



# EXPLORING NEW IDEAS: POLICY MRV – QUANTIFYING CLIMATE BENEFITS OF CLIMATE- FRIENDLY FISCAL/ECONOMIC POLICIES

Barcelona, May 27



# Outline

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- Rationale for conceptual Policy MRV work program\*;
- Focus on fossil fuel pricing reform;
- Why is ex ante estimation not good enough?
- Considered elements of future analytical work.

\* This work program is part of the technical work of the Carbon Partnership Facility (CPF) and supported by its Carbon Asset Development Fund (CADF).

# Rationale for conceptual Policy MRV work program

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Quantify GHG emission reductions from climate friendly fiscal/economic policies such as:

- Removing fossil fuel subsidies;
- Taxing fossil fuels.

To enable:

- Reporting of climate benefits;
- Evaluating policies in a comprehensive way;
- Intensifying communication between fiscal policy and climate policy community;
- Facilitating potential international support through results-based climate finance or carbon crediting.

# Global picture of fossil fuel pricing

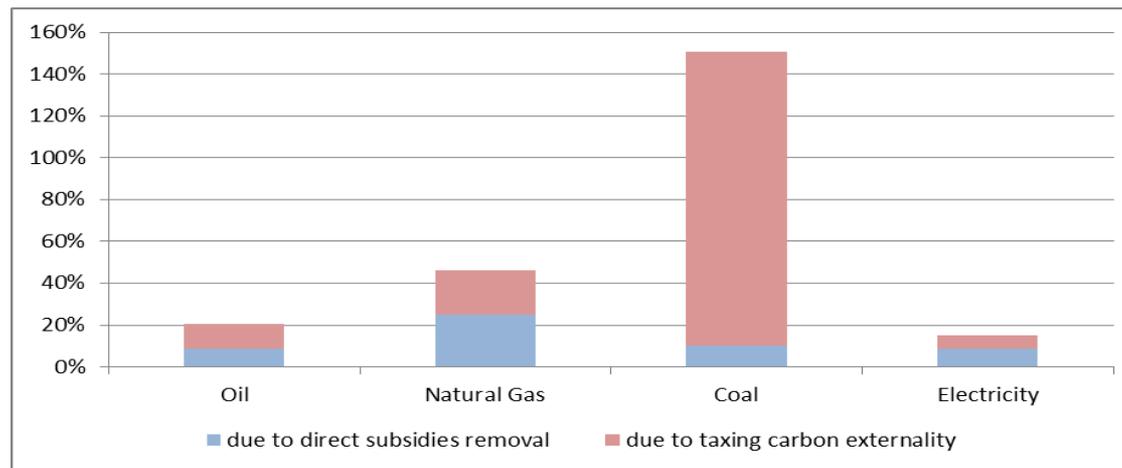
- **Direct subsidies:** **\$500bn p.a.**
- **Exemptions from existing taxes:** **\$300bn p.a.**
- **Not taxing externalities\*:** **\$1,100bn p.a.**

\*at assumed carbon price of \$25/t and taking into account other externalities 2.5 % global GDP

8% global government revenues

**Emission reduction potential: 4.5bn t p.a.** (source: IMF 2013)

**Price effects through direct subsidy removal and carbon taxing (own calculation)**



# Some stylized experiences in reforming fossil fuel pricing (source IMF 2013, list of countries not complete)

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- Impact on income distribution;
- Concerns on competitiveness in short run;
- Lack of political consensus and administrative capacity constraints.

Brazil



Chile



Mexico



Peru



Ghana



Uganda



S. Africa



Niger



Nigeria



Turkey



Poland



Armenia



Indonesia



Philippines



- Compensation schemes for low income households;
- Step-wise phase in for trade exposed sectors;
- Broad political support and capacity building.

**Bridging to climate policy and potentially generating carbon revenues to make a difference?**

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# An Illustration through a basic framework model

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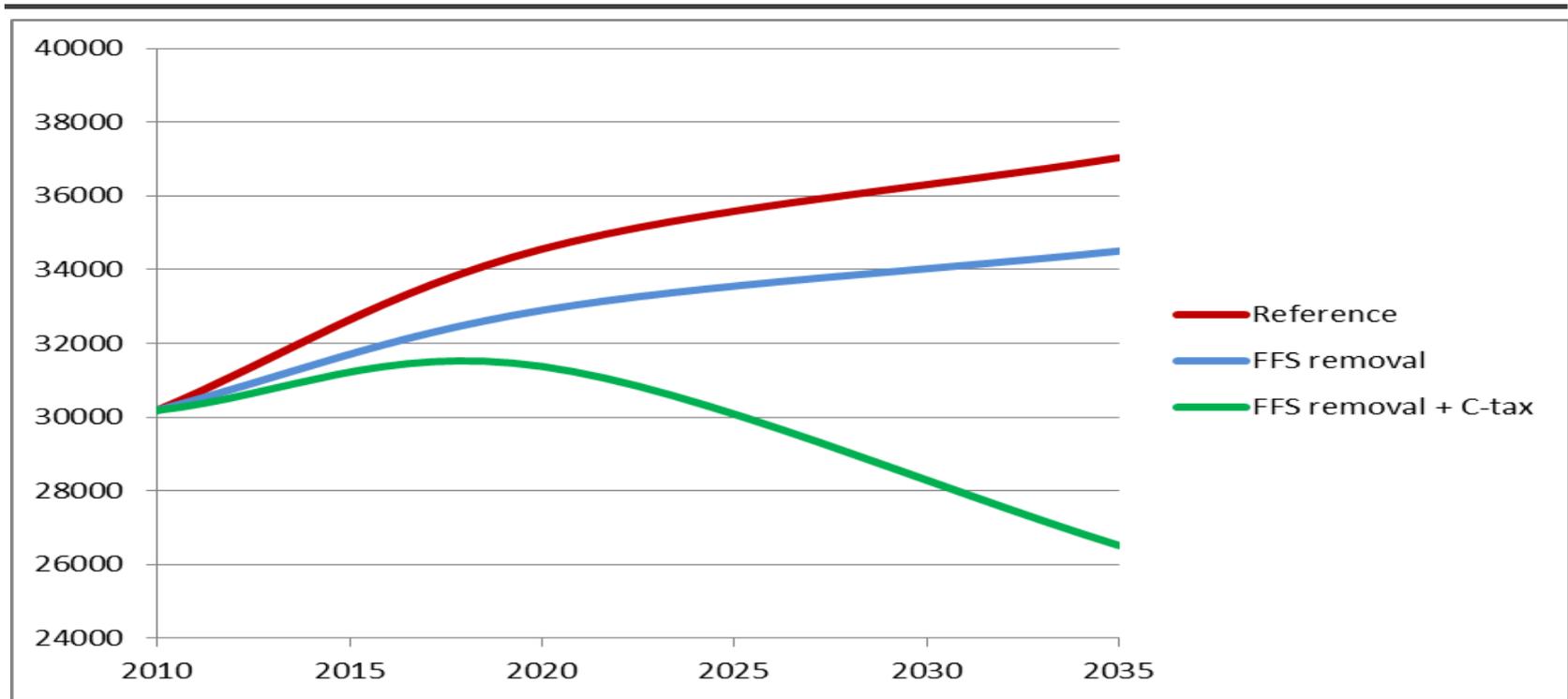
- **Strategy:** “simple” top-down economic model, with meta-analysis approach;
- **Mode:** stochastic (ex-ante) & deterministic (ex-post);
- **Coverage:** global, with country modules;
- **Sector:** energy-related, split by fuel and electricity;
- **Fuels/energy:** oil, natural gas, coal, power;
- **Gas:** CO<sub>2</sub>
- **Time horizon:** 2010-2035;
- **Scenarios:** 2 (reference & one alternative);
- **Calibration:** largely IEA’s database and scenarios.

# Demo Simulation Set Up

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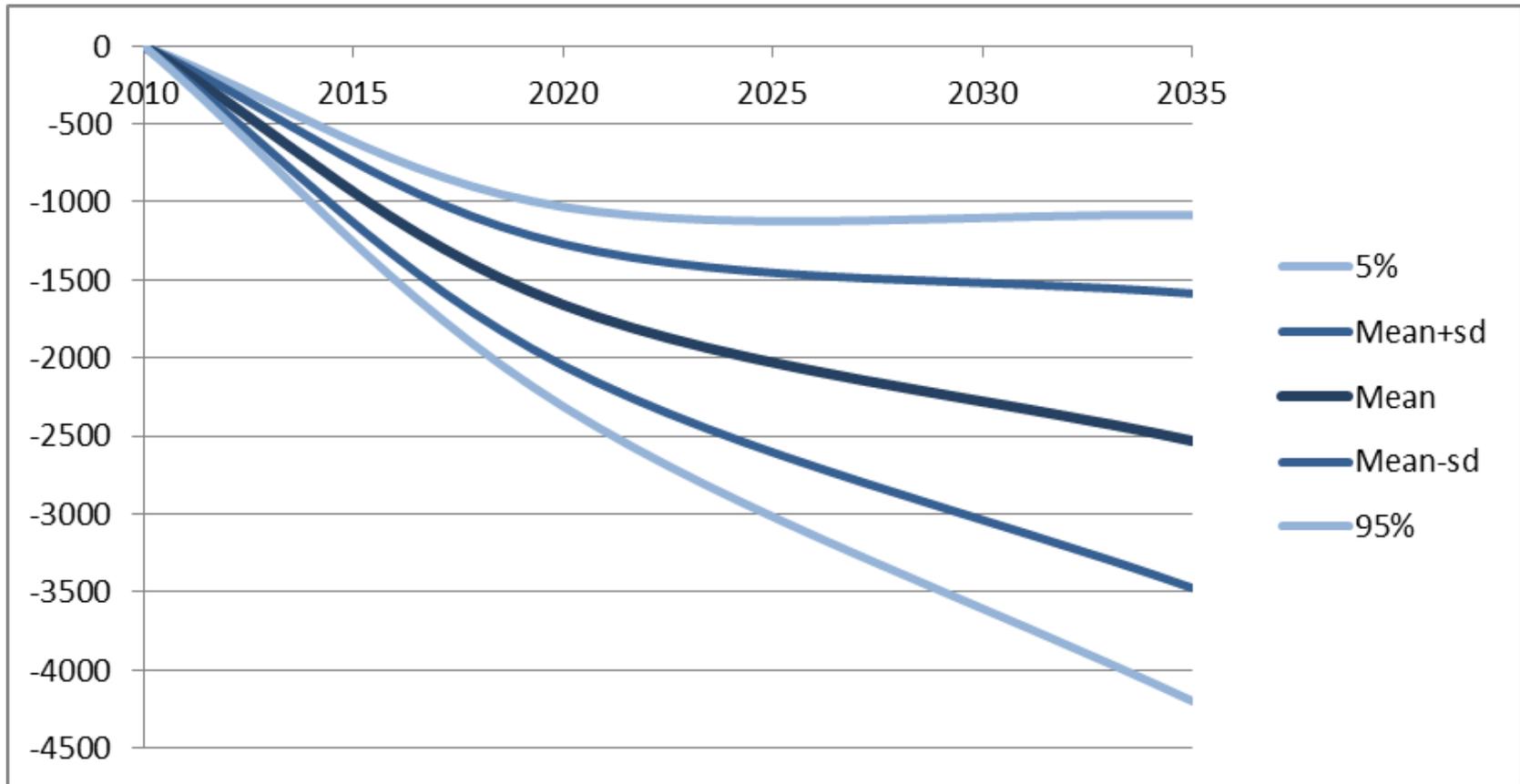
- ***Alternative Policy scenario:***
  - Complete removal of fossil fuel subsidies, through liberalization of domestic fuel prices in 2010;
  - Introduction of a rising carbon tax over time \$25 in 2010 to \$36 in real terms.
- ***Reference case:***
  - Assumes no additional effort from today, i.e. includes Copenhagen pledges (on real price terms).
- ***Focus regions:*** Global
- ***Run:*** 50,000 iterations

# Global: CO<sub>2</sub> emissions

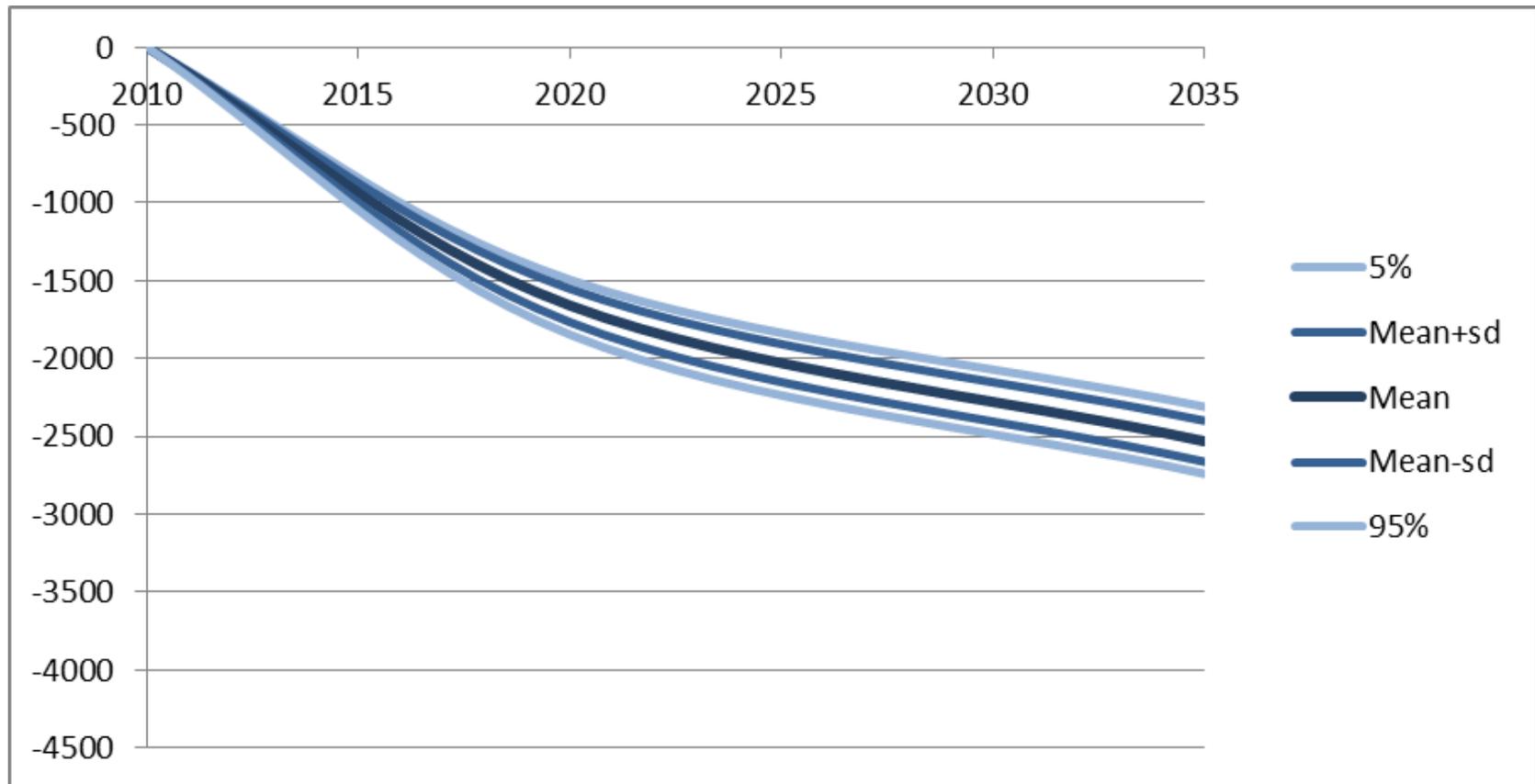


- Reference sees CO<sub>2</sub> growing to 34.6 Gt by 2020, 37.1 Gt by 2035
- ↓ From FFS removal: 1.7 Gt in 2020; 2.5 Gt in 2035
- ↓ from FFS removal + carbon tax: 3.2 Gt in 2020; 10.4 Gt in 2035
- **DO WE BELIEVE IN THIS (ex ante simulation) STORY?**

# Global: CO<sub>2</sub> reduction—FFSR only (free run)



# Global: CO<sub>2</sub> reduction—FFSR only (certain oil price elasticity & fuel prices determined)



- **Range (90%) ↓ to 2.4 - 2.7 Gt—and can be further narrowed down;**
- **MRV of indicators (as they evolve) → model update → more precise accounting of CO<sub>2</sub> reduction.**

# Considered elements of future analytical work

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- Focus on already **existing** policies;
- Methodology to determine GHG emission reductions from climate friendly economic/fiscal policy **ex post**;
- Tailor made, case specific models;
- Plausibility testing (“theory enhancement”) of explanatory power of models (**attribution**);
- **Leakage analysis** (related to model boundary);
- **Operational blueprints** to implement monitoring and verification;
- **Conceptual blueprints** for results-based climate finance support or carbon crediting of potential **incremental policy efforts**.

# Thank you

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