A PECC International Project

Energy Transition and New Economic Models 2013-2014

Seminar 2. From Prototype to Market: Development of marine renewable energy policies and regional cooperation

June 24-25, 2014 | Santiago, Chile

Session 4: Developing cooperation between stakeholders to promote Energy Transition

Energy Transition (ET) in Fossil Abundance and in Climate Requirements

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There are three strategies to achieve energy transition in time

Three game plans….for ET

1. Sovereign Game with Burden Sharing under CBDR principle

COP is currently negotiating emission reduction volumes for each jurisdiction…
If successful, GHG reduction leads to energy transition…

2. Sovereign Game to phase-out GHG emissions by 2100

All nations are to phase out GHG emissions and thereby achieve energy transition…

3. Global Market Game with global cap for 2C and polluters pay principle

Assembly of 180 Governments establishes property right over the carbon budget for 2C, sells them as allowances and forces importers and extractors of fossil fuels of all countries to buy allowances before they ship their fossil fuels to downstream combustions.

Since, the Assembly won't issue allowances beyond the carbon budget for 2C, energy transition and 2C will be achieved through global carbon market.

Current sovereign game is called "Nationally Determined Commitment"

This Sovereign Game imposes governments to share reduction burdens (Burden sharing)

- Not based upon science for 2C
- Based upon arbitrary ambitions of governments ("nationally determined")
- History tells ambitions have never been ambitious enough
- Depend essentially upon PDCA cycle …plan, do, check, act….and repeat…and repeat
- Heavily and endlessly quarrel-prone amongst governments

Not a fixing solution for the planetary challenges…

"As President, and as a parent, I refuse to condemn our children to a planet that's beyond fixing (President Obama, June 1, 2014).

Yet, it is most probable that this "Nationally Determined Commitment" (the concept proposed by the US) is going to be agreed upon in Paris 2015 and adopted as the next international climate framework for 2030 and beyond….

One can only see a slow and insufficient energy transition…..

A new sovereign game called "Phase Out Commitment" is being proposed by experts …

Basic Concept

…Phase-out your GHG emissions by yourself…Don't mind burden sharing for humanity, mind your own emissions, **"Tidy up your garbage…"**

Do it as a long-term obligation ….IPCCAR5 sets two guideposts for 2C

1. reduce your emissions by 40-70% by 2050
2. phase-out your emissions 100% by 2100

Tidy up your garbage is more rational than CBDR…Less controversial as emission disequilibrium in the past now is overtaken by emissions from new emerging economies…

Long-term national ET is possible reflecting national circumstances
Long-term investment/ innovations make ET cost-effective
Long-term energy shift can better deal with unburnable fossil assets

High probability to achieve 2C and ET in a global scale

A new sovereign game called “net phase out commitment” is being proposed by experts …Continued

Who are proposing and supporting the phase-out game?

"Possible Elements of 2015 Legal Agreement on Climate Change"
http://www.iddri.org/Publications/Possible-Elements-of-a-2015-Legal-Agreement-on-Climate-Change

Christiana Figueres, UNFCCC,
Angel Gurria, Secretary General, OECD,
http://oecdinsights.org/2014/01/24/a-call-for-zero-emissions/

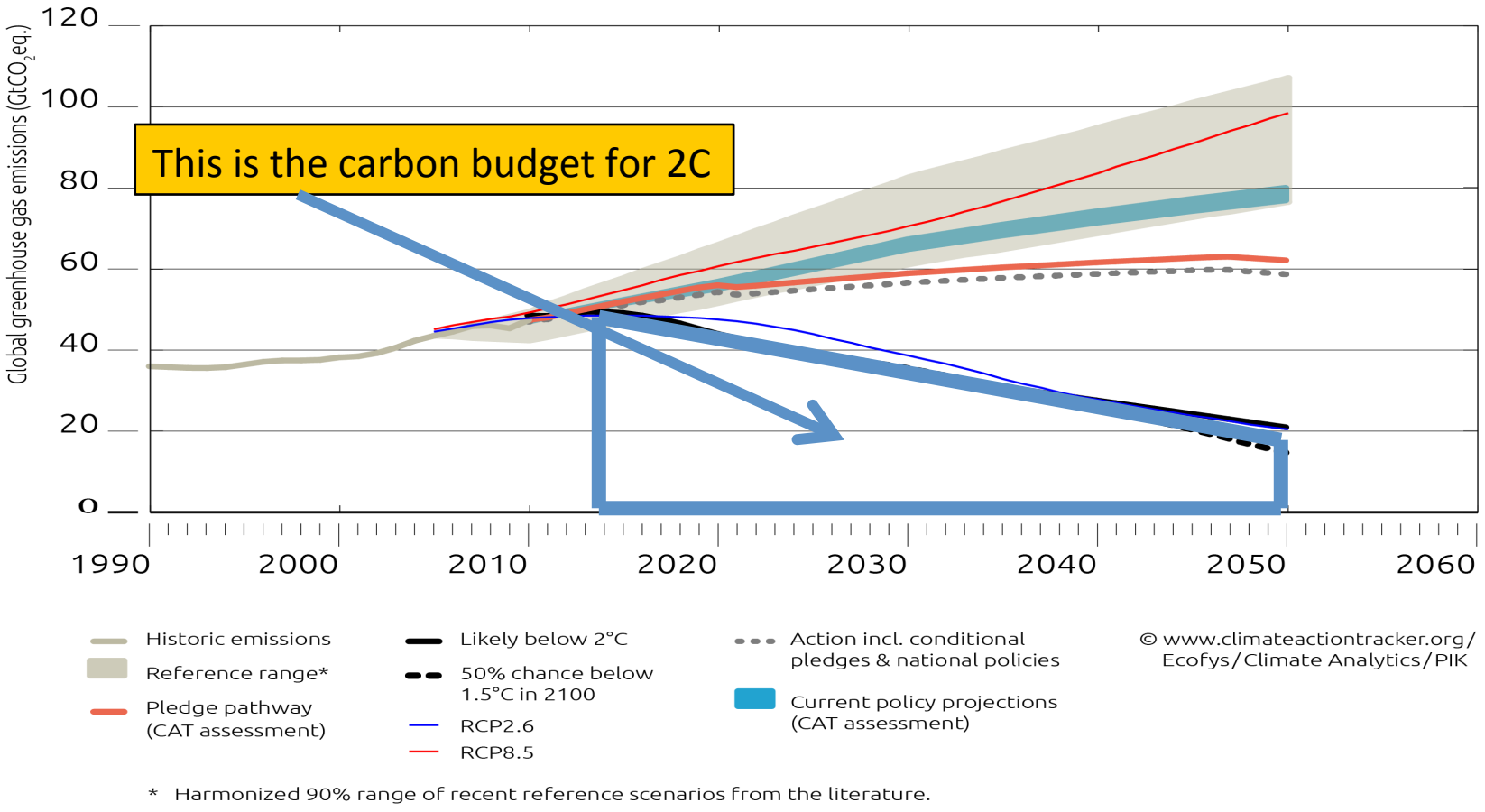
Majuro Declaration (Pacific Islands Forum),
http://www.majurodeclaration.org/the_declaration

“Over 60 countries in favour of phasing out emissions”
http://www.climatenetwork.org/sites/default/files/eco-june12.pdf

“The Trillion Tonne Communiqué”
The Prince of Wales’s Corporate Leaders Group
http://www.climatecommuniques.com/

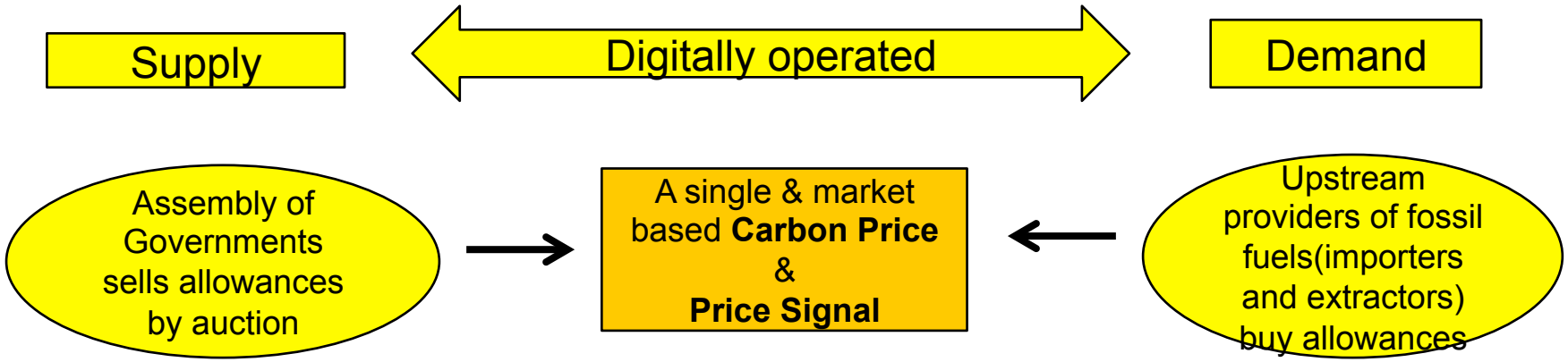
New market game "Global Upstream Carbon Market" would achieve 2C cost-effectively and ET

Basic idea is to contain global emissions within the carbon budget for 2C
Force all CO2 combustions to be made within the budget
Force all polluters to buy budget (allowances) before they emit CO2



Climateactiontracker.org: http://www.climateactiontracker.org/

Upstream Global Carbon Market Realizes Three Crucial Objectives…



Realizing three crucial objectives…

New Climate Financing
Assembly of Governments obtains new revenues from sales of allowances and use them for countries in need

Single carbon price
covers whole world economy and achieves most cost-effective and least harmful shift to low-carbon

Achieving 2C
since allowances won't be issued beyond the carbon budget for 2C

Global cap & global market achieve 2C & ET cost-effectively

Price of carbon is crucial for a cost-effective ET...

"MIT study finds Obama's power plant rule more costly than putting a price on carbon"
Evan Lehmann, ClimateWire: June 11, 2014

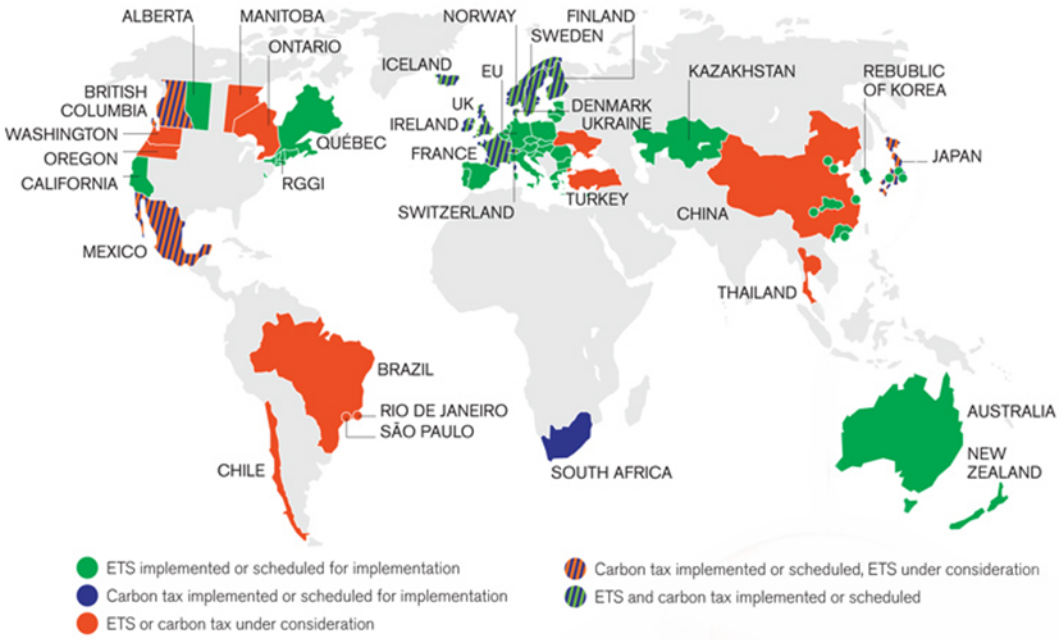
…"Because emission control costs vary drastically among the millions of diverse emissions sources, conventional regulations are unfeasible. Only a pricing regime provides incentives for the overall target to be achieved in the least expensive manner. In the long term it is economical because of incentives to adopt lower-cost, cleaner technologies".
"The Only Feasible Way of Cutting Emissions" Op-Ed, New York Times, June 1, 2014 by Robert N. Stavins of Harvard.

….Emissions of carbon dioxide are externalities, i.e., social consequences that are not accounted for in the market place. They are market failures because people do not pay for the current and future costs of their emissions. If economics provides a single bottom line for policy, it is that we need to correct this market failure by ensuring that all people, everywhere, and for the indefinite future, face a market price for the use of carbon that reflects the social costs of their activities….
Prof. W Nordhaus of Yale
http://nordhaus.econ.yale.edu/documents/BAS_Nordhaus_Jan11.pdf

But what carbon price are you talking about, national or global?

Linking national carbon markets is not solution
because of technical difficulties and loss of climate integrity…
Global market that creates a single and market-based carbon price is the solution

Proliferating national and regional carbon markets
with all different supply/demand structures



http://www.worldbank.org/en/news/feature/2013/10/02/carbon-markets-world-view-infographic

Energy Transition is feasible only if right international frameworks are put in place

In the era of fossil abundance, the rationale for realizing ET is not "peak oil"
It is climate change…ET is needed in order to achieve 2C

Climate change is an issue of science, numerical scale and timelines…
Peak oil is not such an issue…

Three requirements must be met…

1. Addressing science-based numerical scale and timeline is indispensable
   If it is for 2C, there is a finite global carbon budget we can emit
   Emission volume and timeline must be realized…
   IPCC AR5: 40-70% by 2050, zero emission by 2100

2. Pricing must be harnessed for efficiency and for least expensive ET
   Pricing must be market-based and global for efficiency and least cost ET

3. Long-term engagement is needed for tech innovation etc. for easier realization of ET…