From Paris to local government action: implementing territorial carbon budgets

Paper ID #No. 1-275-19



UPPSALA UNIVERSITET

Martin Wetterstedt
Martin Mickelsson
Helena Lindquist

LightSwitch

About the authors

Martin Wetterstedt (PhD), Researcher/Coordinator
Uppsala University, Department of Earth Sciences, Natural Resources and Sustainable Development; Climate Change Leadership



Martin Mickelsson (Doctoral candidate)
Uppsala University, Swedish International Centre of Education for Sustainable Development (SWEDESD)



Helena Lindquist, Founder & Director
LightSwitch (consultancy specializing in facilitating international knowledge transfer & co-creation partnerships in sustainable energy solutions and climate change mitigation)



We wanted to explore...

...how municipalities can help deliver on the Paris agreement with the help of local territorial carbon budgets...

...and what municipal leaders need to think about when implementing such a framework in practice...

Content

- Short intro to Carbon Budgets - global & local
- Change conditions for implementation in municipal practice (Kotter 8 step change framework)
- Supporting processes (scaling-as-learning framework)

About Carbon Budgets

Background: (Global) Carbon Budget

- Paris Agreement: limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C
- Carbon budget = (scientific calculation of) the **cumulative** amount of carbon dioxide (CO2) emissions permitted over a period of time to keep within a certain **temperature threshold**

Carbon Budget Principles

- **Scientific** way of coupling global temperature goals with local measurable emission quantities → can be translated into targets for every level in society
- Emissions are **cumulative**
    - Implying that the BAU way of setting climate targets is highly flawed (e.g. “70% for X country/city by 2050”)
- **Equity**, taking into account historical emissions and societies’ relative capacity for emission reductions in the medium term (Paris agreement mentions OECD and non-OECD countries)
- Supports the notion of **sufficiency**

Carbon Budgets & Equity

...internationally established principle of **Common but Differentiated Responsibilities** which serves as the **foundation for** the United Nations Framework Convention on Climate Change (UNFCCC) and the **Paris Agreement**.

- This principle recognizes the **greater responsibility of industrialised countries**, based on both their major contributions to climate change over time (**historical responsibility**) and their **greater capacity** to do something about it (higher incomes, existing infrastructure, institutions, etc.).
- This principle also recognises the **industrialising countries' right to development** and the **responsibility of the industrialised countries to enable them** to both reduce emissions through financial and technological support and to adapt to the effects of climate change.

Carbon Budgets & Sufficiency

- If you're on a strict budget you have to **prioritize** "what to spend your emissions on"
    - Building a zero carbon infrastructure or "wasteful/excessive" consumption generating little value to society?



Legal status

- Carbon budgets have started to enter the **legal** realm (UK, EU…) but still early days...

Carbon budgets now mentioned in EU legislation

7 Nov 2018:
European Parliament amendment to Commission Proposal for a new Regulation on the *Governance of the Energy Union and Climate Action*



AMENDMENTS BY THE EUROPEAN PARLIAMENT*

to the Commission proposal

REGULATION (EU) 2018/...
OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of...

on the Governance of the Energy Union *and Climate Action*,
amending Directive 94/22/EC, Directive 98/70/EC, Directive 2009/31/EC,
Regulation (EC) No 663/2009, Regulation (EC) No 715/2009, Directive 2009/73/EC,
Council Directive 2009/119/EC, Directive 2010/31/EU,
Directive 2012/27/EU, Directive 2013/30/EU and Council Directive (EU) 2015/652 and
repealing Regulation (EU) No 525/2013

(Text with EEA relevance)

* Amendments: new or amended text is highlighted in bold italics; deletions are indicated by the symbol ▌.

(10) *For the climate system the cumulative total anthropogenic emissions over time are relevant for the total concentration of GHGs in the atmosphere. Various scenarios for the Union's contribution to long-term objectives, inter alia a scenario on achieving net zero GHG emissions in the Union by 2050 and negative emissions thereafter, and the implications of those scenarios on the remaining global and Union carbon budget should be analysed by the Commission. The Commission should prepare an analysis for the purposes of a long-term Union strategy for the Union's contribution to the commitments of the Paris Agreement of holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1,5 °C above pre-industrial levels, including various scenarios, inter alia a scenario on achieving net zero GHG emissions within the Union by 2050 and negative emissions thereafter and their implications on the global and Union carbon budget.*



Example: UK Climate Change Act



Carbon budgets

To meet these targets, the government has set five-yearly carbon budgets which currently run until 2032. They restrict the amount of greenhouse gas the UK can legally emit in a five year period. The UK is currently in the third carbon budget period (2018 to 2022).

Budget	Carbon budget level	Reduction below 1990 levels
1st carbon budget (2008 to 2012)	3,018 MtCO2e	25%
2nd carbon budget (2013 to 2017)	2,782 MtCO2e	31%
3rd carbon budget (2018 to 2022)	2,544 MtCO2e	37% by 2020
4th carbon budget (2023 to 2027)	1,950 MtCO2e	51% by 2025
5th carbon budget (2028 to 2032)	1,725 MtCO2e	57% by 2030

Not based on the Paris agreement!
Instead: the UK target of 80% reduction of 1990 levels by 2050

Source:
Committee on Climate Change

https://www.theccc.org.uk/tackling-climate-change/reducing-carbon-emissions/carbon-budgets-and-targets/

Now down to the local level...

Global to local carbon budgets



2019≅675 (?) gigatonnes CO2 to keep the 2 degree target

GLOBAL CARBON BUDGET: PARIS AGREEMENT

INTERNATIONAL/ REGIONAL, e.g. EUROPEAN UNION CARBON BUDGET

COUNTRY CARBON BUDGET

COUNTRY CARBON BUDGET

MUNICIPALITY CARBON BUDGET

MUNICIPALITY CARBON BUDGET

Budget shares between OECD/non-OECD countries not agreed internationally!

Our house is on fire! 🔥
No time to wait for the international level to agree!

Municipal territorial carbon budgets in UK & Sweden

- Based on research by Kevin Anderson, Alice Larkin *et al*, at Tyndall Centre for Climate Change Research, University of Manchester, UK + continued at Uppsala University Climate Change Leadership node.
- UK: Manchester - first local territorial carbon budget (2016)
- Sweden:
  - Järfälla municipality got the ball rolling…
  - Now another 10 municipalities (local level) + 6 counties (regional government) have had their own carbon budgets calculated by Uppsala University.

Example: Manchester's Zero Carbon Framework

WHAT'S THE PLAN?

MANCHESTER CLIMATE CHANGE
PLAN | PARTNERSHIP | AGENCY

Science Based Targets

In November 2018, Manchester City Council adopted new science based climate change targets, on behalf of the city. The targets were based on work by the Tyndall Centre for Climate Change Research at the University of Manchester and Manchester Climate Change Agency. Further information is available here.

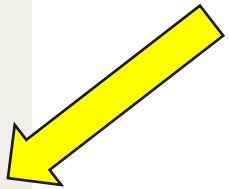
Zero Carbon Framework 2020-2038

In February 2019, Manchester Climate Change Board and Agency published a Draft Framework to set out a proposed approach for the city to meet its targets. The Draft Framework was endorsed by Manchester City Council at the Executive Committee on 13th March.

Papers are available online here.

Click here to find out more about our Zero Carbon Framework 2020-2038.

Work is now underway to develop a final Framework and Action Plan 2020-2022 by March 2020, and to put in place the resources the city will need for implementation.



Source:
http://www.manchesterclimate.com/plan

Swedish Municipal Territorial Carbon Budgets



Source:
http://www.climatechangeleadership.se/koldioxidbudgetar-2018/

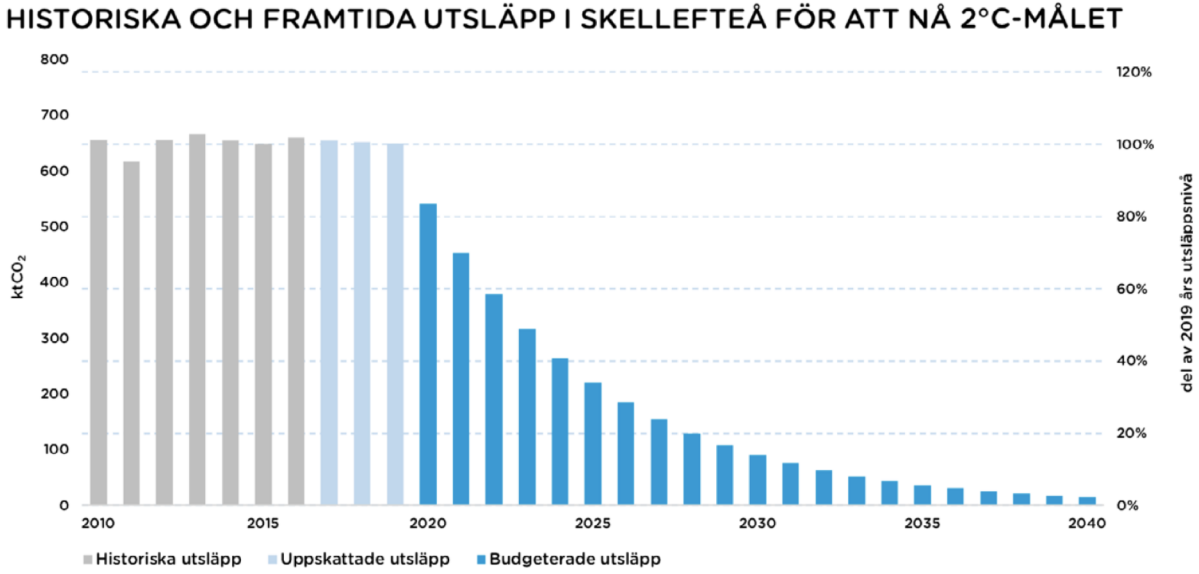
UPPSALA UNIVERSITET

Work led by:

Department of Earth Sciences, Natural Resources and Sustainable Development; **Climate Change Leadership**

Kevin Anderson, visiting professor 2016-2018

Example: Skellefteå Municipality



Figur 1. Historiska utsläpp 2010–2016, uppskattade utsläpp 2017–2019, samt budgeterade utsläpp 2020–2040. Utsläppen föreslås minska med en konstant del av föregående års utsläpp. Den högra Y-axeln visar utsläpp som procent av basåret 2019.

"Historical and future emissions for Skellefteå to reach the 2 degree target"

More background

Kevin Anderson, Jesse Schrage, Isak Stoddard, Aaron Tuckey & Martin Wetterstedt 2018:

“A Guide for a Fair Implementation of the Paris Agreement within Swedish Municipalities and Regional Governments: Part II of the Carbon Budget Reports Submitted to Swedish Local Governing Bodies in the 2018 Project "Koldioxidbudgetar 2020-2040" A Report commissioned by Swedish municipalities and regional governments.

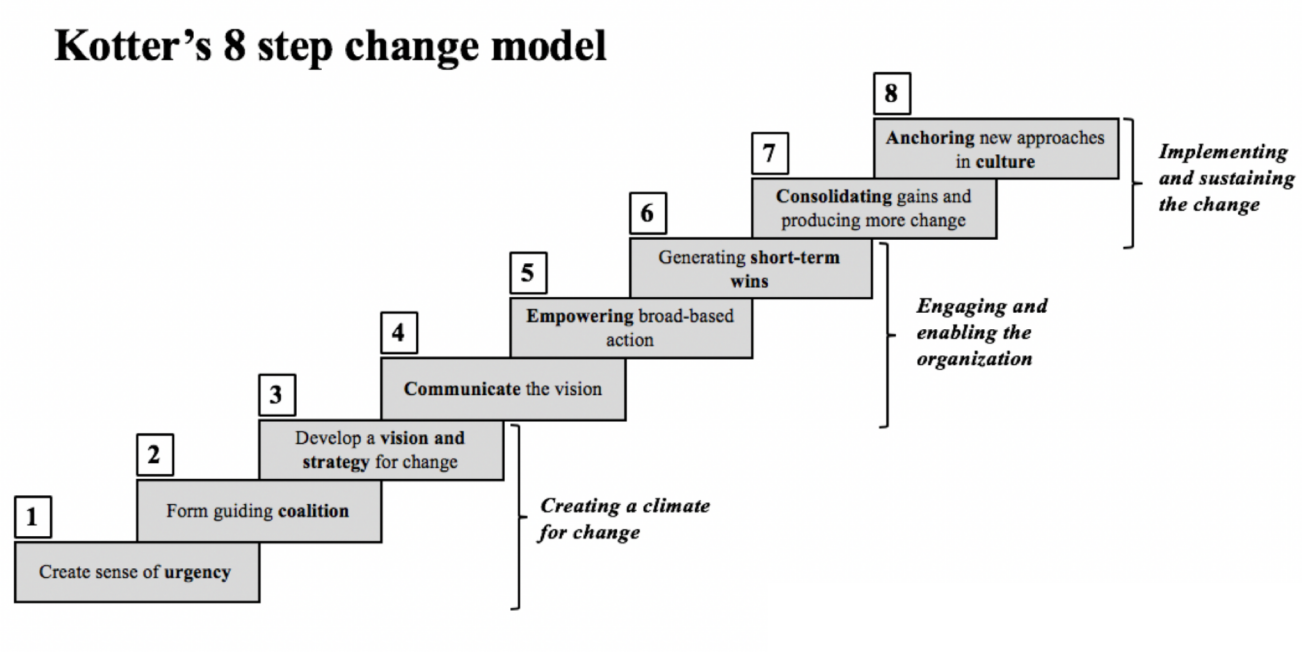
Climate Change Leadership Node, Uppsala University, Sweden.

Implementation of a Carbon Budget into municipal practice

A gigantic & multi-faceted societal change process

- Our focus: the municipality as an ORGANIZATION, but with an assumed responsibility to promote carbon neutrality in the territory as a whole
- What if...the carbon budget would steer all municipal activity? On a par with, or even taking precedence over the economic budget?
- Many issues/problems:
    - The limitations of **municipal competence** in the territorial area. Both in relation to other societal levels (regional, national, international) and to independent stakeholders (companies, citizens…)
    - Consequences when budget target is not reached (or when others do not do their part…)
    - Legal barriers
    - Conflicts of interest / clash with other societal goals

How not to fail in an organizational change process



Kotter, J.P. 1995, **Leading change: why transformation efforts fail,** *Harvard Business Review*, March-April, pp. 59-67.

***Inspiration** from Swedish County Administrative Boards, using this model*



1. Create a sense of urgency

- The Carbon Budget itself provides scientific evidence of the urgency to radically cut emissions down to zero.
- Explains the link between the global carbon budget and the role and responsibility of the particular municipality.
- Without sense of urgency in the organization = high risk of failure

2. Form a guiding coalition

- Municipal change leadership
- Complementary competences, fit for the task of dealing with a multi-faceted and large-scale transformation process
- The group composition should evolve over time, as the needs of the change process is likely to change
- Requires strong mandate and sustained support from political leadership

3. Develop a vision and strategy for the change

- The Carbon Budget sets the emission limits, but does not explain HOW to achieve them that fits the local context of X municipality.
- Positive **VISION**: “What will our carbon neutral society look like?”
    - Build a story that all types of societal stakeholders can relate to, and build it **together**, to create buy-in and acceptance
    - Not just *away* from unsustainability, but *to* something better for everyone
- **STRATEGY** for implementing the vision, incl. clear targets and indicators and structure for rigorous follow-up *(Example: Manchester!)*
- Broad-based and long-term **political support and engagement** needed to lend credibility and acceptance for the vision and strategy

4. Communicate the vision and strategy

- Quality communication of the vision, strategy and aspects of its implementation is key for the success of the change process
- Communicate WHY and HOW in DIFFERENT WAYS with different stakeholders
    - Stakeholder engagement/citizen involvement
    - Focus on co-benefits
- Use story-telling and other tools

Not like this! →



5. Empowering broad-based action

- Create change agents with freedom to innovate
- Capacity building for municipal staff (e.g. training on low-carbon procurement)
- Promote culture of self-leadership and transformation ownership
- Remove barriers blocking the change, including cultural norms
- Break out of the silos! Promote cross-sectoral and intra+inter-organizational knowledge transfer/innovation partnerships to avoid reinventing the wheel or unnecessary duplication of efforts.

6. Generate short-term wins

- To energize people and keep the momentum in the change process
- Celebrating accomplishments is a way to keep the vision and strategy alive and relevant
- Concrete targets, indicators and rigorous follow-up provides evidence of success
- Communicate the success (Step 4) and publicly recognize/reward staff achievements (e.g. awards, involve the media)
- A source of short-term wins = identify and tackle the low-hanging fruit, e.g. eliminating unnecessary/uncontroversial practices with high carbon footprint that does not benefit anyone.

7. Consolidating gains and producing more change

- To avoid complacency and loss of momentum: build upon the short-term wins to scale the change for larger impact and into new areas, e.g.
    - Making successful pilots permanent and spread them to other areas
    - Starting new ambitious initiatives building on the evidence of success of smaller projects
- Promote a “Kaizen” culture of constant learning and improvement, to make the changes future-proof and sustainable over time, whilst also…
    - …further developing the people involved and their role as change agents.

8. Anchoring new approaches in culture

- The positive aspects of the change (i.e. benefits of a zero carbon municipality) must be communicated as superior to the old ways
- Communication (Step 4) taking account of the heterogeneity of stakeholders
- “The new normal” - pay attention to the cultural norms and values underpinning the change process.
    - Involve internal/external stakeholders early on, e.g. in developing vision
- Include new people in the guiding coalition to stay relevant and uphold the change

Processes to support change conditions in implementing the Carbon Budget framework

Subjectification

- Creating expectations for collaboration and contribution within and beyond the municipal organisation.
- Empower municipal employees in setting the direction of change.
- Enhancing sensitivity and relevance of the implementation to other parts of the municipality organisation and beyond.
- Beyond generating a sense of urgency, offering approaches that are **ethically acceptable** to those involved.

End(s)-in-view & implementation language

- Generating short-term wins by formulating ends-in-view.
- Re-formulating the purpose of addressing global warming to concrete and perceivable ends-in-view.
- By drawing on the expertise and experiences setting the purpose in closer relation to the municipal practice resulting in a contextual adaptation of the CB framework.
- Crucial for municipality employees to have a language to articulate and communicate why and how short-term wins were achieved.

Many remaining questions...

More background

Kevin Anderson, Jesse Schrage, Isak Stoddard, Aaron Tuckey & Martin Wetterstedt 2018:

"A Guide for a Fair Implementation of the Paris Agreement within Swedish Municipalities and Regional Governments: Part II of the Carbon Budget Reports Submitted to Swedish Local Governing Bodies in the 2018 Project "Koldioxidbudgetar 2020-2040"

A Report commissioned by Swedish municipalities and regional governments. Climate Change Leadership Node, Uppsala University, Sweden.

Available at: https://uppsala.app.box.com/v/Koldioxidbudgetar-2020-2040/file/348556691452

Thank you!

Helena Lindquist: helena@thelightswitch.se
Martin Wetterstedt: martin.wetterstedt@ccl.uu.se
Martin Mickelsson: martin.mickelsson@edu.uu.se

