT for cities, we primarily grappled with:

- how to define a city's "value add"
- whether we could find publicly available data, since a key principle of C-FACT is verifiability, which requires using only public data.
- With the invaluable guidance of Daniel Aronson, then of Deloitte's Sustainability Practice, we concluded that:
- the most commonly accepted, and most replicable, way to define "value add" was to use GDP
- if we used the McKinsey Global Institute's

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Cityscope database, we could offer publicly available data for 600 cities, and we would provide a GDP look-up table for cities not in that database.

Baue: Where do cities currently stand on their GHG reduction targets — do they typically fall as short as companies' targets do, when compared to the ambition required by climate science?

Stewart: Governments at the more regional and local level have begun to set reduction targets as a matter of course, and have formed networks such as C40 and CDP Cities (of which Autodesk was a founding sponsor) to support one another's efforts.

At the international level, 110 cities representing approximately 300 million people have published emissions reports to CDP Cities (up from 48 cities in 2011). Of these, many have published citywide emissions reduction targets. For instance, according the 2013 CDP data, Atlanta and Baltimore, have both pledged to reduce citywide emissions by 15 percent between 2010 and 2020. New York City has pledged to reduce its citywide emissions by 30 percent between 2005 and 2030.

This public disclosure is an encouraging step, but citywide targets for GHG reduction vary widely in both methodology and level of detail. Therefore, while some cities are taking initial steps to reduce their GHG emissions, they still lack a uniform standard for setting carbon-reduction targets.

Baue: Are you aware of cities using C-FACT? What has their experience been?

Stewart: I gather from Daniel Aronson that Palo Alto has used it to help inform science-based targets for further reductions. That is a great development, since the City of Palo Alto has been at the forefront on setting aggressive goals.

Baue: Yes, Palo Alto Chief Sustainability Officer Gil Friend confirmed that with me. Final question now: First companies, then cities — what do you see as the "next frontier" for addressing climate change and other sustainability impacts?

Stewart: The next frontier is for cities and corporations alike to set science-based targets, since otherwise the risks of surpassing planetary thresholds will have devastating consequences on their ability to survive and thrive.

I'm delighted that three influential organizations — WRI, CDP and WWF — have forged an initiative to provide standard guidance on creating such targets, just as WRI has brought standardization to GHG footprinting. Hopefully that work will benefit from all of the difficult decisions that went into developing C-FACT.

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