

1,5°C?

# Mind the Enabling Conditions

*The role of finance and economic instruments*

## Some orders of magnitude for the mid-century

- Additional annual average energy-related investments for the period 2016 to 2050 in 1.5°C compatible pathways compared to baselines: around **830 billion USD2010 (150 billion to 1700 billion USD2010 )**
- the energy investments pass from 2% to 2,8% of the GDP
- Annual investments in low-carbon energy technologies and energy efficiency are upscaled by roughly a range of factor of 4 to 10) by 2050 compared to 2015
- Global average discounted marginal abatement costs over the 21st century are roughly 3-4 times higher than in 2°C pathways.

# How to go there starting from a specific macroeconomic context

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- *Strengthening action means to account for the short term world tensions:*
- *Use climate action as a lever to reducing the ‘fault lines’ of the world economy (R. Rajan)*
  - gap between propensity to save and propensity to invest
  - fragility of the financial intermediation system (tragedy of the horizons)
  - Too export dependent development strategy in developing countries after the Asian Crisis; A large funding gap on infrastructures (IMF)
  - the traps of non targeted ‘quantitative monetary easing’ and of ‘growth austerity’
- *Towards a new growth regime*

- ***Between 2015 and 2035, additional investments in infrastructure sectors (e.g. energy, transportation, buildings, water and telecommunication) are estimated annually to 0.6% of global GDP, i.e. 2.5% of world savings { Box 4.8}***
- ***An redirection of investments within these sectors:***
  - a ***15% increase of the energy investments*** compared with NDCs,
  - doubling of investment in low-carbon energy technologies, energy efficiency and energy storage
  - 20% decrease of ***investments in conventional fuel supply chains***.
- ***Reducing the sectoral and geographic mismatch*** between current capital flows and financial needs.

# How much mitigation investment in energy and other infrastructure? (Source: Box 4.8)

Estimated annualized mitigation investment (2015-2035 in Trillion US\$ 2010MER)

	Energy investments	Of which demand side	Transport	Other infra-structures	Total	Ratio to MER GDP
IAM Baseline (mean)	1.96	0.24			1.96	1.8%
IAM NDC (mean)	2.04	0.28			2.04	1.9%
IAM 2°C (mean)	2.19	0.38			2.19	2.1%
IAM 1.5°C (mean)	2.32	0.45			2.32	2.2%
IEA NDC	2.40	0.72	0.35		2.40	2.3%
IEA 1.5°C	2.76	1.13	0.55		2.76	2.7%
<b>Mean IAM-IEA, 1.5°C</b>	<b>2.38</b>	<b>0.54</b>			<b>2.38</b>	<b>2.53%</b>
Min IAM-IEA, 1.5°C	1.38	0.38			1.38	1.6%
Max IAM-IEA, 1.5°C	3.25	1.13			3.25	4.0%
<i>OECD Baseline</i>	<i>1.91</i>	<i>0.36</i>	<i>2.46</i>	<i>1.37</i>	<i>5.74</i>	<i>5.4%</i>
<i>OECD 2°C</i>	<i>2.13</i>	<i>0.40</i>	<i>2.73</i>	<i>1.52</i>	<i>6.38</i>	<i>6.0%</i>

- To operate this ***redirection of 2.5% of world savings***, towards low carbon investments, both public and private investment will be needed.
- The redirection of private investments is between 5,6% and 8,3% of yearly private capital revenues (value of capital plus interest revenues)
- ***De-risking these low carbon investments*** (public guarantees, feed-in tariffs ...) is key to increase their volume and facilitate ***the greater involvement of financial actors*** (institutional investors, bonds markets)
- Two key parameters are the ***access to capital markets at low interest rates, and the emergence of new low-carbon asset classes***

- ***Adaptation finance consistent with global warming of 1.5°C is difficult to quantify and compare with 2°C***, due to important knowledge gaps
- Costs of adaptation may be lower at global warming of 1.5°C than for 2°C but would be higher than the USD 22.5 billion (2014) estimates of bilateral and multilateral funding for climate change adaptation
- Currently, 18–25% of climate finance flows to adaptation in developing countries (*high confidence*) {4.4.5, 4.6}

- The 1.5°C transition could be enabled by *policy packages that mitigate the adverse impacts of higher marginal cost of energy services* on growth and social welfare.
- These packages should be embedded in an *evolution of the fiscal and financial systems* :
  - explicit or implicit carbon pricing, reforms of the subsidies and other pricing policies (real estates, land, tolls),
  - de-risking devices and new financial products.
- They should strengthen the efficacy of performance standards, R&D and technology policies
- They could also include
  - *compensating transfers* for the population the most vulnerable to the energy prices
  - *the emergence of new low-carbon asset classes*. Cross-Chapter Box 8 in Chapter 3 and 11 in Chapter 4, 2.5.1, 2.5.2, 4.4.5, 5.5.2}



# International cooperation needed

- Some of these policy packages depend upon *sovereign decisions of countries*
- however *sub-sovereign initiatives* are also needed (cities, regions), with the involvement of local communities and indigenous peoples
- *international coordination/cooperation* is critical to enhance the overall efficacy of domestic policies
  - Reforms of the financial systems
  - Reforms of the ODA
  - Enhancement of scientific and technological cooperation
  - Mitigation of trade effects