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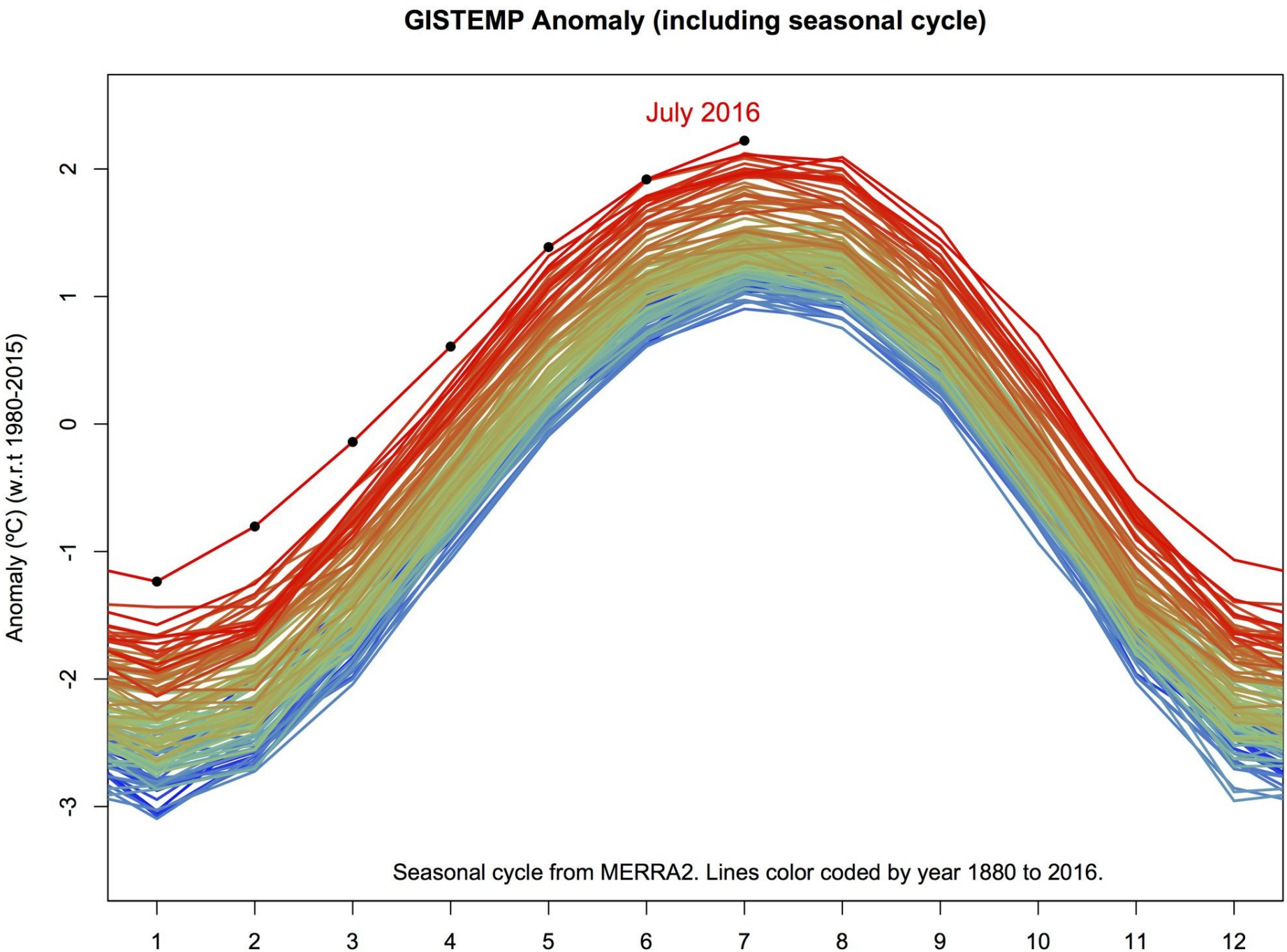
Climate Action Plan Hordaland 2014 - 2030

23rd of August 2016

Sølve Sondbø, Head of Section for Climate and Naturual Resources


GISTEMP Anomaly (including seasonal cycle)
July 2016
Anomaly (ºC) (w.r.t 1980-2015)
2
1
0
-1
-2
-3
Seasonal cycle from MERRA2. Lines color coded by year 1880 to 2016.
1
2
3
4
5
6
7
8
9
10
11
12

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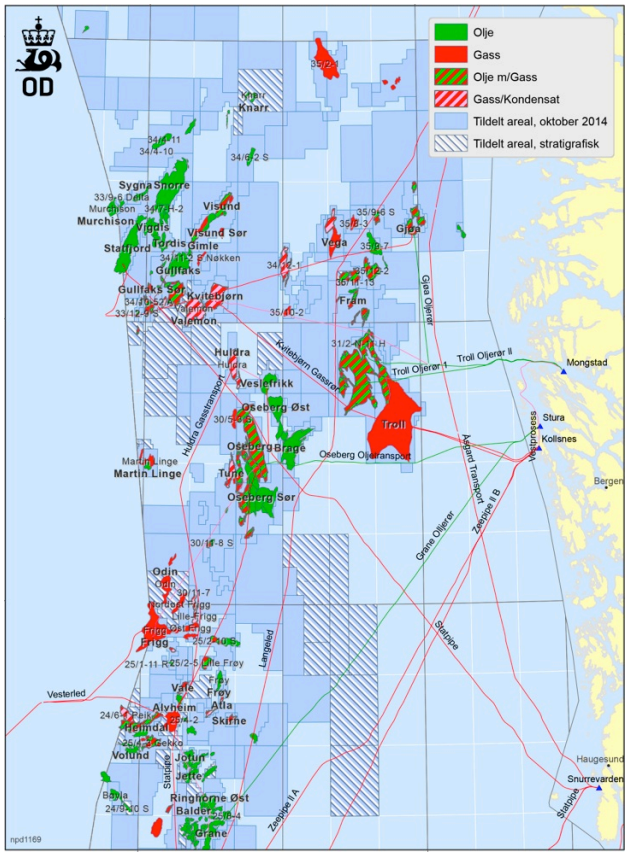
Hordaland's main resource is energy

of great importance to climate



Offshore fields outside Hordaland

Norway is the world's 3. largest exporter of fossile gas and 15. largest exporter of oil (2012)

Hydro electric power plants
99 % of the electricity production is hydro-powered,

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Small hydro electric power plants in Hordaland

Regional plan

≤ 1 MW


Fylkesdelplan for små vasskraftverk i Hordaland 2009-2021

Justert 2013 etter handsaming i Miljøverndepartementet

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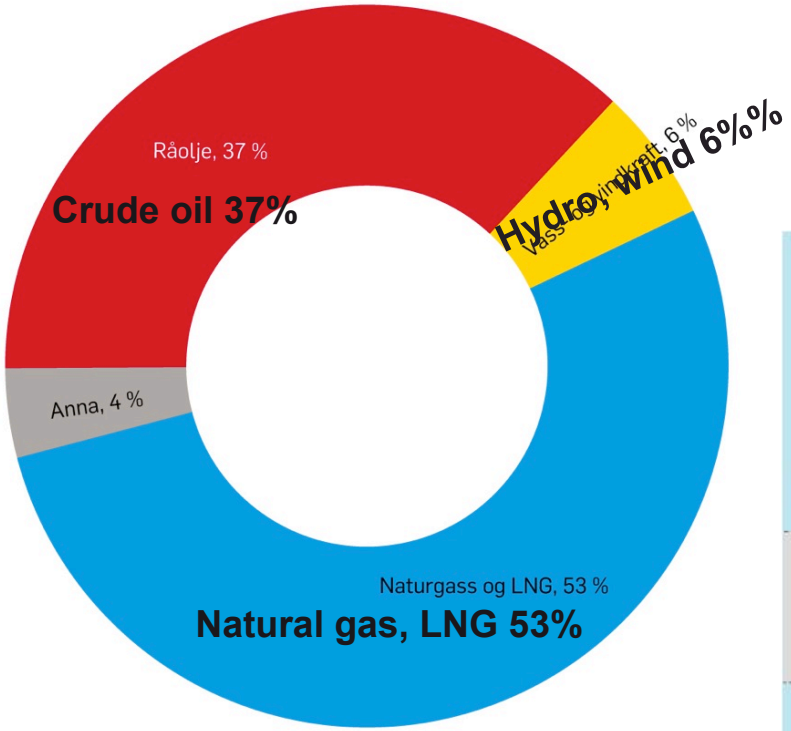
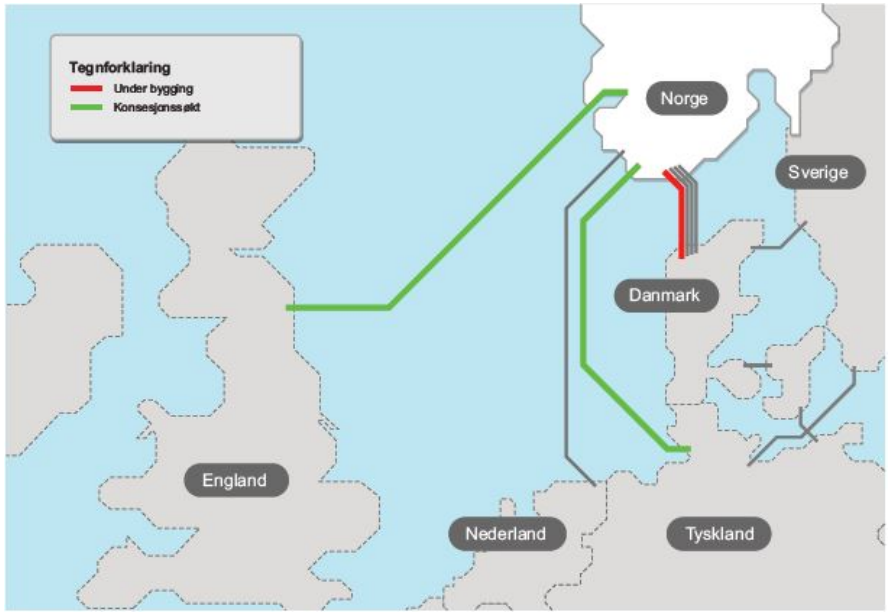
FYLKESKOMMUNE

Energy production and power exchange

Energy production in Hordaland
on shore and off-shore



Norway 2015: 144 TWh,
export 22 TWh, import 7 TWh



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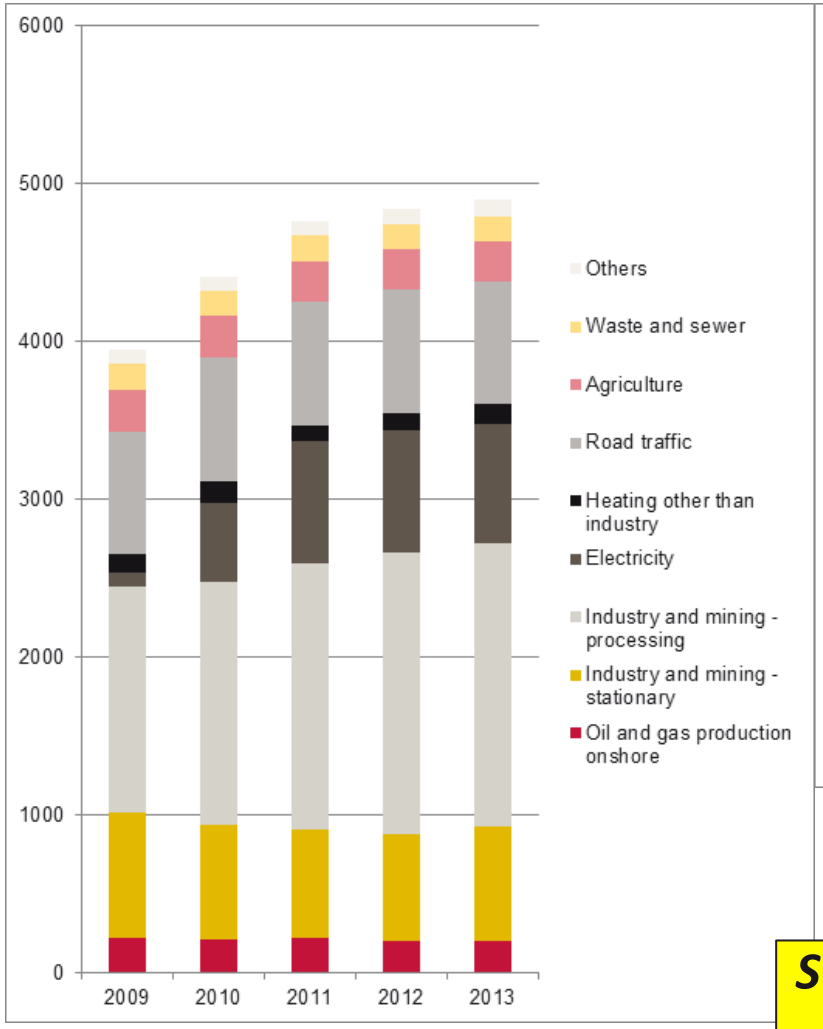
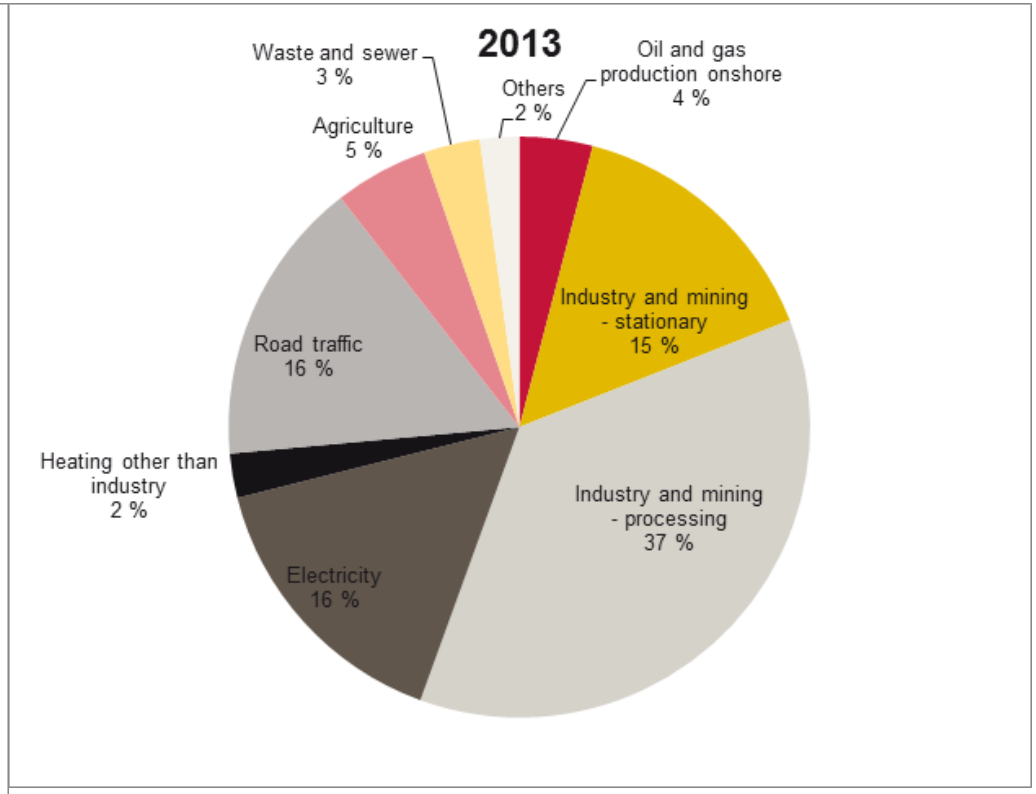
GHG emissions from Hordaland





Statoil Mongstad Oil Refinery and Gas Power Plant
Largest singular Norwegian emitter

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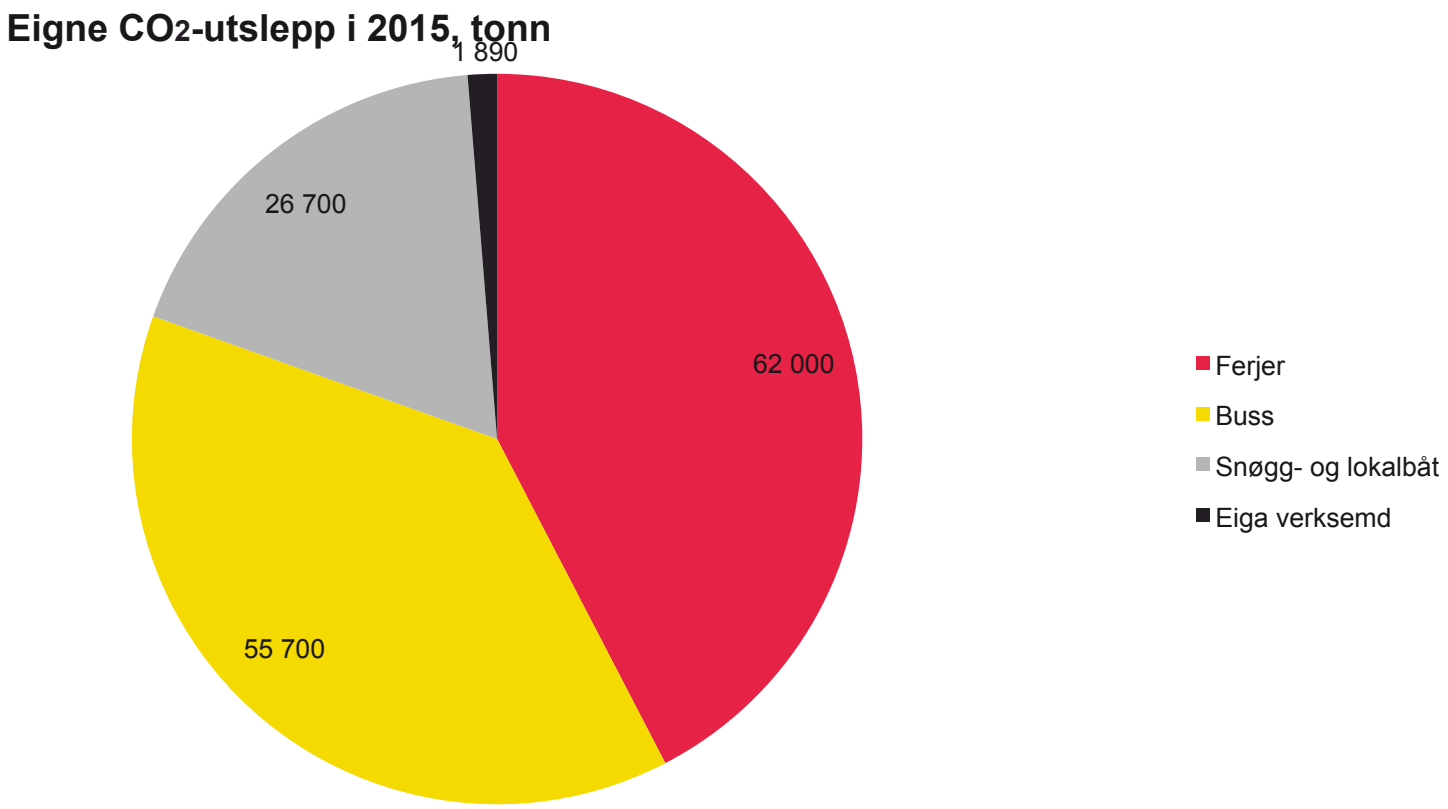
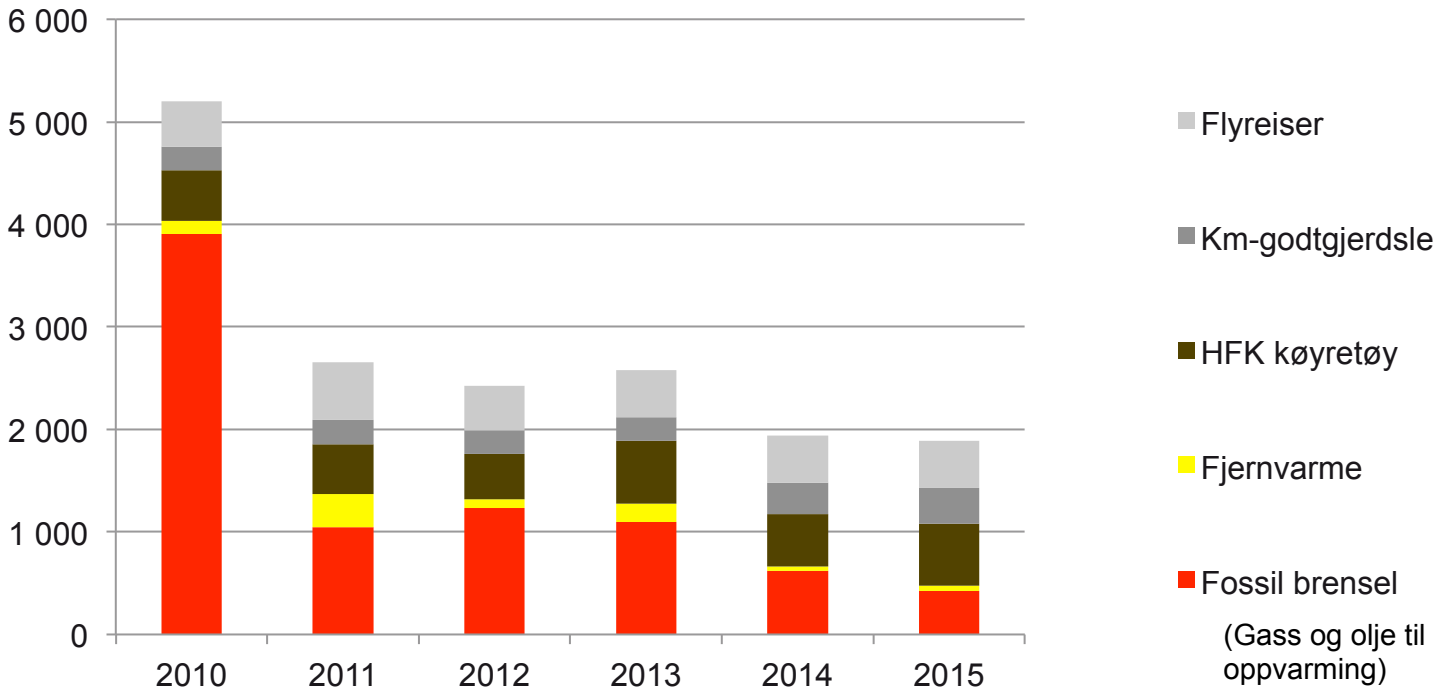
Own emissions – Hordaland county council



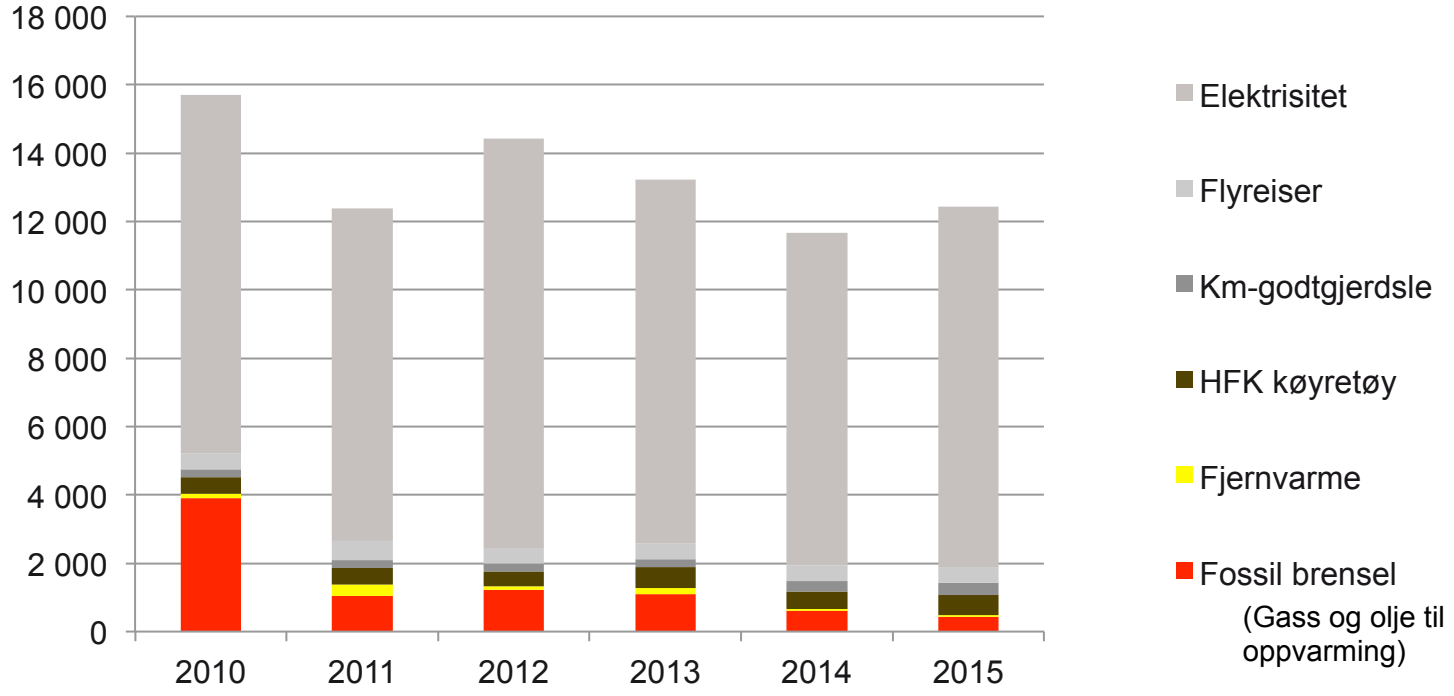
Note: Utsleppa frå bussane er om lag 1/10 av utsleppa frå vegtrafikken

Own emissions from fossil energy use – Hordaland County Council



Utslepp frå eiga verksemd (dei vidaregåande skulane, den offentlege tannhelsetenesta og fylkeskommunal administrasjon) gjekk ned frå 1 940 tonn i 2014 til 1 890 tonn i 2015, ein nedgang på 3 %.

Own emissions HCC, incl. CO_2-factor (nordic mix) for electricity



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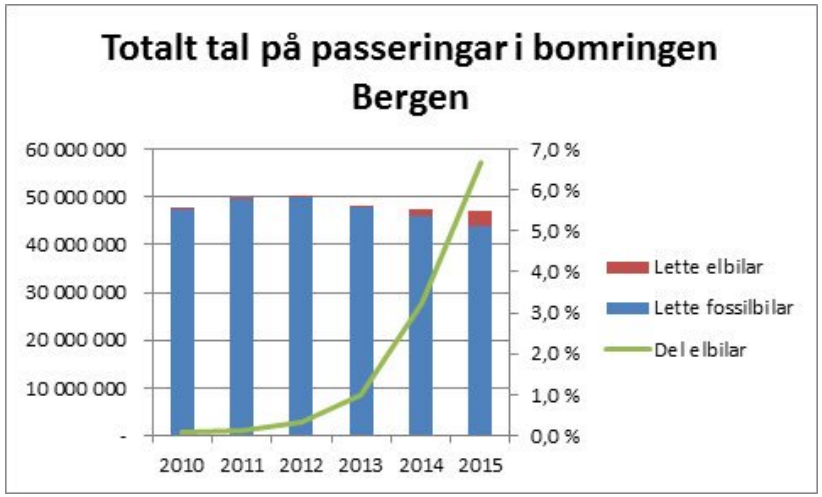
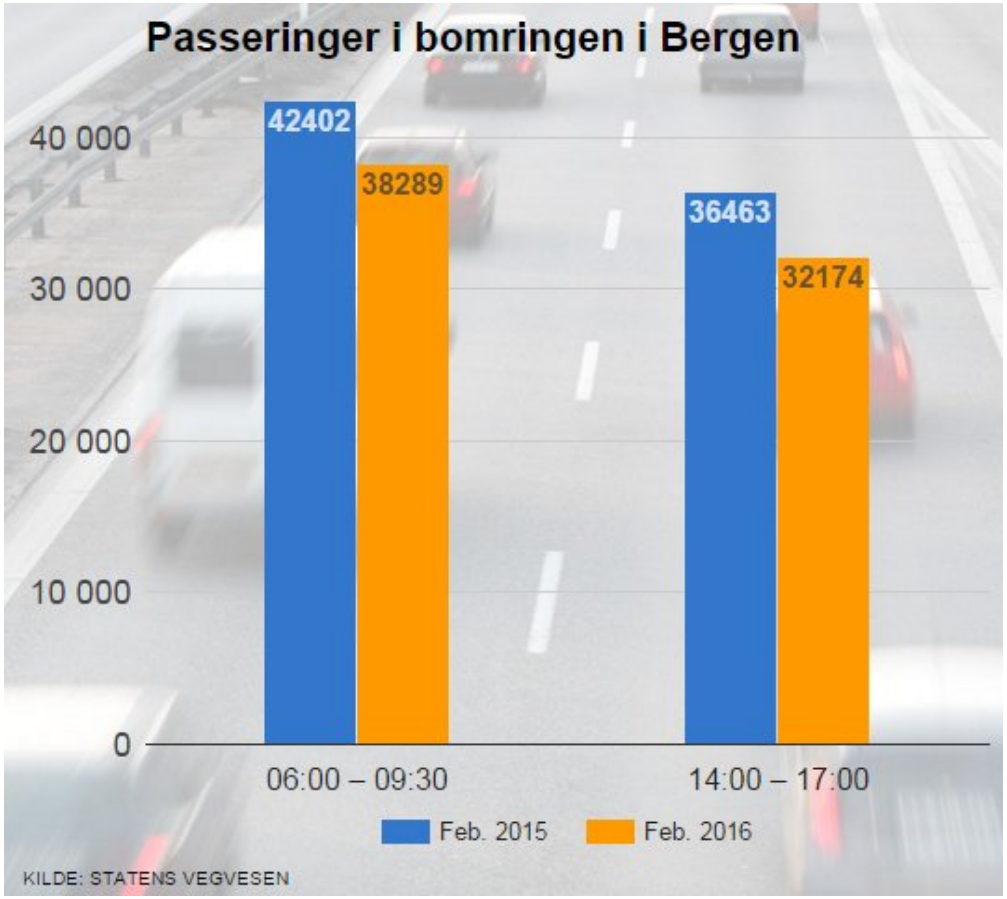
Reduced car trafic in Bergen





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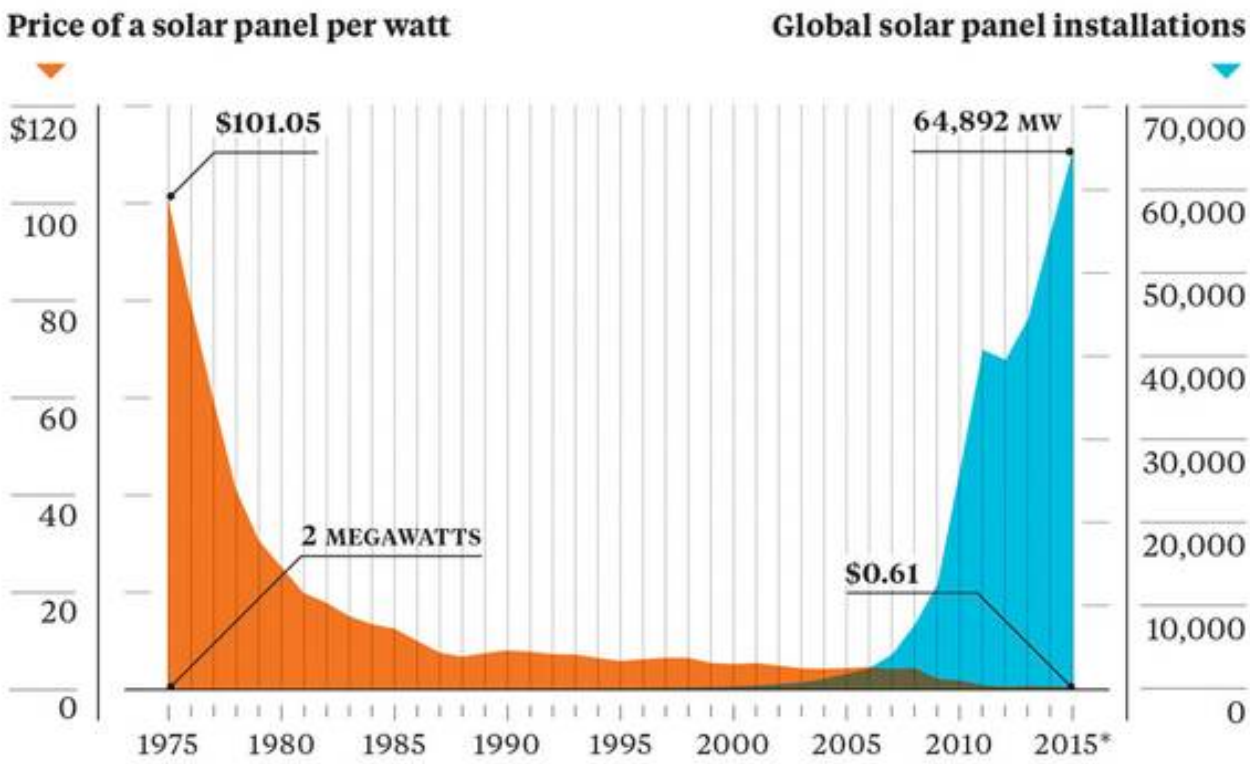
Solar prices going down – lowest now $29.1/MWh (utility scale Chile)



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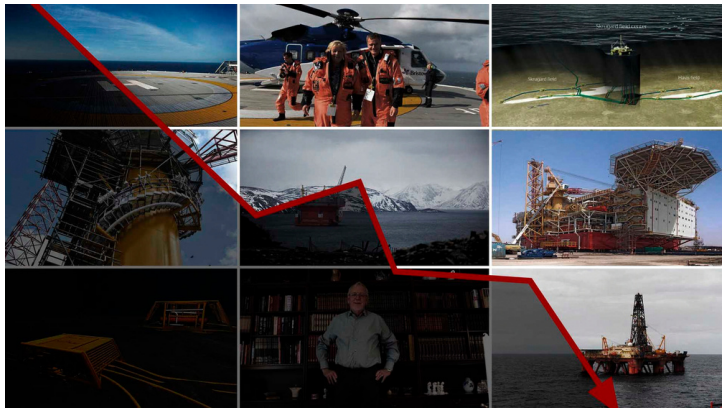
Connection between GNP and CO2 emissions are broken



The ‘Wake-Up’ of climate action

Bergen 14th of September 2005

Flooding and avalanches after heavy rainfall

City of Bergen
Several dead

Started a long process of climate adaptation

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Climate and Energy Plans

Climate Action Plan Hordaland 2010 – 2020 (June 2010)

Climate Action Plan Hordaland 2014 - 2030 (June 2014)

Themes in Climate Plan:

- Vision, goals, possibilities for action
- The climate challenges
- Energy production
- Buildings
- Land use and transport
- Business and technology
- Climate Adaptation

Regional Plan Small Hydro Power Plants 2009-2021 (dec. 2010)

Vision and goals for Hordaland

Hordaland – towards a low emission region

Greenhouse gas emissions:

- **shall be reduced by 22 % by 2020 compared with 1991 (30 % compared with 2007) and 40 % by 2030 compared with 1991.**
- meaning an annual reduction of 3,9 % until 2020, and thereafter an annual reduction of 2,6 % until 2030.

Energy:

- **Energy consumption shall by 2020 be made 20 % more efficient and by 2030 30 % more efficient compared with 2007**.
- meaning an annual reduction of 2,2 % until 2020, and thereafter an annual reduction of 1,3 % until 2030. The energy requirement for all purposes is to be supplied by renewable energy sources as far as possible, without losing biodiversity.

Climate adaptation:

- shall be based on the precautionary principle, continuously more precise basic facts and knowledge about local conditions

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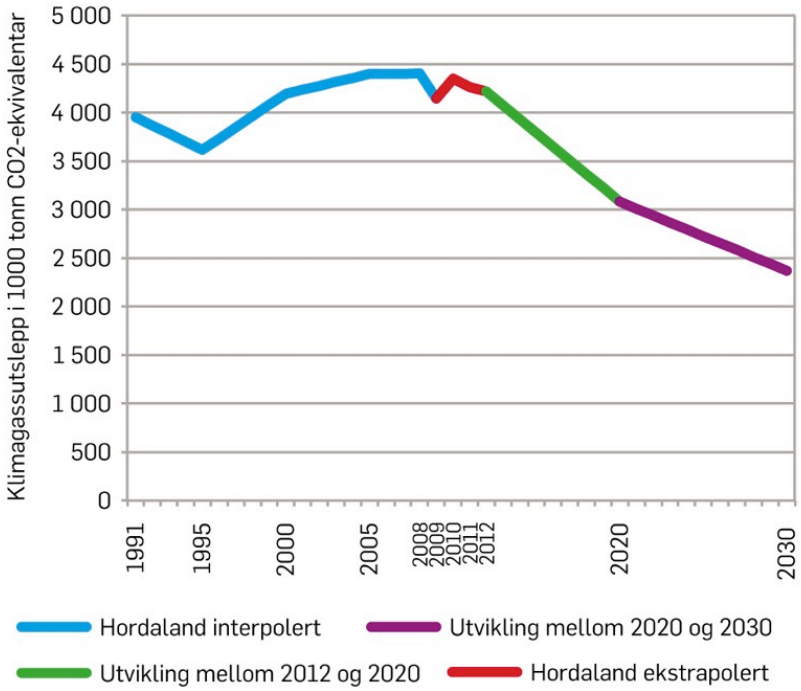
EMISSION OF GREENHOUSE GASES - GOAL

Annual reduction of 3,9 % until 2020.

Thereafter an annual reduction of 2,6 % until 2030



Utviklingsbane for klimagassutslepp Hordaland 2012 – 2030.

Ekskl. utslepp frå utanriks sjøfart og luftfart. inkl. innanriks luftfart, lufttransport-næringa og forsvarets fly.

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ENERGY PRODUCTION AND –DISTRIBUTION - GOALS

Hordaland shall produce and distribute energy to increase the proportion and diversity of renewable energy

STRATEGY A: Improved energy efficiency shall be the first choice

STRATEGY B: Being a pioneer in the production and storage of renewable energy

STRATEGY C: Developing a reliable energy distribution network

BUILDING AND CONSTRUCTION – GOALS

Compared with 2007 levels, energy consumption in buildings shall be reduced by 20% by 2020, and by 25% by 2030.

Emission of greenhouse gases from building and construction shall be reduced by switching to alternative renewable energy sources and climate friendly and environmentally friendly materials.

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LAND USE AND TRANSPORT - GOALS

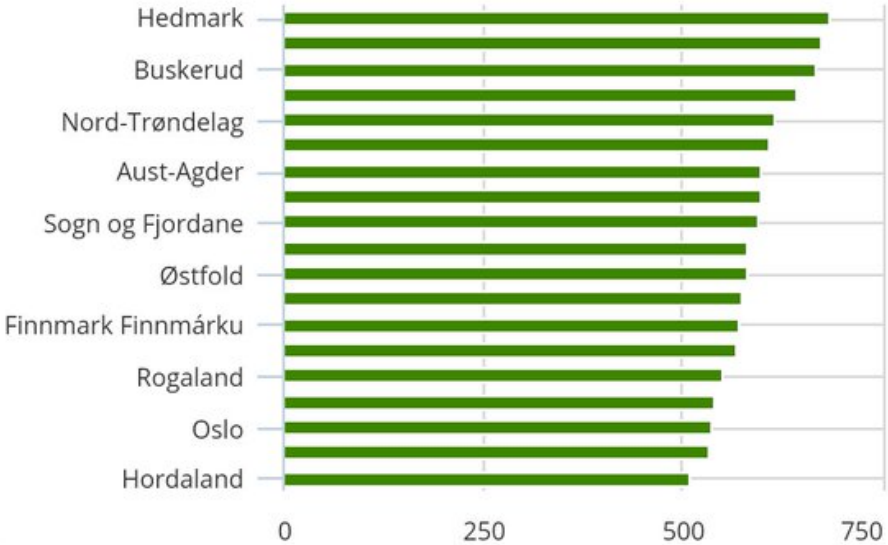
Land Use

The pattern of housing development in Hordaland shall reduce the need for transport, encourage shorter journeys and more environmentally friendly travel, and prevent the destruction of valuable areas.

Transport

Compared with 1991 levels, greenhouse gas emissions from road traffic in Hordaland shall be reduced by 20% by 2020 and by 30% by 2030. Total greenhouse gas emissions from mobile sources shall be 30% lower in 2030 than in 1991.

Figur 3. Antall person- og varebiler per 1 000 innbyggere. 31. desember 2015



Kilde: Motorvognregisteret i Vegdirektoratet.

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LAND USE AND TRANSPORT – 4 STRATEGIES

STRATEGY A: Climate-friendly housing development pattern

STRATEGY B: More walking, cycling and public transport

STRATEGY C: Limiting car traffic

STRATEGY D: Transition to means of transport with lower or zero emissions

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INDUSTRY AND TECHNOLOGY - GOALS

Business and industry in Hordaland shall have the lowest possible greenhouse gas emissions and the lowest possible energy consumption per produced unit. Research and innovation shall help to develop sustainable solutions to the climate challenges.

STRATEGY A: Focus on climate in the regional economic development plan for Hordaland

STRATEGY B: Environmental certification and management

STRATEGY C: Sustainable use of resources

ADAPTATION TO CLIMATE CHANGE - GOALS

Climate adaptation shall be based on the precautionary principle, increasingly precise basic facts and knowledge about local conditions

Strategies

A Holistic and comprehensive planning

B Development of knowledge

C Better handling of surface water

D Cooperation on climate adaptation

Annual Climate Action Programmes

2010-2011	2012	2013	2014	2015	2016
78 measures	63 measures	55 measures	36 measures	28 measures	34 measures

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Annual Climate Action Programme - Political Decision

Climate budget

2012: 2,945 mill NOK = 396 320 euro

2013: 2,989 mill NOK = 396 830 euro

2014: 3,034 mill NOK = 364 488 euro (per 24th of June 2014)

+ 5,000 mill NOK = 600 000 euro, earmarked Infrastructure electrical cars

2015: 3,880 mill NOK = 485 000 euro

+ 5,5 mill NOK = 687 500 euro, earmarked for bying el-cars in own adm.

2016: 3,5 mill NOK = 437 000 euro (proposal by Chief Executive Officer)

+ 2 mill. NOK = 240 000 euro, no earmarking

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Measures and budget 2015

	Measure	NOK
TEMA 1 Samarbeid		
1.1	Klimaråd Hordaland	30 000
1.2	Klimapartnar	250 000
1.3	Fylkespolitikarar som klimaambassadørar	0
1.4	**Environmental certification of HCC**	**250 000**
1.5	Miljøsertifisering av kommunane i Hordaland	200 000
1.6	Frokostmøte	25 000
1.7	Ungdom og klimaplan for Hordaland	100 000
	Nye tiltak på temaet	200 000
TEMA 3 Energi		
3.1	Målestasjon for solinnstråling	100 000
TEMA 4 Bygningar		
4.1	Miljøstandard for bygg i Hordaland fylkeskommune	50 000
4.2	Energioppfølging kommunale bygg	150 000
4.3	Klimakompetanse på bygg i Høgskolen i Bergen	0
4.4	Klimavenleg Byggfag i VGS	30 000
4.5	Tresatsinga i Hordaland	50 000
TEMA 5 Areal og transport		
5.1	Sykkel-VM kvar dag	100 000
5.2	Prøvekjøre	100 000
5.3	Sikker og sentral sykkelparkering ved kollektivterminalar	50 000
5.4	Mobilitetsplan for Hordaland fylkeskommune	100 000
5.5	Attraktive kollektivterminalar	100 000

	Measure	NOK
5.6	Klimavenleg drivstoff i kollektivtransport og drosjer	0
5.7	Miljøvenleg framdriftsteknologi av ferjer og snøggbåtar	0
5.8	Differensierte bompengar	0
5.9	Landstraum, miljøplan og differensierte hamneavgifter i Bergen hamn	500 000
5.10	Nullutslepps-køyretøy i Hordaland fylkeskommune	0
5.11	**Infrastructure for electrical cars**	**3 941 000**
5.12	Jordvern ved utbyggingar (inklusive fylkeskommunale vegprosjekt)	200 000
5.13	Pådrivar for redusert reisetid med tog Bergen-Oslo	0
TEMA 6 Næring og teknologi		
6.1	Klimagassrekneskap på gardsnivå	100 000
6.2	Gjødsellager	150 000
6.3	LED-teknologi i fylkeskommunal regi	0
TEMA 7 Klimatilpassing		
7.1	**Climate Service Hordaland – HORDAKLIM**	**467 000**
7.2	Klimatilpassing i landbruket	50 000
Ikkje fordelt per mars 2015		700 029
Budsjett 2015		3 880 000
Overført frå 2014		4 113 029
Samla sum til rådvelde 2015		7 993 029

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1.4. Environmental certification of HCC 2009 - 2012

Environmental themes:

- Env. focus, report, managem.
- HES – Internal control
- Energy
- Transport
- Purchase, use of materials
- Waste and emissions
- Esthetics

(Miljøfyrtårn 60 – 85 criteria to meet, depending on industry)

Eco-Lighthouse®

General environmental certification, Norwegian

- All themes, practical
- Comply with Norwegian HES standards for schools
- Universal design
- Recertification every 3. year

eco-lighthouse.org/

Eco-School

Pedagogical environmental certification, international

- One theme each year
- No buildings criteria
- Recertification annually

eco-schools.org.uk/

fee.no/

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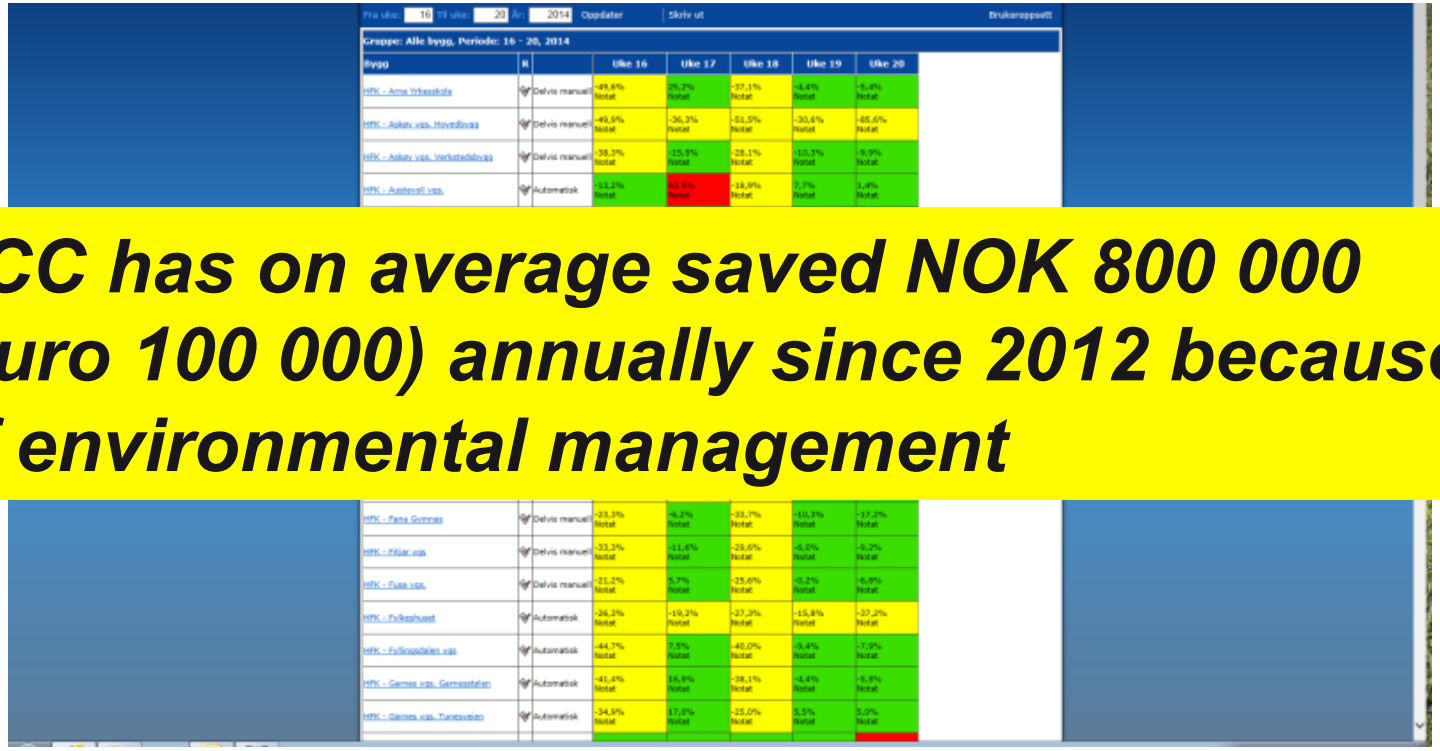
Energy Management System implemented 2012 - 2013
Considerable yearly investments in buildings

Weekly energy report from all buildings



HCC has on average saved NOK 800 000 (euro 100 000) annually since 2012 because of environmental management

Weeks →

Green = Better
Yellow = Aligned with prediction range
Red = Worse

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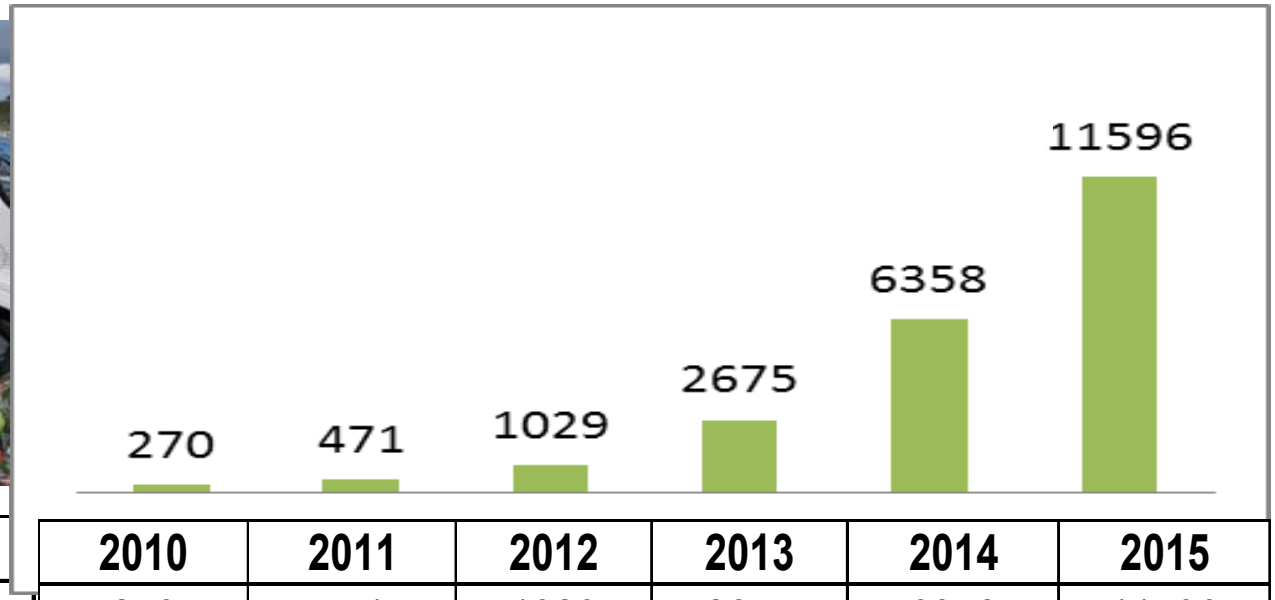
BEVs in Hordaland County



Year	2010	2011	2012	2013	2014	2015
BEVs	270	471	1029	2675	6358	11596
Growth		74 %	118 %	160 %	138 %	82 %
% of car stock	0,1 %	0,2 %	0,5 %	1,2 %	2,8 %	5,0 %

From «Developing county» in 2010
to be the «World champion» from 2016:

- 33 % of new cars where BEVs in 2015
- Passed Oslo in EV-density per capita
- 2,8 % of cars are BEVs at end of 2014, 5,0 % in 2015.

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Opening of the world's largest rapid charging station for el-cars
January 2015

Co-operation → **Results**

www.hordal
and.no/

7.1. Climate services in Hordaland - HORDAKLIM

The current climate models provide data on such a large spatial scale that they are irrelevant to Hordaland county.

HORDAKLIM

Partners: HCC, UNI Research-Bjerknes, City of Bergen + 3 rural municipalities, TRYG Insurance,

Objective

- Downscale climate models and produce customised climate data for municipalities in Hordaland county. The municipalities are to tell researchers what specific problems they are facing and where their need for knowledge is greatest.

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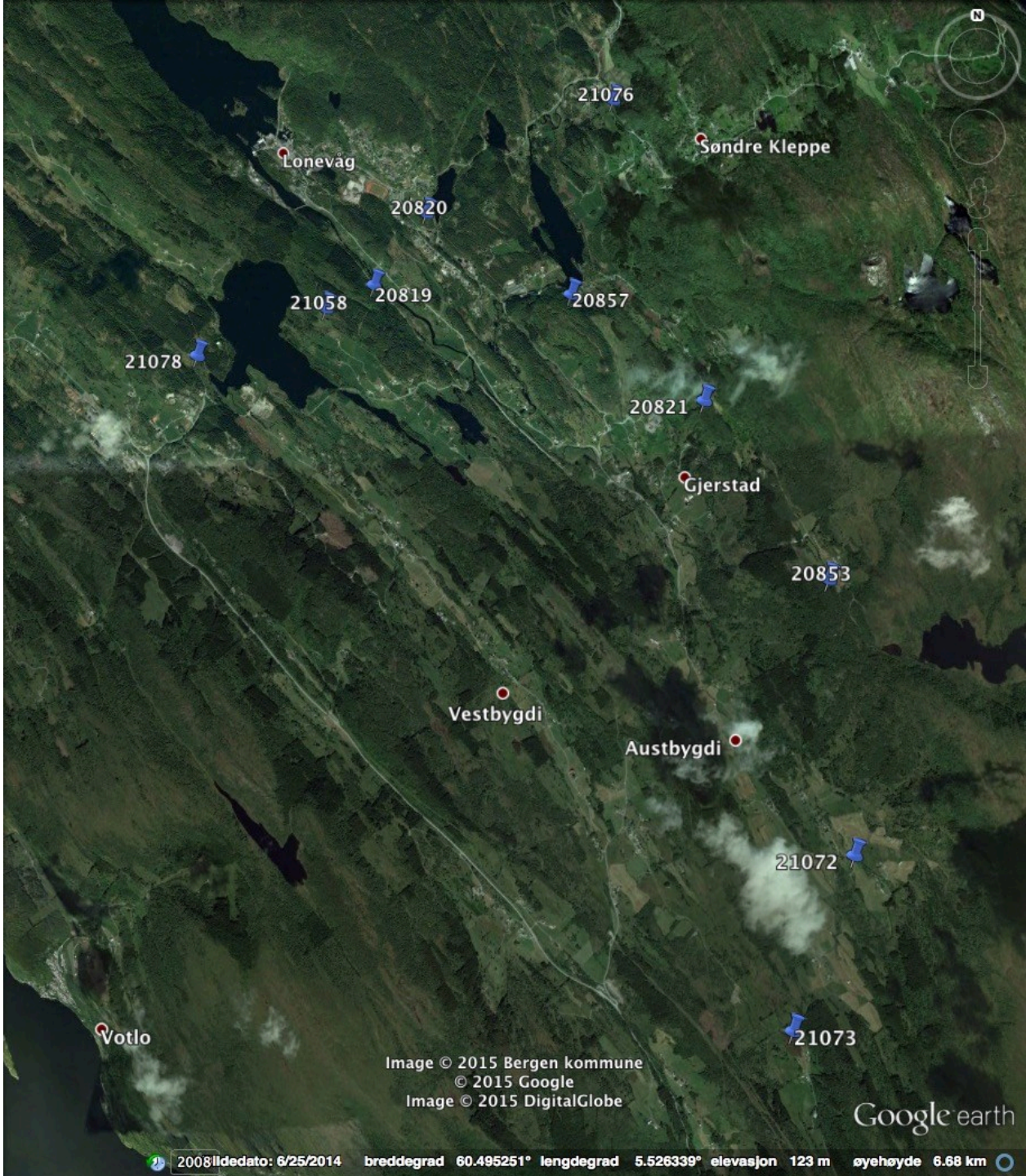
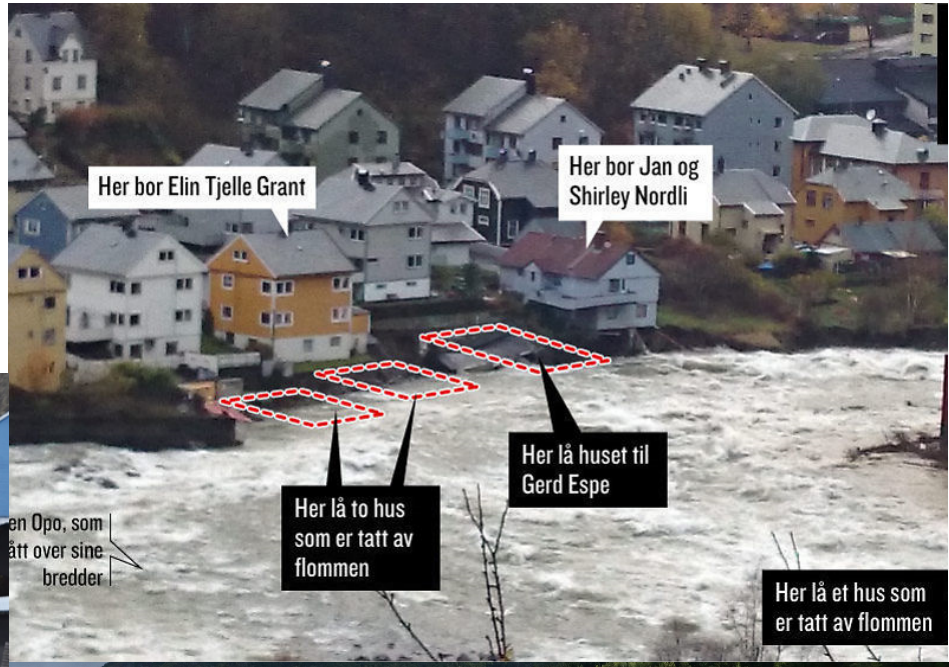
HORDAKLIM

10 points of measuring precipitation in the municipality of Osterøy, Hordaland



Flooding after extreme rain fall 28.-29.of October 2014 Odda, Hordaland

Urgent need for more knowledge on vulnerable areas



Cooperation as a central strategy

The Climate Council of Hordaland
Political Leaders of Hordaland, local and regional level

KLIMA PARTNERE HORDALAND

Climate Partners Hordaland
Public and private partners

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«Where there are emissions, there is also a market»

www.hordaland.no