Agenda

• Kevin Anderson, Climate budget as tool
• Helen Persgren, Klimat2030
• Focus areas, what do we do?
  • Anders Roth - Sustainable Transport
  • Britta Florén - Climate Smart and Healthy Food
  • Magnus Kroon - Renewable and Resource-efficient Products and Services
  • Peter Selberg - Healthy and Climate Smart Homes and Buildings

• FIKA
• Workshop
• Conclusion
• End 11,30
Kevin Anderson
Guest professor in climate leadership at Uppsala University

From Paris to Sweden: 2°C, integrity & the ‘climate law’

Kevin Anderson
Professor of Energy & Climate Change
What is the International (& Sweden’s) mitigation agenda

The Paris Agreement commits to “zero carbon in our time” and established an unprecedented international agenda...
The Paris Agreement commits to "zero-carbon in our time"... committing us...

... to take action to:

... hold the increase in global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C

... to undertake rapid reductions in accordance with best science

... on the basis of equity,
What is our response to this challenge?

Humility as a starting point for hope & action

- 1990: first IPCC report
- 2016: CO$_2$ 60% >1990
- 2017: CO$_2$ still rising
- Up by around 1.5%

*Despite optimistic rhetoric, we’ve delivered 28 years of abject failure in terms of reducing total emissions*

@KevinClimate
Thus far ... *litany of* **technocratic svindler**

- Offsetting ... paying a poor person to diet for us
- Clean development mechanism (CDM) ... state sanctioned offsetting
- Emissions trading (EUETS) ... so many permits the €tCO\(_2\) stays low
- Afforestation ... plant a tree, expand an airport
- Speculative ‘negative emission technologies’ (NETs) ... at huge planetary scale
- Geo-engineering ... a sticking plaster on gangrene

... *we have not seriously tried to cut our CO\(_2\)!*

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Just look at Sweden (**... or the UK**)

- a leading EU country on climate change action
- with very low-carbon electricity
- an international reputation as a progressive nation

yet Sweden remains a high-carbon country

*i.e. almost no change in CO\(_2\) emissions since 1990*[^1]

[^1]: once aviation, shipping, imports & exports are taken into account
So where to from here?

Cumulative emissions of CO₂ largely determine global mean surface warming by the late 21st century and beyond.

[i.e. it is carbon budgets, not long-term targets, that matter for temperature]
… & when you take a scientific (carbon budget) approach, the Paris 2°C commitment becomes far more challenging.

Quantifying the Paris Agreement
Before Paris ...

4°C to 6°C

Global CO₂ emissions (GtCO₂/yr)

With Paris
... national pledges add up to...

3°C to 4°C

Global CO₂ emissions (GtCO₂/yr)
And to stay “well below 2°C”
- the carbon budget remaining from 2018 is:
- approx. 750 billion tonnes CO$_2$ (i.e. 750GtCO$_2$)

Zero CO$_2$ by ~2050
But Paris also has an important EQUITY dimension - wealthy nations need to transition to zero-CO₂ ahead of poorer nations

What is Sweden’s role in delivering Paris?
So to limit warming to a 2°C rise ...

we have a set
global carbon pie

*i.e. total CO$_2$ that can be emitted from now to forever ...*

So to limit warming to a 2°C rise ...

... this needs to be split **equitably** amongst all of the world’s nations
What is a fair slice (**carbon budget**) for the **EU**?

Of the EU carbon budget ...
... how much should Sweden get?

Provisionally...

Sweden’s fair Paris 2°C carbon budget for energy is

~300 to 600 million tonnes of CO₂

... for 2018 to 2100 & beyond

i.e. 6 to 12 years of current emissions*
... this budget range includes...

... but excludes?

... from the rest of the World
We can also estimate budgets for Läns & Kommuns

... e.g. how much of Sweden’s budget for Umea?
... this would exclude

From Sweden (except electricity)

from the Rest of the World

17 Läns and/or Kommuns attended a workshop on this in May this year
(& many more have expressed an interest in having their own Paris-based budget)
Returning to Sweden’s headline mitigation

Headline mitigation for **Sweden**

- Need to reduce CO$_2$ at **10-15% p.a.** starting now
- A total reduction of around **70-75%** by **2025**
- ~**fully** decarbonised energy by around **2035-40**
How different is this to Sweden’s new Climate law?

Ref: Naturvårdsverket (SMED), Rockström et al. 2017, Anderson et al. 2017
How different is this to Sweden’s Climate law?

Sweden’s Territorial Carbon Emissions (ktCO₂)

- Excludes international Aviation & Shipping CO₂
- Has no carbon budget framework
- Ignores equity

Ref: Naturvårdsverket (SMED), Rockström et al. 2017, Anderson et al. 2017

How different is this to Sweden’s Climate law?

Sweden’s Territorial Carbon Emissions (ktCO₂)

OBS. these both:
- include ‘negative emissions technologies’
- exclude issues of equity

Ref: Naturvårdsverket (SMED), Rockström et al. 2017, Anderson et al. 2017
How different is this to Sweden’s Climate law?

Sweden’s Territorial Carbon Emissions (ktCO₂)

But:
- exclude NETs
- include Equity
- include Planes & Ships

Ref: Naturvårdsverket (SMED), Rockström et al. 2017, Anderson et al. 2017
Similar *svindleri* in the UK

- ‘Fair’ 2°C pathways for the UK
What real action is needed of Sweden to deliver on Paris?

1. **Immediate**: Deep & rapid change in *behaviour/practices*

   - Top 10% of emitters responsible for 50% of global emissions
   - Reduce their footprint to the EU mean =
And we know who is in this key 10% group?
And we know who is in this key 10% group?
2. **Near-term**: Very stringent standards on **end-use** appliances

- Establish stringent efficiency standards (*e.g.* \( \text{gCO}_2/\text{km}; \text{kWh/m}^3 \))
- Tighten year on year (*e.g.* 5-10% p.a.)
- Providing long-term & dynamic market signal

In **wealthy** nations, combining ‘**behaviour & technology**’

*(NB: accompanying policies to address issues of rebound are essential)*

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3. **Medium-term**: Marshall-style decarbonisation of **energy supply**

- But, electricity is typically 20% of final energy demand
- Need a major programme of electrification (*3-5x current grid*)
- A 30 year re-tooling of society’s productive capacity towards zero \( \text{CO}_2 \) future

* @KevinClimate
So what such a framing mean for science & equity-based mitigation in Sweden?

Examples of actions for 2°C

- Retrofit
- Passive house
- Reduced flying
- Virtual communication
- Charging (inc. bike)
- No first/businesses
- Zero-CO2 energy
Also need a progressive narrative for radical mitigation

1) Major, secure & high-quality jobs agenda for two or more generations
2) Significantly improved urban air quality, particularly beneficial to infants/children
3) Stronger indigenous tourist industry (less money flying abroad)
4) Improved living environment in cities and towns
5) In the medium term, much lower energy costs
6) A prosperous & healthy future for our own children
7) Clear progressive leadership within the EU & internationally

To conclude:
Climate Change demands System Change

Interpreting Paris through the logic of carbon budgets begs fundamental questions of our norms & paradigms

- transformation to decarbonised energy supply technologies
- rapid penetration of most efficient end-use technologies
- profound shift in behaviour & practices
- a reframing of values, success & progress
- development of economic models fit for purpose

... starting now ...
Our ultimate choice is between ...

A short-term *realpolitik*

or

A sustainable long-term *real-climate*

Ultimately ...

*Winning slowly is basically the same thing as losing outright. In the face of both triumphant denialism and predatory delay, trying to achieve climate action by doing the same things, the same old ways means defeat. It guarantees defeat.*

Alex Steffen 2017
“at every level the greatest obstacle to transforming the world is that we lack the clarity and imagination to conceive that it could be different.”

Robert Unger

If you’ve any quick thoughts prompted by this talk, we’d be pleased to receive them; 60-90 seconds filmed on a mobile phone.

**Question:** in this election year

... *what are the most important issues policy makers should address?*

Email to:

Isak.stoddard@cemus.uu.se

NB: These may be used for a short film at Almedalen & on the CEMUS website
Helen Persgren
First vice chairman of Västra Götalands environment committee

Climate strategy for Västra Götaland

Västra Götaland has one of the most ambitious regional climate targets in Sweden
By 2030 we will no longer be dependent on fossil energy. That means:

- In 2030, emissions of greenhouse gases should be reduced by 80 % compared with levels in 1990.
- In addition, greenhouse gas emissions caused by the consumption of the residents of western Sweden, no matter where in the world they occur, should decrease by 30 % compared with 2010.
From a goal to an action plan…
the Climate Strategy

2009

Goal:
To be independent of fossil energy by 2030  >130 organizations signed

2017

How to achieve our goal?

• The Västra Götaland region and the Västra Götaland County Administrative Board jointly
• Workshops and dialogue with stakeholders from companies, public organisations, NGOs, academia.
Sustainable transport
- Climate-smart daily travel, where more choose to walk, cycle or travel with public transport
- Accelerated transition to fossil fuel free vehicles
- Streamline transport of goods
- Climate-smart meetings and holidays

Climate-smart and healthy food
- Reduced food waste
- Promote sustainable agriculture
- More vegetarian meals

Renewable and resource-efficient products and services
- Greater market for bio-based materials and fuels
- Services and circular products
- Design for a sustainable Lifestyle

Wholesome and climate-smart housing and buildings
Flexible and climate-smart housing and other buildings
Effective and climate-smart renovations

Four ways of working that contribute to change in society
We are the forerunners for a good life in a fossil free future

We are climate planning for the society structure of the future

We are investing in test arenas and innovations that contribute to development and employment

We are developing attractive communities where it is easy to do the right thing

Implementation process
Companies, municipalities, NGOs, academia and other organisations can join the initiative by signing up at klimat2030.se.

They thereby agree to work towards the regional climate goal, as well as at state how they will contribute.
Sustainable Transport

- Climate-smart everyday travel where more people choose to walk, cycle and use public transport
- Faster transition to fossil-free vehicles
- Efficient transport of goods
- Climate-smart meetings and holidays

FOCUS AREA 1

Sustainable Transport

- Transportation of goods increasing, low willingness to pay from transport byers
- Increase in flying bigger than efficiency gains
- E-cars kilometers mainly after 2030
- Infrastructure investments not in line with climate goals
- Polluter pay principle – should be more than a principle
FOCUS AREA 2

Climate Smart and Healthy Food

- Reduced food waste
- Promote sustainable agriculture
- More vegetarian food on the plate

OPPORTUNITIES:
- Consumer based tools
- Database/Carbon Footprints
- Spread the message

CHALLENGES:
- Break consumption patterns
- Lacking of national food goals

"A sustainable carbon footprint for the plate/food purchase"
Magnus Kroon
Coordinator Renewable and Resource-efficient Products and Services

FOCUS AREA 3

Renewable and Resource-efficient Products and Services

- Larger market for bio-based materials and fuels
- Services and circular products
- Design for a sustainable lifestyle
The turn around of "Consumption hierarchy"

BUY NEW
BUY SECOND HAND
CHANGE AND SHARE WITH EACH OTHER
BORROW AND RENT
PPEPARE OR REPAIR
TAKE CARE OF YOUR THINGS
USE YOUR THINGS AND CONSUME EXPERIENCES

Peter Selberg
Coordinator Healthy and Climate Smart Homes and Buildings
Healthy and Climate Smart Homes and Buildings

- Flexible and climate-smart homes and buildings
- Efficient and climate-smart renovation
- Good efforts are rewarded, most aggressive initiatives are private.

FIKA

and what happens next…
1) Takeaways from today?

2) Messages from KLIMAT2030 to Kevin and Almedalen

Twitter: @KevinClimate #CarbonCycleSweden
Twitter & Facebook: @Klimat2030