

Linking national emission inventories and projections with integrated assessment modelling, Swedish experiences

APPRAISAL – NIAM joint meeting June 29th 2012

Stefan Åström, IVL

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Background & Aim

- The EU Year of Air 2013 includes a revision of the EU Thematic Strategy on Air Pollutants
 - Hopefully that includes a review of the NEC and AQ directive
- EU has invited member states to bilateral consultations with IIASA regarding projections on air pollution emissions
- Sweden will sit down in bilateral consultations on the 25th of September
- The aim with the current project is to be as prepared as possible

Short introduction

- Sweden is now compiling official emission projections for air pollutants and greenhouse gases (GHG)
 - Air pollutants are projected to 2030
 - GHG to 2050
- Projections are official by the end of August 2012
- These emission projections are the basis for the bilateral consultation at IIASA

Support to Bilaterals - Who and How?

- Combining experts on emission projections, GAINS modelling, transport modelling and industry expertise
 - Emission projections: Karin Kindbom, Tomas Gustafsson
 - GAINS expertise: Stefan Åström, Maria Lindblad
 - Transport modelling: Martin Jerksjö
 - Industry expertise: Maria Lindblad, Peter Stigson
- These experts will compile all relevant background information from the official Swedish Emission projections and translate them into a GAINS model format
- Funded by the Swedish EPA

Expected results

- GAINS model emission projections for Sweden based on Swedish data
 - Swedish activity data
 - Swedish estimates on the use of control technologies
 - Swedish estimates on emission factors
- Pollutants considered
 - SO₂, NO_x, PM_{2.5}, NH₃, NMVOC
- Years considered
 - Base year (2007), 2020, 2030

Expected difficulties

- Codes & Classifications
- Aggregations
- Allocations

CRF code, bransch, industry, sector...

1. Energy	
A. Fuel Combustion Activities	
1. Energy Industries	
2. Manufacturing Industries and Construction	2. Industrial Processes
3. Transport Industries	A. Mineral Products
4. Other Combustion Activities	1. Cement Production
5. Other Combustion Activities	2. Lime Production
B. Fugitive Emissions	3. Limestone and Dolomite Use
1. Solid Fuels	4. Soda Ash Production and Use
2. Oil and Gas	5. Asphalt Roofing
	6. Road Paving with Asphalt
	7. Other
	B. Chemical Industry
	1. Ammonia Production
	2. Nitric Acid Production
	3. Adipic Acid Production
	4. Carbide Production
	5. Other
	C. Metal Production

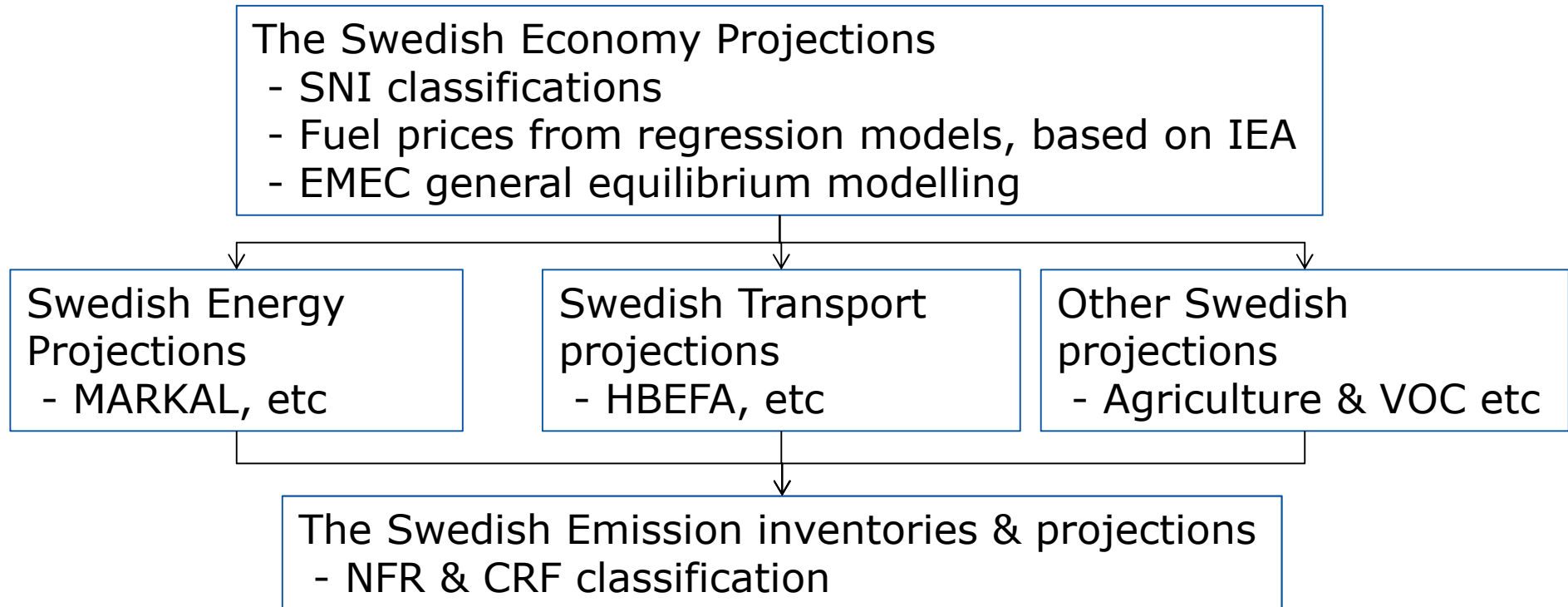


De svenska utsläppen av växthusgaser 2010

Sektor	Mt
El- och värmeproduktion	
Bostäder och lokaler, samt förbränning inom jordbruk, skogsbruk och fiske	
Industrins förbränning	
Industriprocesser	
Inrikes transporter	
Jordbruk	
Avfall	
Övriga sektorer*	
Totala utsläpp**	

- 03210 Fiskodling i saltvatten
- 03220 Fiskodling i sötvatten
- B UTVINNING AV MINERAL**
- 05100 Stenkolsutvinning
- 05200 Brunkolsutvinning
- 06100 Utvinning av råpetroleum
- 06200 Utvinning av naturgas
- 07100 Jämmalmsutvinning
- 07210 Utvinning av uran- och toriummalm
- 07290 Utvinning av annan malm
- 08110 Brytning av natursten, kalk- och gipssten, krita och skiffer
- 08120 Utvinning av sand, grus och berg; utvinning av lera och kaolin
- 08910 Brytning av kemiska mineral
- 08920 Torvutvinning
- 08930 Saltutvinning
- 08990 Diverse övrig utvinning av mineral
- 09100 Stødtjänster till råpetroleum- och naturgasutvinning
- 09900 Stødtjänster till annan utvinning
- C TILLVERKNING**
- 10111 Kreaturslakt
- 10112 Styckning av kött
- 10120 Beredning och hållbarhetsbehandling av fjäderfäkøtt
- 10130 Charkuteri- och annan køttvarutillverkning
- 10200 Beredning och hållbarhetsbehandling av

How to deal with classifications?



VS

The GAINS model

- SNAP sectors, TPES, etc (translates into NFR, CRF)
- Adapted to IEA, PRIMES, TREMOVE, CAPRI & Eurostat

How to deal with aggregations?

- Projections based on modelled activity projections for each class
- BUT Technology Expertise often available per installation (highest level of detail)

How to deal with allocations?

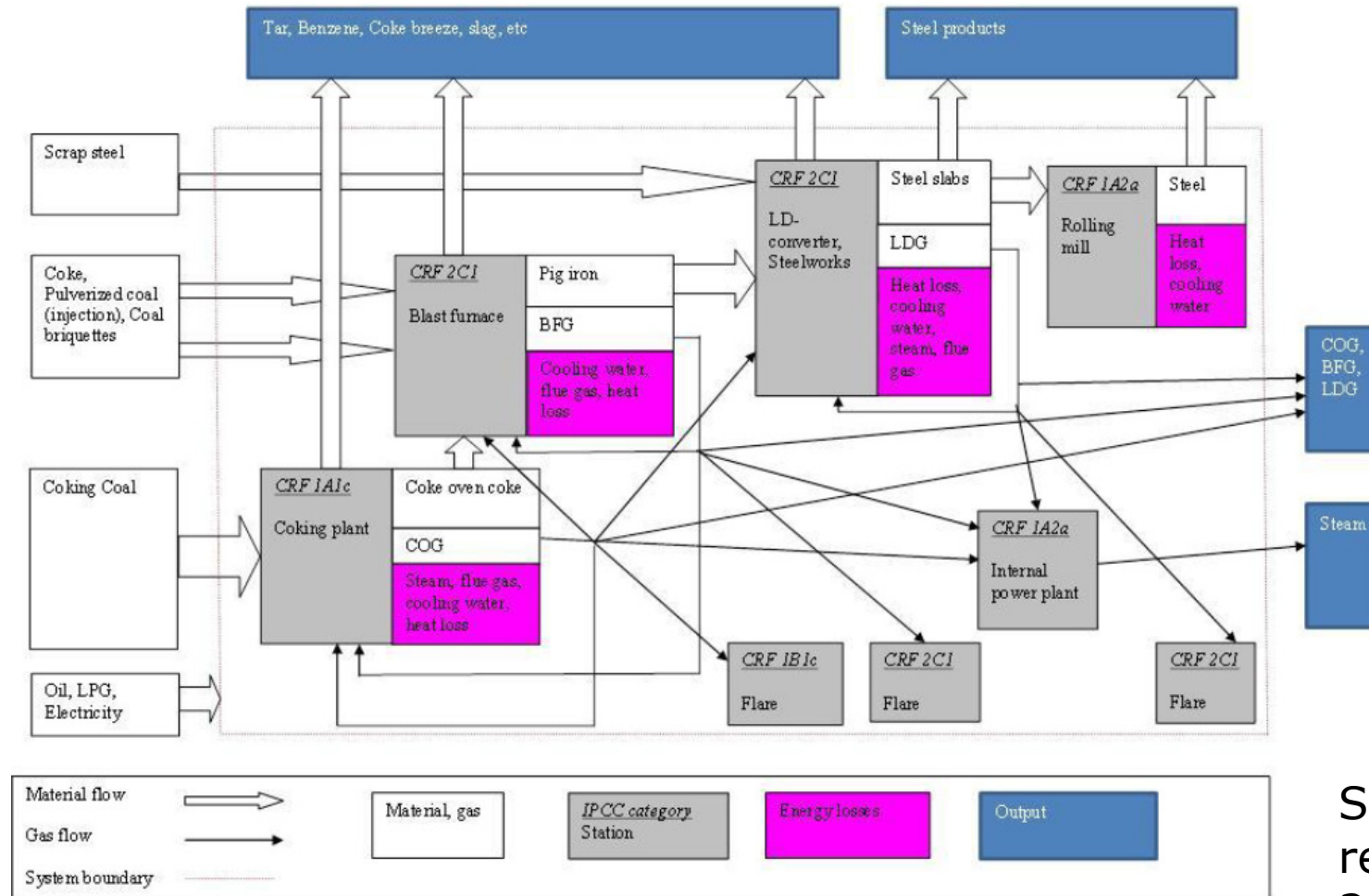


Figure 1. Material and energy flows in SSAB's two integrated iron and steel production plants

SMED
report 97
2011

How to deal with allocations?

- Key concern is the allocation of emissions between energy and process/industry emissions
- Other concerns relate to fuel
 - Waste fuels (renewable shares)
 - Process fuels, coke oven gas etc.
 - Fuel used for non-combustion purposes
- A major concern is the difference in emission factors, partly due to allocation, but also due to technology decay variations

Request for experiences from NIAM

Are you involved in similar exercises?

What are your experiences?

Recommendations?

Thank you

Contact details:

Stefan Åström, stefan.astrom@ivl.se, +4631 725 62 05