15 November 2016

Understanding Science Based Targets

The National Business Initiative (NBI) has chosen to prioritise Science Based Targets (SBTs) as an important focus area in our on-going campaign with the international coalition, We Mean Business (WMB).

Setting science based targets is a key means for companies to help achieve a lower carbon future, keeping global warming below 2 degrees. In order to assist the private sector with understanding what a science based target is and why it is important, the NBI organised a series of workshops in Johannesburg and Cape Town in October 2016, in partnership with WWF and CDP.

Science Based Targets (SBTs) is a joint initiative by CDP, the UN Global Compact (UNGC), the World Resources Institute (WRI) and WWF intended to increase corporate ambition on climate action. The Science Based Targets initiative (SBTi) encourages and supports companies to set emission reduction targets consistent with the level of decarbonisation required by science to limit warming to less than 1.5°C / 2°C compared to pre-industrial temperatures.

The science behind science based targets

Science based targets is based on the Gigatonne (Gt) volume of CO2 which can cumulatively be emitted globally while still remaining within the relatively safe planetary boundary of 1.5 to 2 degrees of warming. The accepted safe limit for warming is actually set at 1.5 degrees; however the maximum amount of carbon that can be emitted to meet this goal is 2250 Gt CO2. Currently, we are cumulatively at 1890 Gt CO2 globally, which leaves a budget of just 360 Gt CO2 and 7 years to meet this target. With current combined approaches under the Intended Nationally Determined Contributions (now NDCs) submitted at COP21, the 2 degree mark is unlikely to be met, let alone the 1.5 degree aspiration.

To keep climate change to 2 degrees of warming, the global carbon limit is 2900 Gt CO2; with a current total of 1890 Gt CO2 emitted, which leaves a remaining budget of 1010 Gt of CO2. In order for the planet to cumulatively remain within the budget of 1010 Gt CO2 we can only emit specified allowances or this budget will be exhausted. The current budget of 1010 Gt CO2 allows 20 years to reduce our emissions in order to reach this target. This is where SBTs play a crucial role.

The SBT initiative is about setting meaningful targets at a company level, so within the South African context there needs to be careful consideration around how this approach will align with the Peak Plateau and Decline trajectory range for the country, as well as with the carbon budgets process being introduced for large South African emitters. The important point is that we need to set targets that do not encourage business as usual, but rather result in innovation and impact that may not seem attainable right now.

The SBTi strategy

SBTi's overall goal is that science based target setting will become standard business practice in future. Essentially, The Paris Agreement commits us to below 2 degrees, requiring a low carbon transition at the country level through the NDCs. However, as mentioned above, there is an emissions gap left by the country level NDC commitments, a gap which corporations can play a major role in closing.

The SBTi envisions this emission reduction gap being closed in three steps: first the barriers to adopting a science based target need to be reduced, second the adoption of science based targets needs to be institutionalised and finally, if a critical mass of companies is reached, the emissions gap may effectively be closed.

The SBTi is calling on companies to demonstrate their leadership on climate action by publicly committing to science based emission reduction targets. The SBTi aims to enlist 100 companies by 2015 and 250 companies by 2020.

The business case for science based targets

Companies may wonder why they need to get involved or why their company should set a target. In terms of the business case, setting a SBT will allow businesses to:

1. Secure long-term competitive advantage and protect future profitability
2. Unlock financial returns
3. Drive innovation
4. Build credibility and reputation
5. Demonstrate leadership

Within South Africa, the following companies have demonstrated first leader advantage by signing up to SBTs: Woolworths Holdings Ltd, Tongaat Hulett Ltd, Exxaro Resources Ltd, Netcare Limited, Pick n Pay Stores Ltd, Tiger Brands and Mediclinic.

The SBT sign up process

The SBTi has specific project activities and a call to action process. Essentially, the first step is committing to set a science based target; this involves completing the "Commitment letter" and being listed on the SBT website. Step two is to develop a science based target; this involves developing a science based target aligned with the eligibility criteria. This step can take place up to 24 months after making the initial commitment.

The third step involves submitting your science based target for a quality check which includes completing the

"Science Based Target Form." This part of the process usually takes between 3-4 weeks. The final step is announcing your science based target once it has been approved, complete with profiling on the SBTi website, We Mean Business platform and other amplification opportunities.

Establishing a SBT: the key elements

Setting a science based targets consists of a combination of the following three elements:

1) **The chosen carbon budget**: for example, using a 2°C carbon budget (1010 $GtCO_2$)

2) **The emissions scenarios**:
   Whether drawn from the IPCC or International Energy Agency (IEA) as follows:
   - IPCC 4AR (A-450 ppm CO2eq) or
   - IPCC 5AR (Overshoot <0.4 W/m2) or
   - IPCC 5AR (RCP 2.6) or
   - IEA 2DS (ETP 2016)

3) **The SBT Approach**:
   These approaches are either:
   - Sector based approaches (Convergence/Contraction)
   - Absolute-based approaches (Contraction) or
   - Economic-based approaches (Contraction)

Looking at the second element of the setting methods, the emissions scenarios, these can either be peak & decline as set out by the RCP 2.6 and IEA 2DS mentioned above. Basically, this means that global emissions peak in a given year and rapidly decline thereafter at a rate that ensures that the cumulative emissions do not exceed a 2°C carbon budget. The second approach is linear simplification, as set out in the IPCC AR5 and IPCC AR4. Under linear simplification, global emissions decline steadily at a rate that ensures achieving a certain amount of emission reductions in a certain year.

Different companies will set targets based on their respective economic context, sector and current emissions contribution, which is why there are so many different methodologies.

Looking at the third element of target setting, the actual SBT approach, as mentioned above, this is divided into three types (sector, absolute, economic). Sector-based approaches are based on sector-specific carbon budgets determined by mitigation/technology options and activity projections. Absolute-based approaches are based on absolute emissions reductions determined in climate reports (e.g. 49-72% reduction in IPCC AR5). Thirdly, economic-based approaches are based on the average emissions reductions determined in climate reports per projected economic output.

The SBT methodologies

The SBTi currently recognises seven existing SBT methodologies, all of which are free and publicly available:

- **Absolute Emission Contraction** (also referred to as the "Mars method")
- BT's Climate Stabilization Intensity (**CSI**) Targets
- **CSO**'s Context-based Carbon Metric (known as "the CSO method")
- Autodesk's Corporate Finance Approach to Climate-stabilizing Targets (**C-FACT**)
- Greenhouse Gas Emissions per unit of Value Added (**GEVA**)
- Sectoral Decarbonisation Approach (**SDA**)
- **3% Solution** (United States of America only)

Each method has a particular approach as stipulated below:

- **SDA**: Sector-based
- **3% Solution**: Sector-based
- **Absolute contraction**: Absolute-based
- **C-Fact**: Economic-based
- **GEVA**: Economic-based
- **CSI:** Economic-based
- **CSO**: Economic-based

The SBTi recommends the following prioritisation:

- If available, use a sector-based approach
- If sector-based methods are not available, use an absolute-based approach
- Economic-based approaches are only recommended when they lead to absolute emission reduction targets consistent with the goal of keeping the global temperature increase well below 2°C

Defining the company's key attributes will assist a company in determining which methods may be appropriate for them. The questions below can help assess these key attributes:

- In which sector(s) does the company operate?
- Does the company operate in a homogeneous or heterogeneous sector(s)?
- Does the company's projected growth rate, in physical or economic output, exceed that of the sector or the global average?
- In which geographic regions or countries does the company operate?

Finally, there are numerous resources and tools available for free online in order to assist with SBT setting:

- Sectoral Decarbonisation Approach (SDA) methodology
- Mind the Science Report
- Science Based Target Setting tool *(coming soon)*
- Articles in Nature Climate Change journal
- Science Based Target Setting manual *(draft)*
- Guidance on scoring in CDP's Climate Change Questionnaire

For more information on Science Based Targets, or to sign up to the Science Based Target Initiative, please contact **Steve Nicholls.**

To provide context for the NBI's work on SBTs, further background on the NBI's partnership with We Mean Business is provided below.

Background to NBI's partnership with We Mean Business

We Mean Business (WMB) is a coalition of organisations working with thousands of the world's most influential businesses and investors. The seven founding members of WMB are: BSR, The B Team, The Prince of Wales Corporate Leaders Group, CDP, The Climate Group, WBCSD and CERES.

WMB provides a high-profile platform for business, offering a powerful voice in large-scale climate negotiations and policy initiatives, such as COP21/COP22.

WMB asks companies to sign up to a range of commitments in order to lead by example in trailblazing new

and innovative ways to ensure a sustainable and lower carbon future.

The four commitments areas that the NBI has selected as the main focus for our current WMB campaign, as well as the reasons behind these choices, are:

- **Commit to put a price on carbon**: This does not equate to an endorsement of the South African carbon tax but rather that a price needs to be placed on carbon in order for the country to meet our emissions reduction goals
- **Commit to improve energy productivity**: Within the South African context of energy insecurity, the need to improve energy efficiency (or switch to renewable alternatives for a percentage of our power generation) is paramount
- **Commit to improve water security**: As a water scarce country this is the biggest issue on the national adaptation agenda
- **Commit to adopt a science based emissions reduction target**: As with the carbon pricing commitment, this does not mean that your company has set a target, but that you commit to set a science based target within two years of signing up

For more information on We Mean Business and the company commitments, please click **here.**
Alternatively, email **Steve Nicholls** or **Amy Marshall** at the NBI.

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