



Outcomes of COP21

John Gale

General Manager, IEAGHG

CSLF Policy Group Meeting

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Key Outcomes



- Paris Accord agreed by 195 Countries
 - A truly “Global” agreement unlike the Kyoto Agreement
- Below 2⁰C target, sets a new tougher goal
 - Green NGO’s – total phase out of fossil fuels !!!
- Time is ticking !!
 - May 2016, CO₂ in atmosphere was 407 ppm
 - Major economies like USA, UK reducing emissions
 - China has announced its emissions will peak before 2030.

CCS critical to getting to 2°C



IPCC AR5 SYR from Table 3.2 (2014)

Mitigation cost increases in scenarios with limited availability of technologies ^d				
[% increase in total discounted ^e mitigation costs (2015–2100) relative to default technology assumptions]				
2100 concentrations (ppm CO ₂ -eq)	no CCS	nuclear phase out	limited solar/wind	limited bioenergy
450 (430 to 480)	138% (29 to 297%) 	7% (4 to 18%) 	6% (2 to 29%) 	64% (44 to 78%) 

Going to <2°C will need:

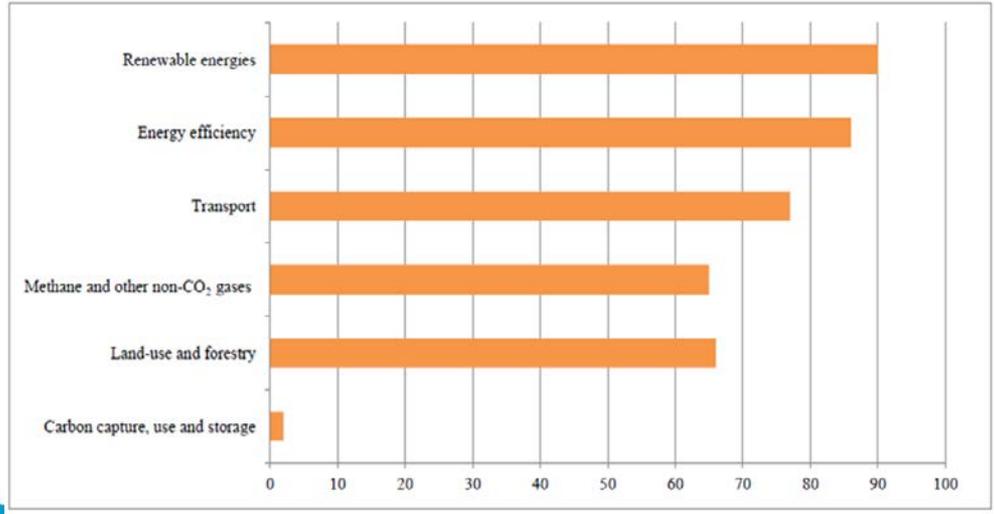
- Concerted action on Low C technology deployment
 - Mission Innovation launch at COP21
 - Including CCS post 2030
 - Negative emissions like BioCCS very important



Intended Nationally Determined Contributions (INDCs)

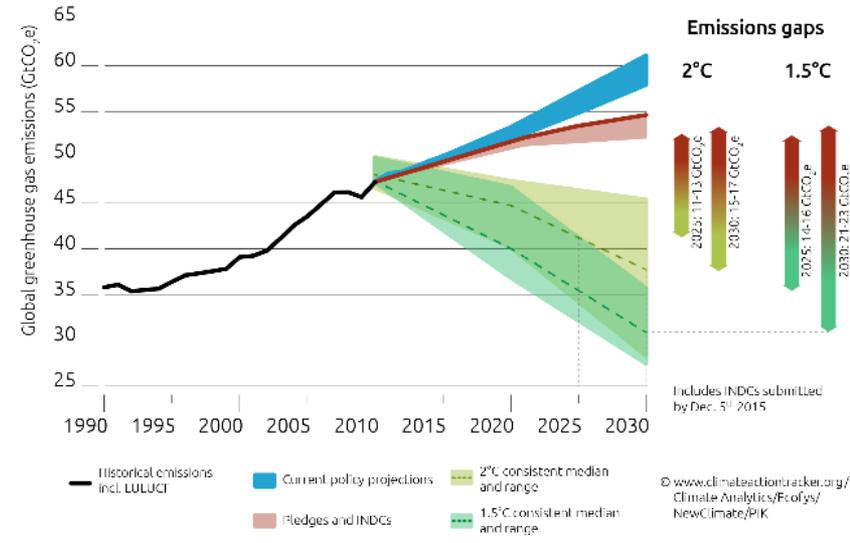
- 187 INDCs submitted
- 94% global emissions
- New trajectory to ~ 2.70C
- ~ 3.6C from existing policies

Priority areas for implementation highlighted in the intended nationally determined contributions



CAT Emissions Gaps

7th December 2015



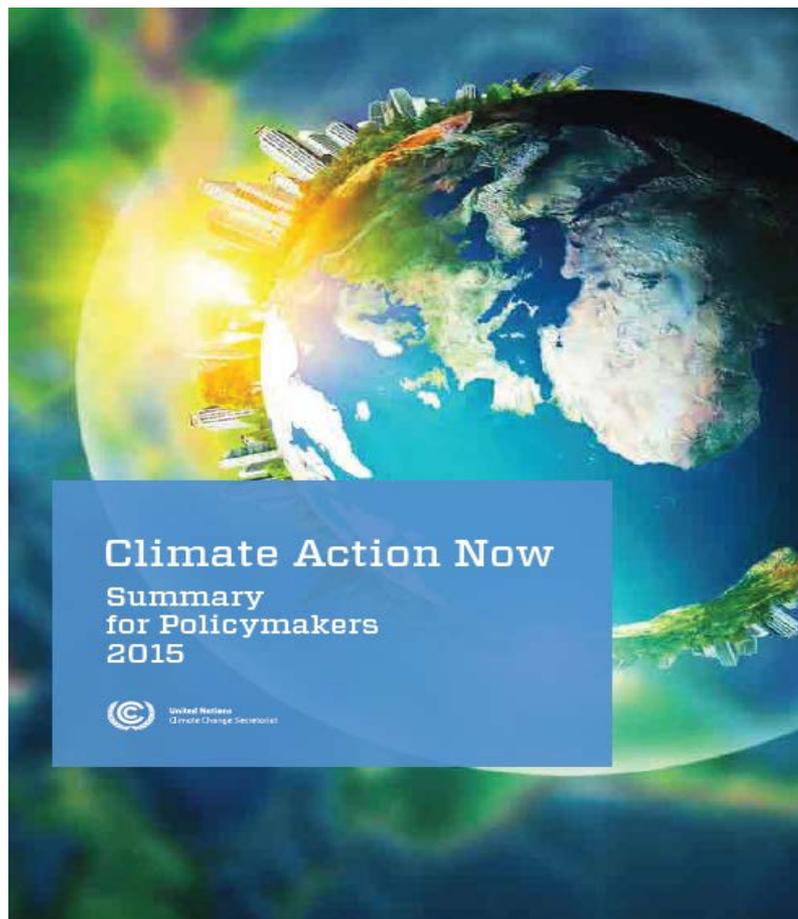
Climate Action Tracker
<http://climateactiontracker.org/global/173/CAT-Emissions-Gaps.html>

CCS underplayed in INDC's?



- CCS directly mentioned in 10 INDCs
 - Bahrain, Canada, China, Egypt, Iran, Norway, Malawi, Saudi Arabia, Egypt, South Africa & UAE
 - EU – represents 28 countries
- USA, main climate action was Clean Power Act
 - Includes CCS
- Cumulative emissions from these countries 22Gt CO₂ in 2013
 - World total 35.7Gt – energy production and cement
 - Covers 62% of total emissions in 2013

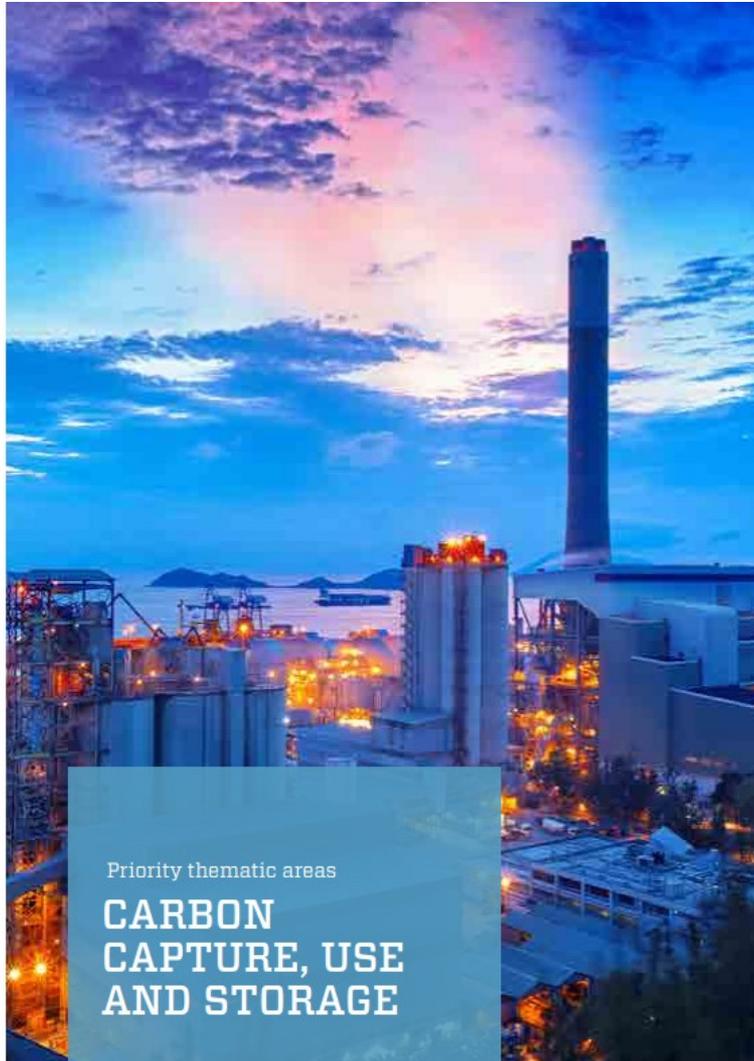
Climate Action Now, A Summary for Policy Makers 2015



- Key messages for policymakers;
- Brief overview of state of play of climate change;
- Actions to realize significant mitigation potential in the areas of:
 - Renewable energy,
 - Energy efficiency,
 - CCUS,
 - Non-CO₂ greenhouse gases (GHGs)
 - land use.
- International organisations that can help.
- Use the information so Parties can:
 - Increase their pre-2020 ambition,
 - Further reduce the emissions gap to limit global warming to 2°C,
 - Lay the foundation for post-2020 action.

<http://climateaction2020.unfccc.int/media/1173/21789-spm-unfccc-lowres.pdf>

CCUS in Climate Action Now



Priority thematic areas
**CARBON
CAPTURE, USE
AND STORAGE**

- Project financing
 - Boundary Dam 3
 - UK Competition
- Frameworks and Directives
 - EC Directive
 - Korean CCS Roadmap
- Carbon Pricing
 - Norway Carbon Tax
- Information Sources
 - CSLF
 - IEAGHG
 - GCCSI



IEAGHG et al Side-event



Carbon Capture and Storage (CCS): Achievements and Opportunities for Developing Country Involvement, 1st December 2015



Messaging,

- Statoil: 19 years of injection & monitoring at Sleipner
- SaskPower: Boundary Dam 3 achievements
- CO2GeoNet: CO₂ storage projects in Europe

Outcomes



- 200 attendees
- Many from Developing Countries
- Reported at:
www.ieaghg.org &
<http://www.iisd.ca/climate/cop21/enbots/1dec.html#event-6>
- Generated a lot of discussion and attendance at booth in “Blue Zone”

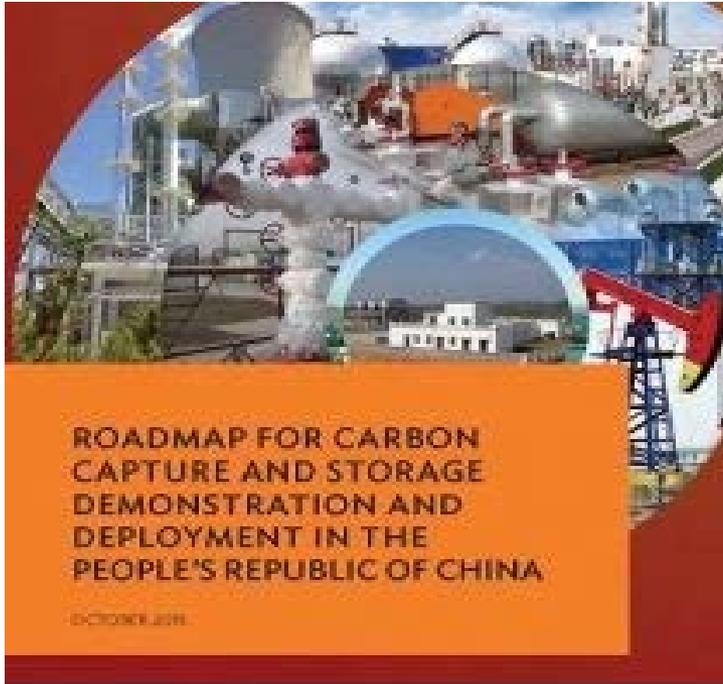


'Mission Innovation' launch



- 20 countries will seek to double governmental and/or state-directed clean energy R&D investment over five years
- *"Accelerating the Clean Energy Revolution"*
- Aims to reinvigorate and accelerate global clean energy innovation with the objective to make clean energy widely affordable (for climate challenge, affordable and reliable energy for everyone, and energy security)
- also *Breakthrough Energy Coalition* - 28 investors from 10 of these countries make a commitment to invest in early-stage technology development.

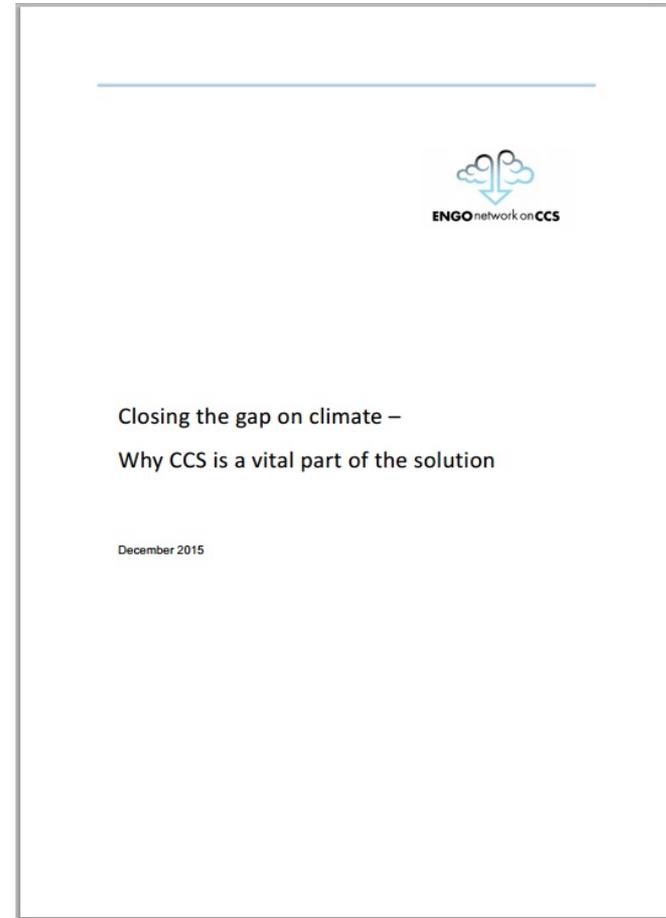
Associated Activities



ASIAN DEVELOPMENT BANK



<http://www.adb.org/sites/default/files/publication/175347/roadmap-ccs-prc.pdf>



http://www.engonetwork.org/eng_o_perspectives_on_ccs_digital_version.pdf

What happens next?



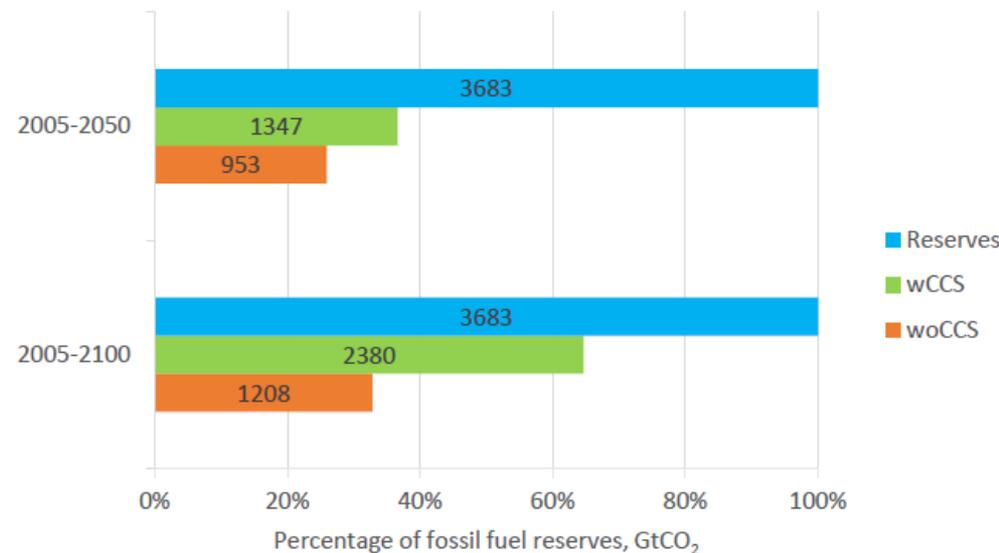
- 175 Countries signed Paris Accord on 22 April 2016
- To enter into force it has to be ratified by 55 countries that represent 55% of global emissions
 - May 2016 – 17 nations had ratified
- INDC's become NDC's
 - Not legally binding, no enforcement action and no “naming and shaming”
- Stocktake of NDC commitments in 2018, then updated every 5 years
- IPCC Special Report in 2018 on Below 2⁰C needs

Can CO₂ capture and storage unlock 'unburnable carbon'?



Imperial College
London

- Aim: assess relevance of CCS in terms of 'unburnable carbon' and whether CCS can unlock fossil fuel reserves
- Method: Select and investigate a subset of integrated assessment models (IAMs) that focus on technology options and include CCS
- CO₂ storage capacity estimates obtained from volumetric approaches well above the extent of the CO₂ related to fossil fuel reserves
- CCS enables access to significant quantities of CO₂ from fossil fuels in a 2°C world
- Impact of CCS on unburnable carbon is significant (esp. for coal), starting from 2030/2040 and becoming more apparent by 2100
- Cost assumptions do not limit CCS uptake in IAMs but there are other factors that do (residual emissions?)





Summary

- Historic agreement reached in Paris at COP21
 - Commitment to take the world to below 2⁰C temperature rise
 - Represents a considerable challenge with current rate of CO₂ emissions rise – now 407ppm
- CCS had highest profile yet at COP21
 - More interest from Developing Countries
- Next 6 years critical to set process in motion
- CCS is critical to reach 2⁰C
 - Even more important if we aim to go below 2C and “negative emission” options - BioCCS
 - Only solution to use fossil fuels

Summary



- CCS was profiled quite highly at COP21 as a mitigation option
- INDC's reflect early action – don't include CCUS significantly
- Move now to “below 2⁰C” will require increased mitigation activity after 2018
- CCS could then start to play role
- Inherent conflict – NGO's see new goal as option to phase out fossil fuels (“coal”)
- CCS seen as coal option – need new narrative, gas and bio important
- CCS will become key for industry to mitigate CO₂