

Framtidens Miljøutfordringer

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Miljøringen 21.11.2013

Miljøgifter holder grepet

- Tildekking, opprydning. Viktig.
- REACH viktig skritt, men utilstrekkelig for å håndtere den enorme mengden kjemikalier i bruk: **Cocktaileffekt.**
- Sprøytemidler, tekstiler og matinnpakning (bisfenolA).

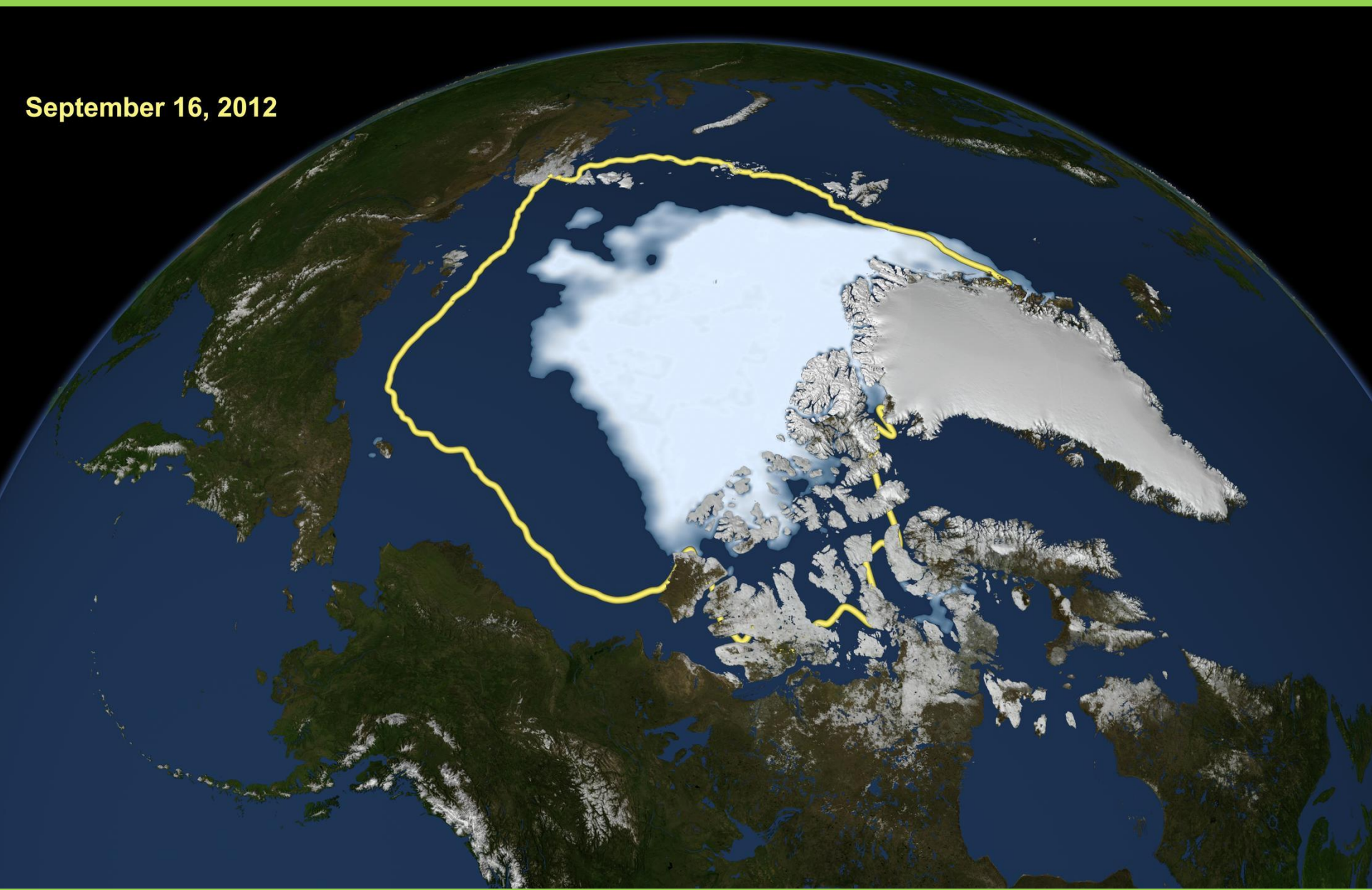


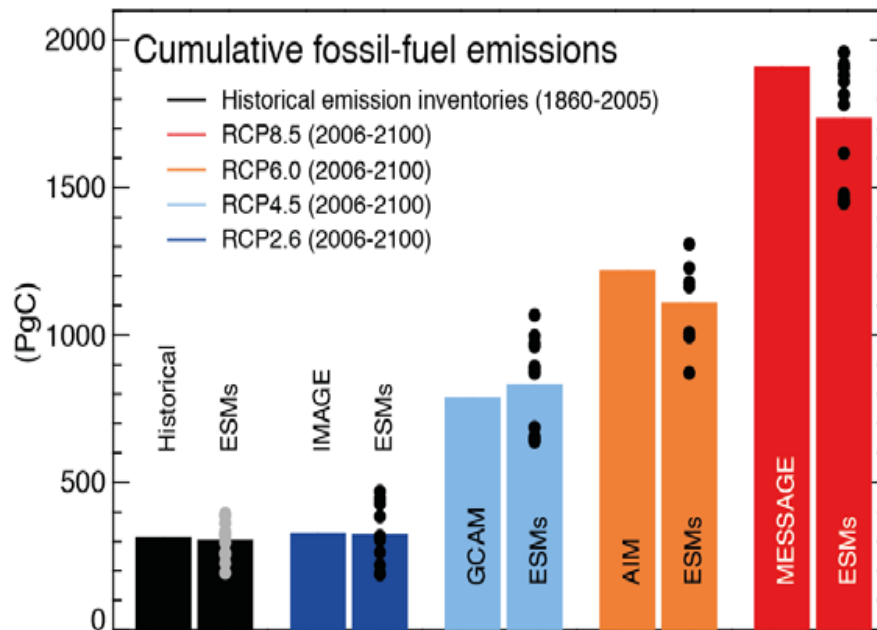
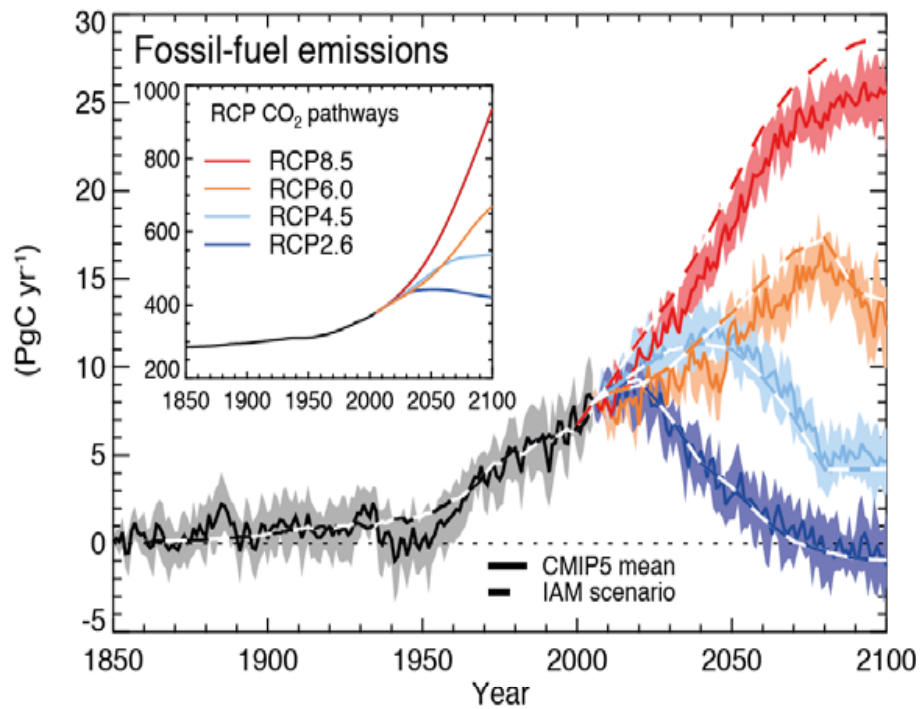
“When I look at this data, the trend is perfectly in line with a temperature increase of 6 degrees Celsius, which would have devastating consequences for the planet”

- Fatih Birol, IEA



September 16, 2012





How Many Gigatons of Carbon Dioxide...?

have we released to date?

1020 Gt

added 1850-2000

2 degrees

380

added since 2000

more can we "safely" release*?

500

our "carbon budget"

500 budget

are left to release?

745

in fossil fuel reserves of the top coal, oil & gas companies

+ 2,050

in estimated remaining fossil fuel reserves

2795 =

5* more

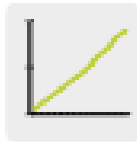
CURRENT HUMAN EMISSIONS PER YEAR

31

gigatons

* before 2050 and still have a chance of staying below 2°C warming

TIME BEFORE WE BREAK OUR "CARBON BUDGET"



13 YEARS

average yearly emissions increase: 3%

For å ha 75 prosent sjanse til å oppnå togradersmålet kan vi ikke slippe ut mer enn 1000 milliarder tonn CO₂ mellom 2000 og 2050.

I de første 13 årene har vi sluppet ut 40 prosent av vårt karbonbudsjett

Vi har derfor bare 60 prosent igjen, som vi kan forbruke de neste 37 årene

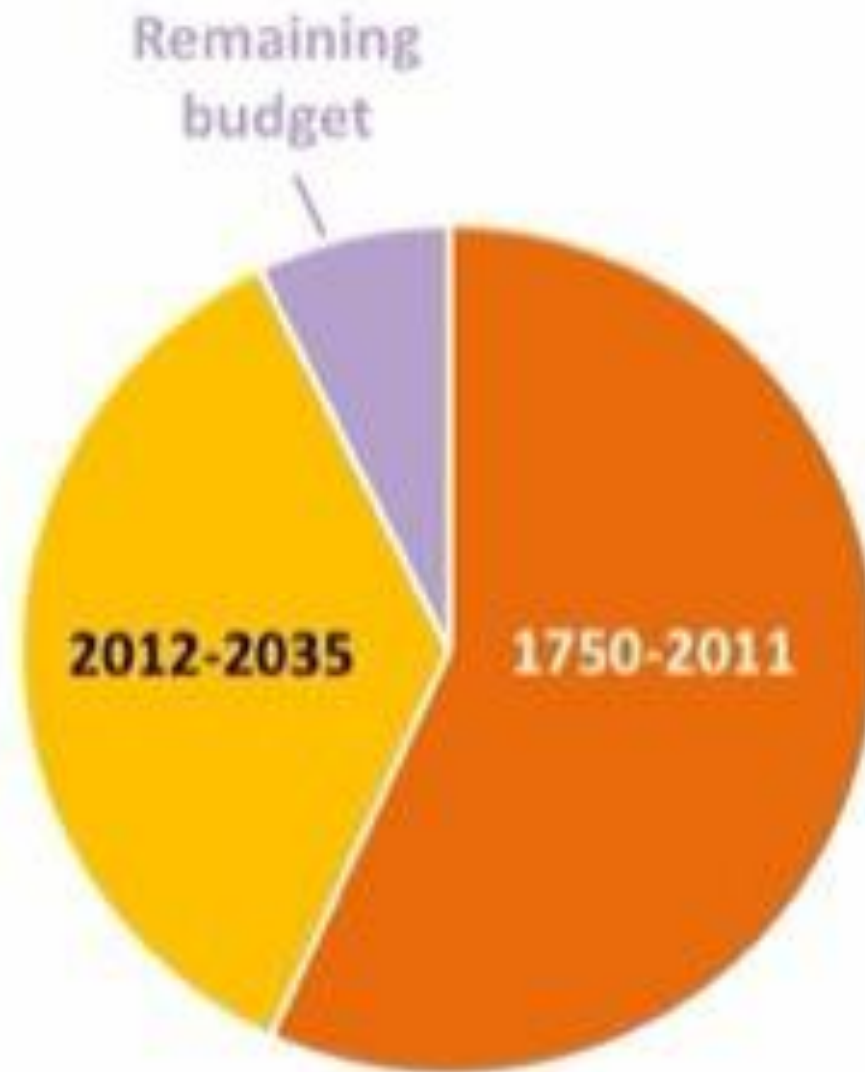
Hvis vi fortsetter å forbruke det «tillatte» utslipp med dagens hastighet, vil vi ha brukt opp alt i 2028. Etter det må i så fall hele verdensøkonomien bli karbonnøytral.

Hvert CO₂-symbol representerer 10 milliarder tonn CO₂.

Delen av bildet som er dekket av røyk, representerer det vi har brukt opp bare siden 2000.

Figur 2 Overforbruk i karbonbudsjettet. Kilde: Australian Climate Commission.

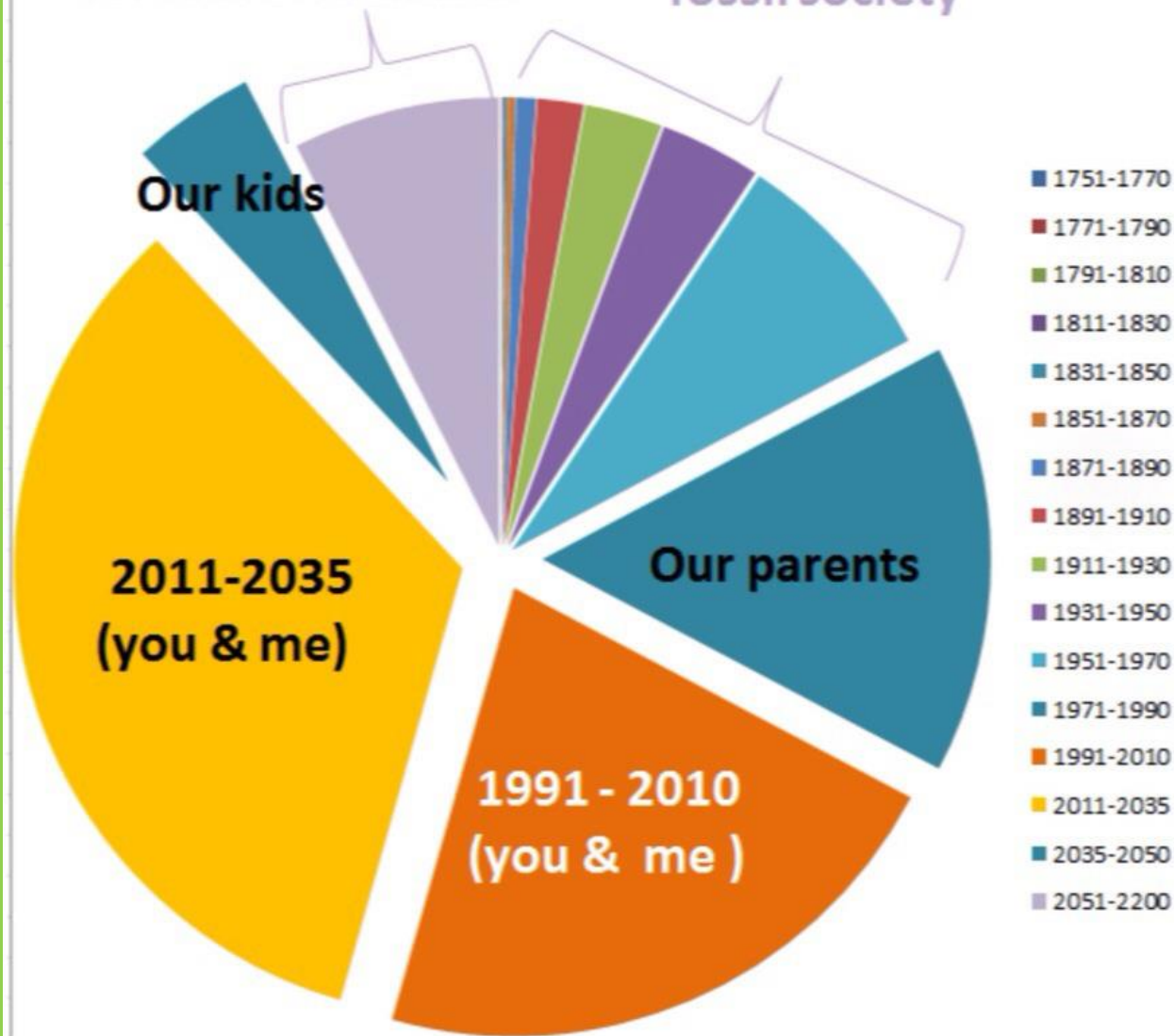
'Carbon budget' for 2 °C



'Carbon Budget' per generation for 2°C

Remaining budget
for rest of mankind

Used to create
fossil society



Emission budget for oil and gas depends heavily on coal budget

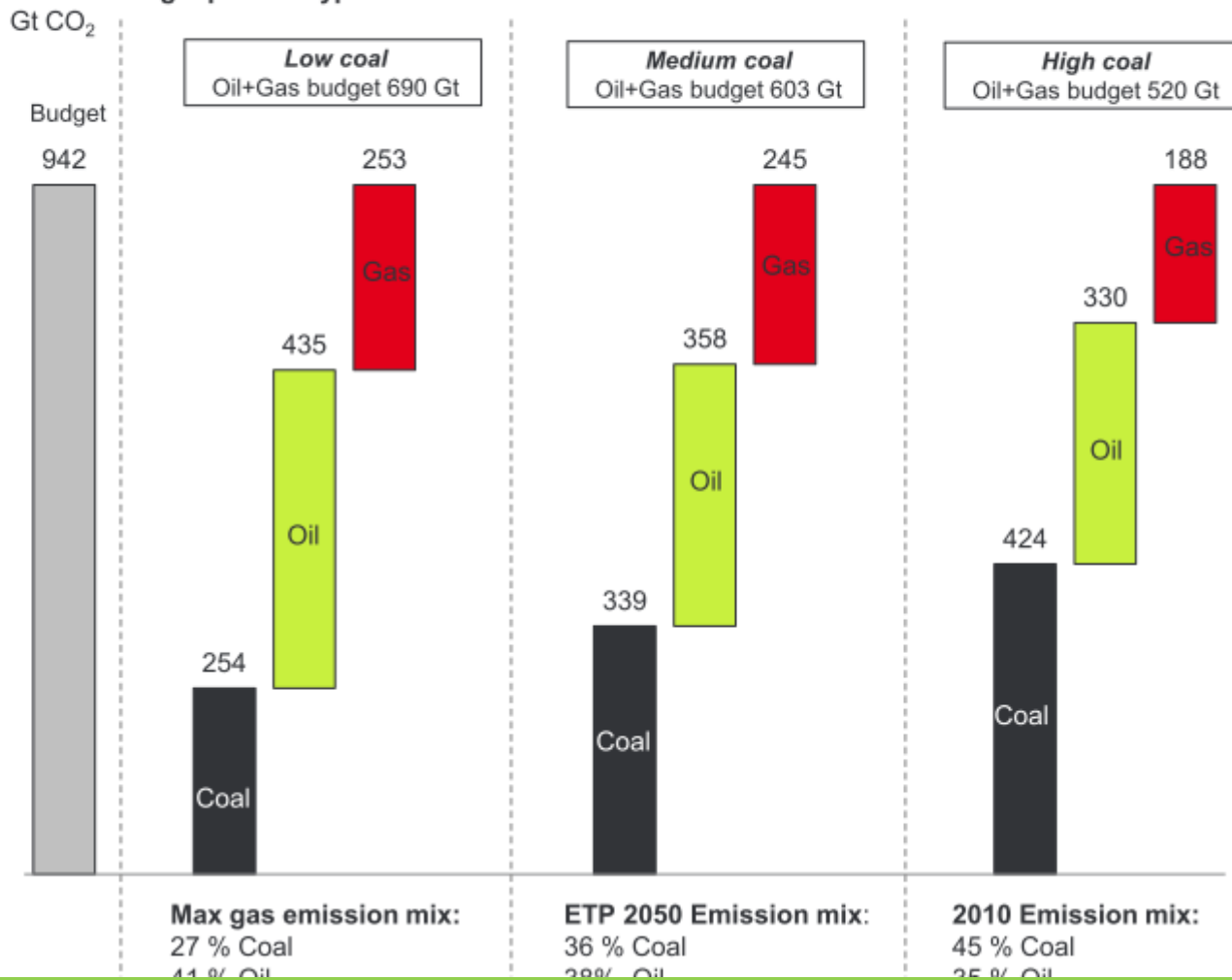
Right chart compares the carbon budget per fuel type for three scenarios for CO₂ emission mix.

The «Medium coal» scenario corresponds to the average emission mix under 2DS and is the case discussed in this study.

The «High coal» scenario corresponds to the current emission mix, while the «Low coal scenario» corresponds to producing all available gas combined with a reduction of coal's emission fraction to 27%.

The carbon budget of hydrocarbons is 30% higher in the low coal case than the high coal case, showing that coal's share of emission mix will heavily impact emission budget of hydrocarbons towards 2050.

Carbon budget per fuel type for three coal-fraction scenarios



Most stranded undiscovered resources under 2DS are forecasted to be approved for development before 2030 under an unlimited price scenario.

The chart shows which yet to be found areas that are likely to not be developed given the 2DS scenario.

A significant part of stranded undiscovered resources might be approved for development before 2020 in an unrestricted price scenario, implying that exploration and development decisions during the next ten years will impact

The area listed in the right chart will likely see break-even prices for new developments above 70-80 USD/bbl. Taking an assumed 15 USD/bbl in contingency into account, these areas will probably be stranded in a 85-90 USD/bbl oil price regime.

CO₂ emissions from stranded resources yet to be found
Gt

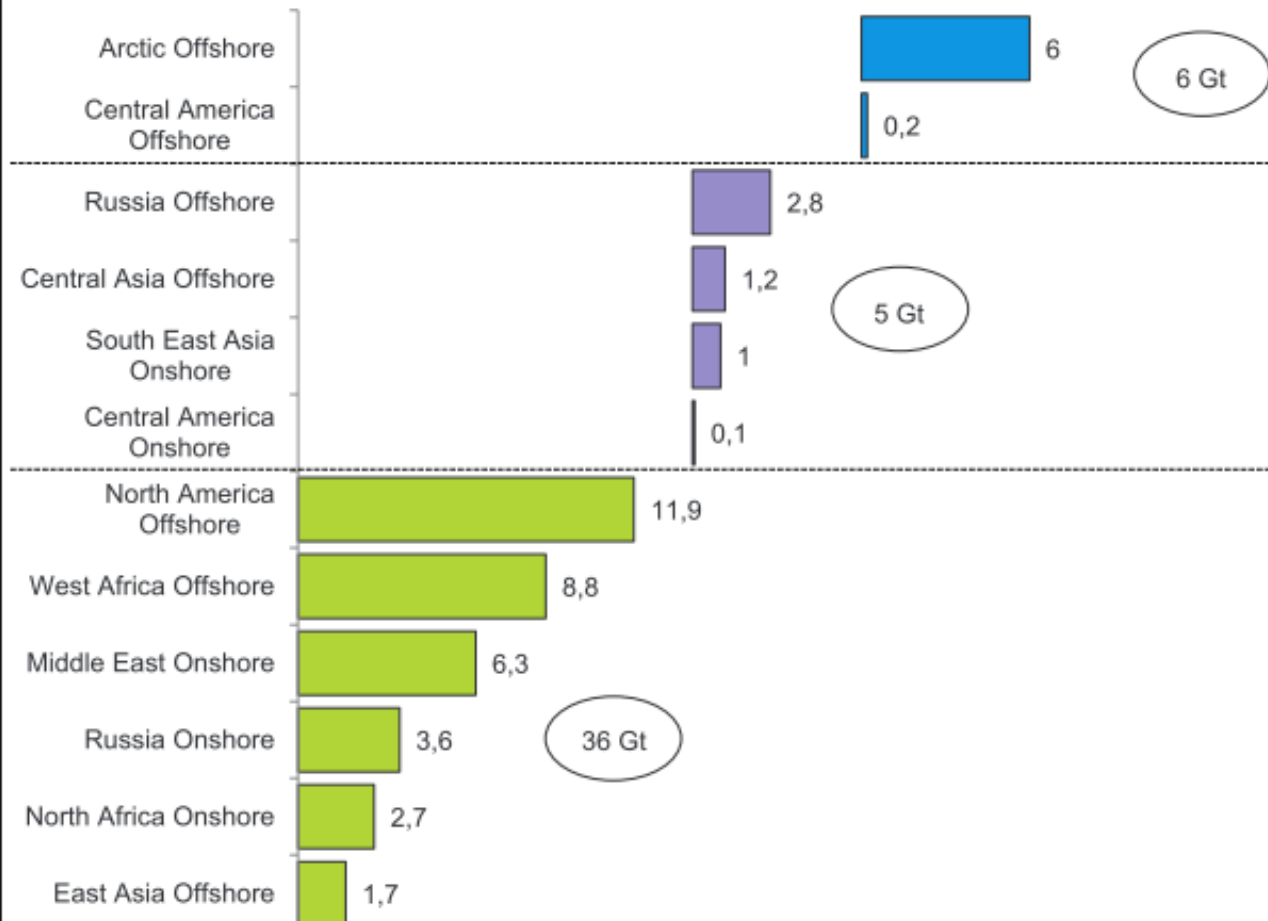


Table 12. All 81 investor- & state-owned carbon & cement entities and cumulative emissions

Entity	Products Flaring, own fuel, Fugitive (fuel, cement) vented CO ₂ methane			Total emissions GtCO ₂ e	Percent of global 1751-2010
	GtCO ₂	GtCO ₂	GtCO ₂ e		
1. ChevronTexaco, USA	46.28	1.48	3.34	51.10	3.52%
2. ExxonMobil, USA	41.60	1.54	3.53	46.67	3.21%
3. Saudi Aramco, Saudi Arabia	42.82	1.03	2.18	46.03	3.17%
4. BP, UK	32.51	1.02	2.31	35.84	2.47%
5. Gazprom, Russian Federation	25.09	2.13	4.92	32.14	2.22%
6. Royal Dutch Shell, The Netherlands	27.57	0.99	2.19	30.75	2.12%
7. National Iranian Oil Company	26.71	0.76	1.62	29.08	2.01%
8. Pemex, Mexico	18.14	0.59	1.29	20.03	1.38%
9. British Coal Corporation, UK *	17.74	0.00	1.50	19.25	1.33%
10. ConocoPhillips, USA	14.70	0.67	1.50	16.87	1.16%
11. Petroleos de Venezuela	14.77	0.44	0.95	16.16	1.11%
12. Coal India	14.28	0.00	1.21	15.49	1.07%
13. Peabody Energy, USA	11.46	0.00	0.97	12.43	0.86%
14. Total, France	10.79	0.35	0.77	11.91	0.82%
15. PetroChina, China	9.67	0.28	0.61	10.56	0.73%
16. Kuwait Petroleum Corp.	9.80	0.23	0.48	10.50	0.72%
17. Abu Dhabi NOC, UAE	8.84	0.26	0.57	9.67	0.67%
18. Sonatrach, Algeria	7.96	0.40	0.91	9.26	0.64%
19. Consol Energy, Inc., USA	8.38	0.00	0.71	9.10	0.63%
20. BHP Billiton, Australia	6.97	0.06	0.58	7.61	0.52%
21. Anglo American, UK	6.68	0.00	0.57	7.24	0.50%
22. Iraq National Oil Company	6.70	0.14	0.29	7.14	0.49%
23. RWE, Germany	6.31	0.00	0.54	6.84	0.47%
24. Pertamina, Indonesia	6.16	0.21	0.46	6.83	0.47%
25. Libya National Oil Corp.	6.22	0.15	0.32	6.69	0.46%
26. Nigerian National Petroleum	6.06	0.15	0.33	6.54	0.45%
27. Petrobras, Brazil	5.49	0.16	0.34	5.99	0.41%
28. ENI, Italy	5.20	0.24	0.54	5.97	0.41%
29. Rio Tinto, UK	5.50	0.00	0.47	5.96	0.41%
30. Arch Coal, USA	5.43	0.00	0.46	5.89	0.41%
31. Petronas, Malaysia	4.56	0.22	0.50	5.27	0.36%
32. Anadarko, USA	4.56	0.18	0.46	5.20	0.36%
33. Occidental, USA	4.63	0.09	0.34	5.06	0.35%
34. Statoil, Norway	3.89	0.15	0.33	4.37	0.30%
35. Oil & Gas Corporation, India	3.71	0.14	0.31	4.16	0.29%
36. Lukoil, Russian Federation	3.60	0.09	0.19	3.87	0.27%
37. Sasol, South Africa	3.24	0.00	0.27	3.52	0.24%
38. Qatar Petroleum	3.00	0.13	0.29	3.41	0.24%
39. Repsol, Spain	2.96	0.13	0.29	3.38	0.23%
40. Marathon, USA	2.64	0.11	0.24	2.99	0.21%
41. Yukos, Russian Federation *	2.69	0.06	0.12	2.86	0.20%
42. Egyptian General Petroleum	2.48	0.09	0.20	2.77	0.19%
43. Rosneft, Russian Federation	2.50	0.07	0.15	2.72	0.19%
44. Petroleum Development Oman	2.40	0.08	0.18	2.66	0.18%
45. Hess, USA	2.09	0.08	0.19	2.36	0.16%
46. Xstrata, Switzerland	2.05	0.00	0.17	2.22	0.15%
47. Massey Energy, USA	2.03	0.00	0.17	2.20	0.15%
48. Alpha Natural Resources, USA	1.98	0.00	0.17	2.15	0.15%
49. Singareni Collieries, India	1.74	0.00	0.15	1.88	0.13%



Godafoss

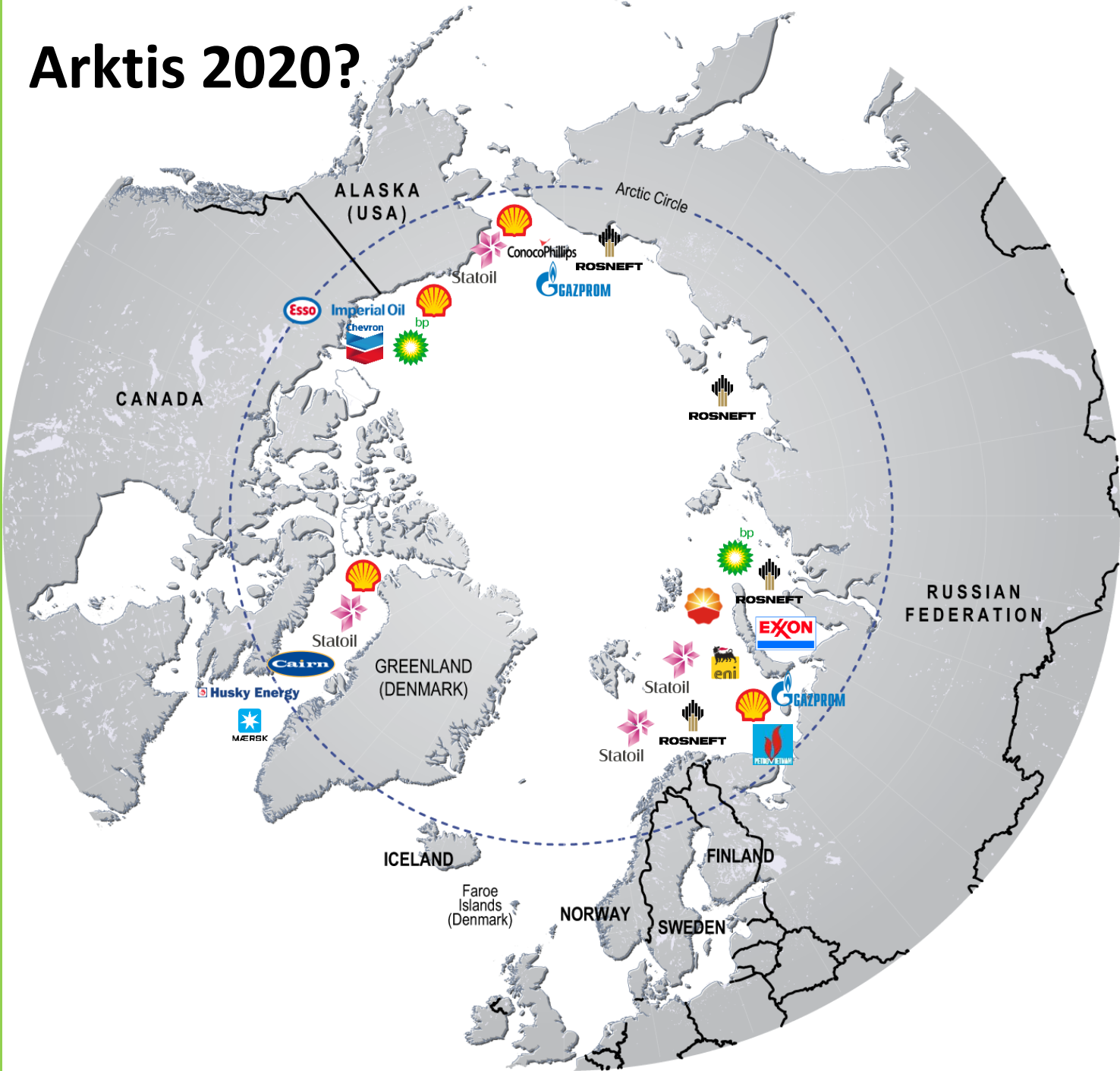
**Kan ikke
rydde olje i
is**



Klima og Is:
= Ingen oljeboring i Arkt



Arktis 2020?



Greenland, Cairn 2010 and 2011



Alaska, Shell, 2012



Russia, Gazprom 2012
and 2013



Vi har 30 i Russland





**YOU CAN'T RUN YOUR SUV ON 'CUTE'.
LET'S GO.**





**SOME SAY CATASTROPHE,
WE SAY OPPORTUNITY
LET'S GO.**



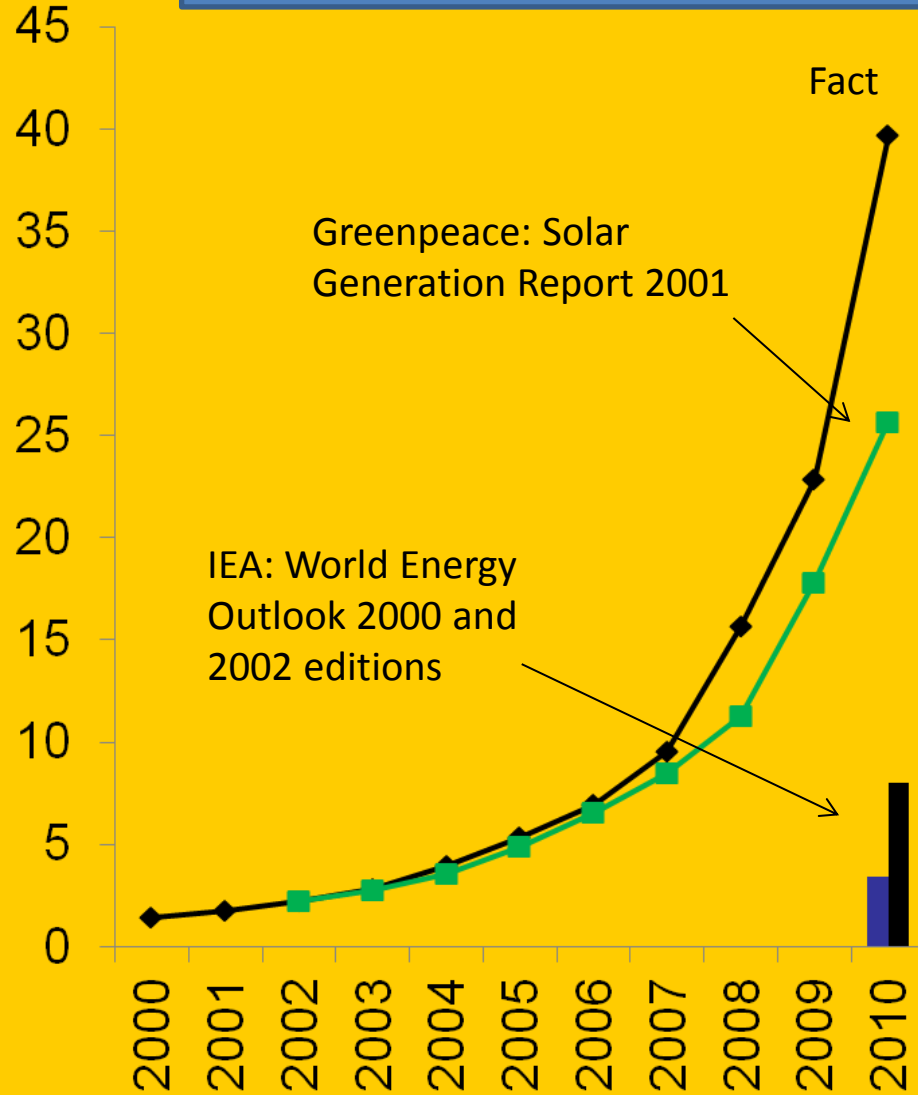


BIRDS ARE LIKE SPONGES... FOR OIL!
LET'S GO.

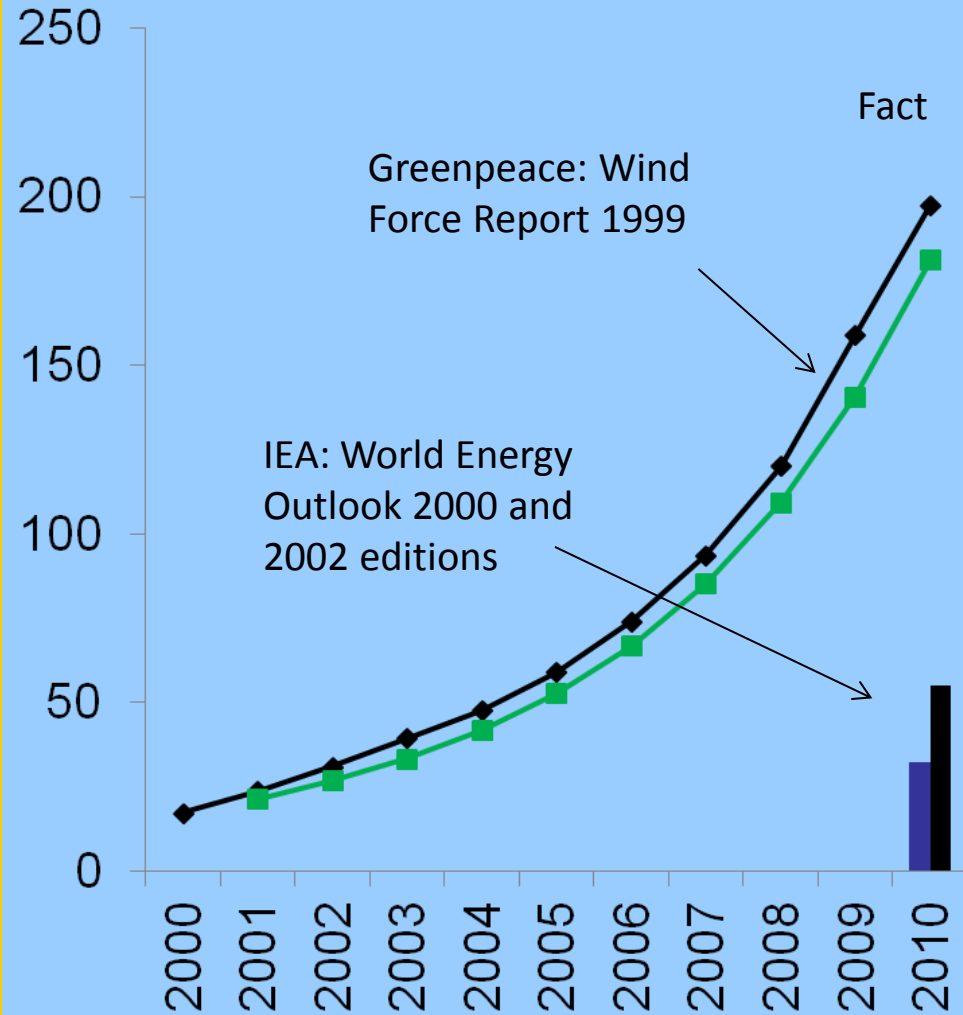


Det grønne skiftet er på vei

PV capacity



Wind capacity



Please join us Save The Arctic



***4 million people have already.
Truls Gulowsen, Greenpeace***