DECARBONIZATION OF ENERGY SYSTEMS AND GREEN GROWTH FOR EUROPE

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Energy Transition for Green Growth

1. ***Deep decarbonization of energy systems is necessary***

2. ***Deep decarbonization is feasible through diversified pathways...***

3. ***and will bring strong environmental and economic co-benefits***

IPCC-AR5: a limited carbon budget for the XXIst century

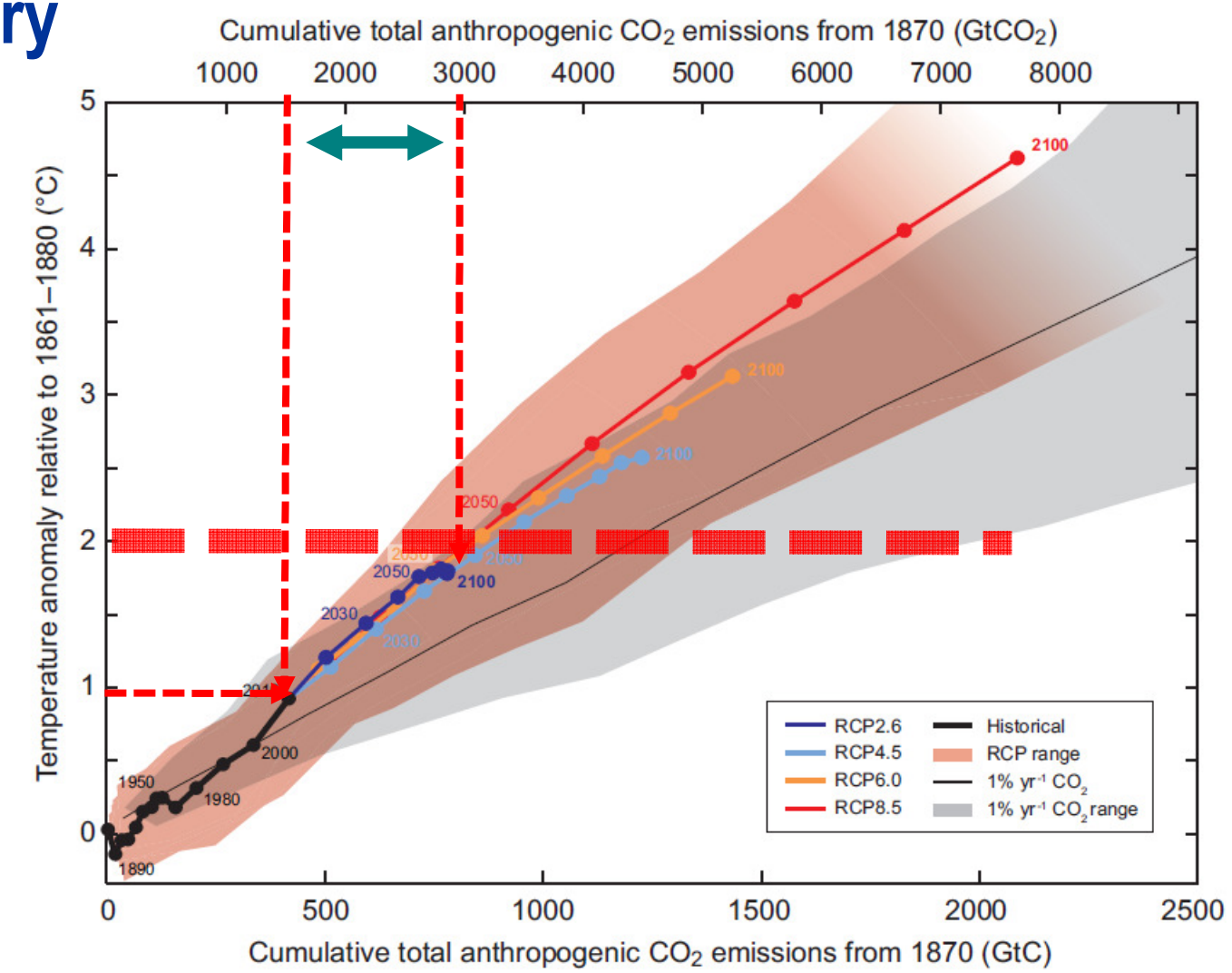
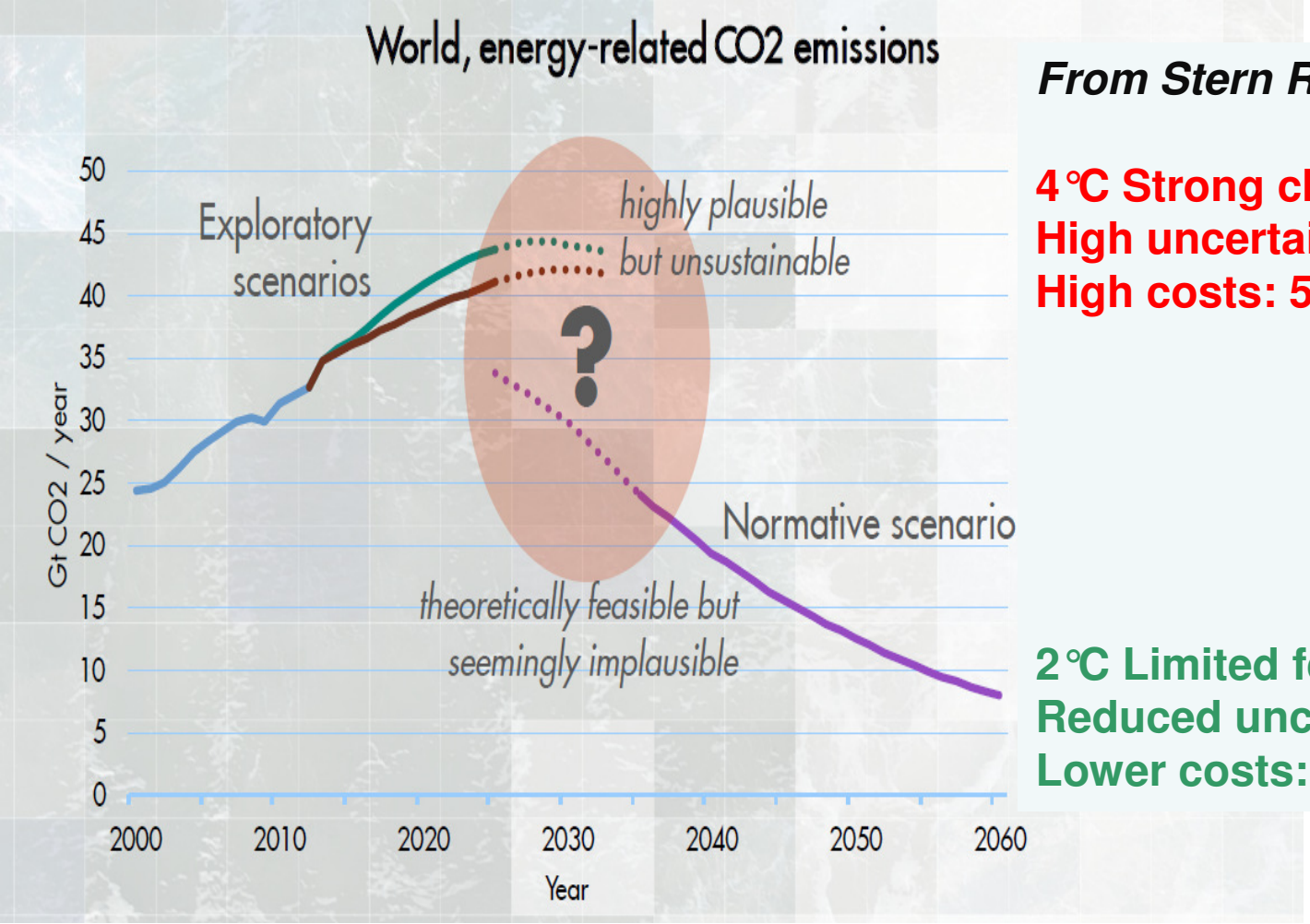


Figure SPM.10 | Global mean surface temperature increase as a function of cumulative total global CO_2 emissions from various lines of evidence. Multi-

Reducing the gap between plausible and sustainable trajectories

From SHELL: Mountains and Oceans scenarios



From Stern Report 2006:

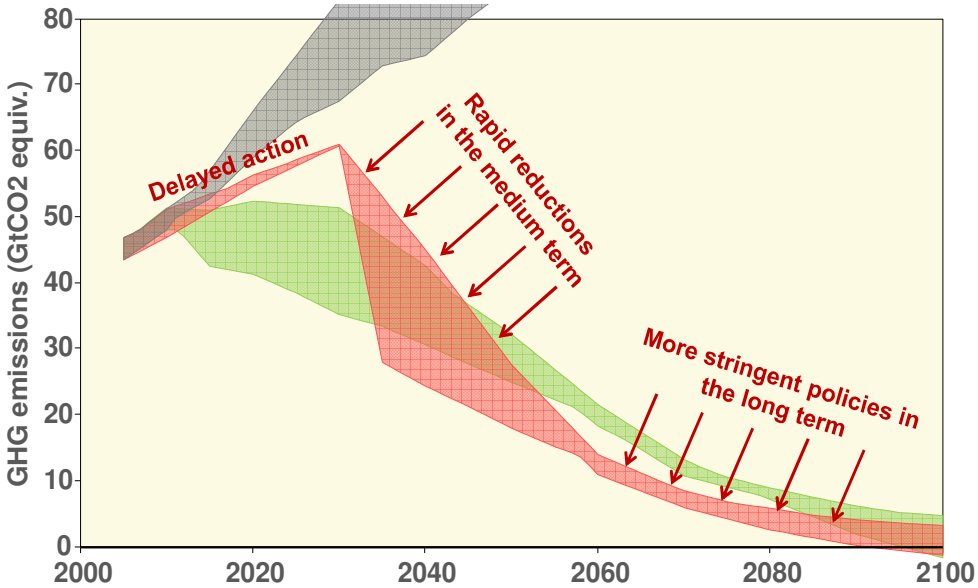
4°C Strong climate feedbacks
High uncertainties
High costs: 5-20% of GWP

2°C Limited feedbacks
Reduced uncertainties
Lower costs: 1-5% of GWP

The costs of delayed action: AMPERE FP7 Project

- Near-term climate action by 2030 will be critical:
  - Continuation along current pledges exhausts ~70% of the emissions budget by 2030
  - The lack of near-term mitigation needs to be compensated by massive emissions reductions later in time
- The findings suggest global GHG emissions targets by 2030 of less than 50 GtCO2 globally with
  - 40% for Europe

Implications of delayed action for reaching 2°C



From EU-FP7 AMPERE Project

AMPERE

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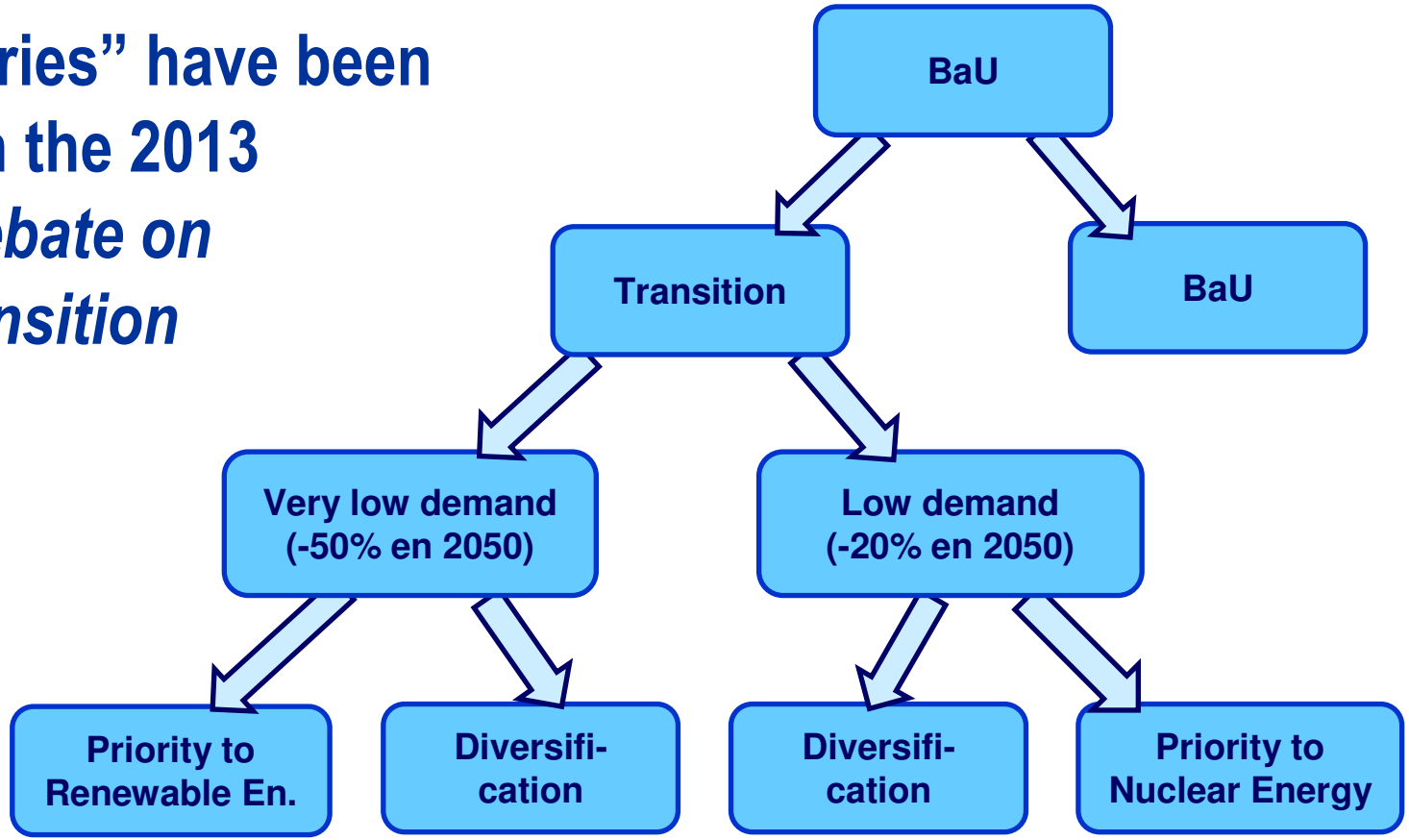
The National Debate on Energy Transition in France

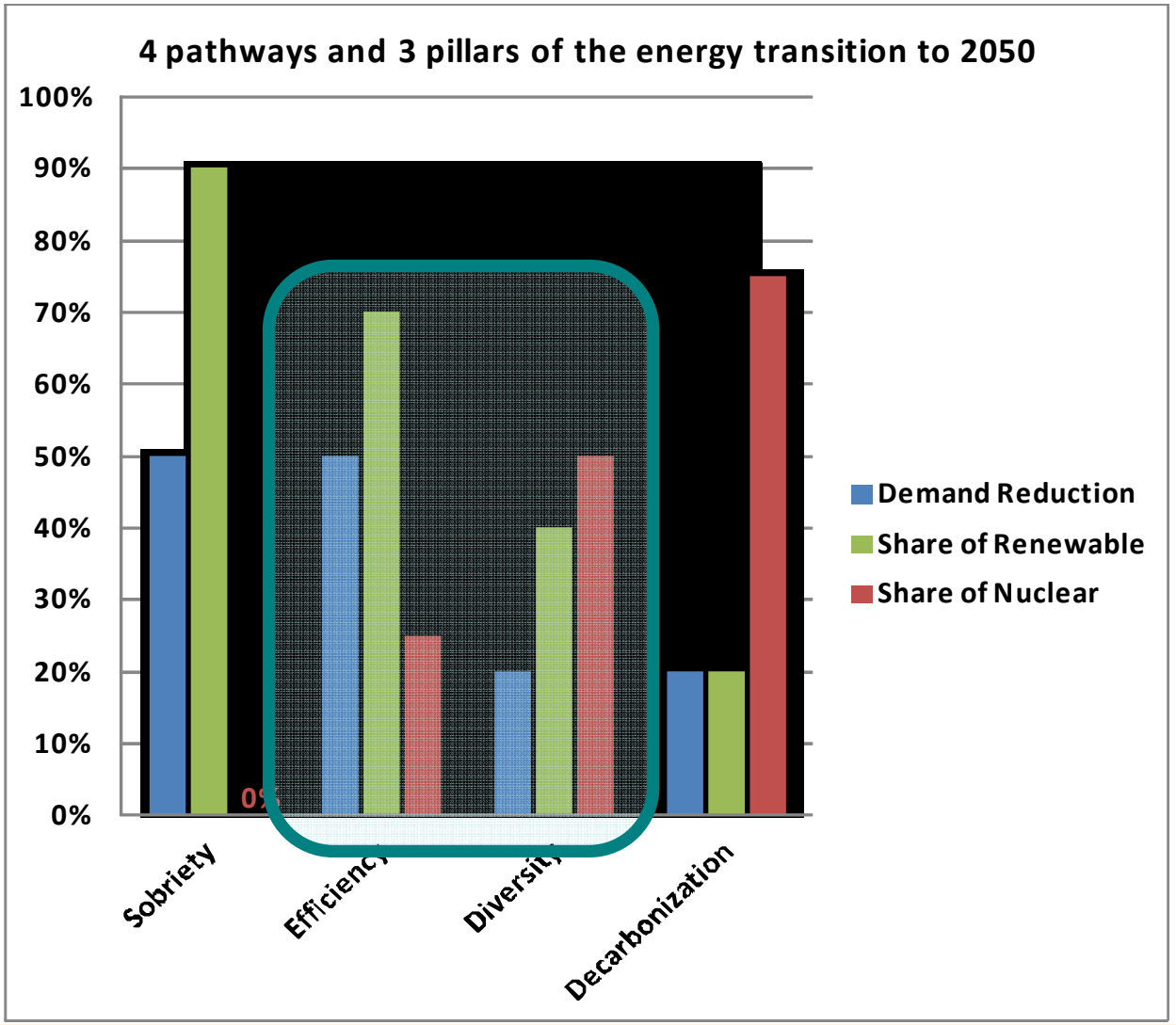
- The *Law on Energy Transition for Green Growth* has been prepared by a deliberative process in 2013 with:
  - A coordination committee
  - A National Council (7x16 members from: NGOs, consumer associations, Trade-Unions, Business, MPs, Mayors, central administration...)
  - A citizen and an industry group
  - A group of 45 experts in charge of producing relevant and validated analytical materials, including 16 representative scenarios...

Four families of F4 scenarios or “trajectories” have been identified in the 2013 *National Debate on Energy Transition*



4 Trajectories:	**SOBriety**	**EFFiciency**	**DIVersity**	**DECarbonization**
Explored by 15+1 scenarios:	négaWatt Greenpeace WWF Global Chance	ADEME GRDF ANCREsob ENCILOCARBrenf	ANCREdiv RTEnouvmix DGECams-o	Négatep RTEmed ANCREele UFE

“First best” and “second best” scenarios: towards a dynamic management of the energy transition



DDPP – The Deep Decarbonisation Pathways Project

- DDPP = 31 leading research institutions from 15 countries covering more than 3/4th of global C02 emissions. Coordinated by UN-SDSN and IDDRI, the project aims to:

  1. **Prepare transparent national deep decarbonization pathways** to 2050 to help countries adopt and implement policies to achieve deep decarbonization

  2. **Support a positive outcome of the UNFCCC international climate negotiations by 2015** by helping national decision makers to understand what deep decarbonization implies

  3. **Build an on-going and extending global network** to facilitate learning and promote problem solving in the implementation phase of national of deep decarbonization strategies after 2015

- The DDPP-2014 Report has been presented to UN-Secretary General during the UN Climate Summit, jointly with the New Climate Economy Report

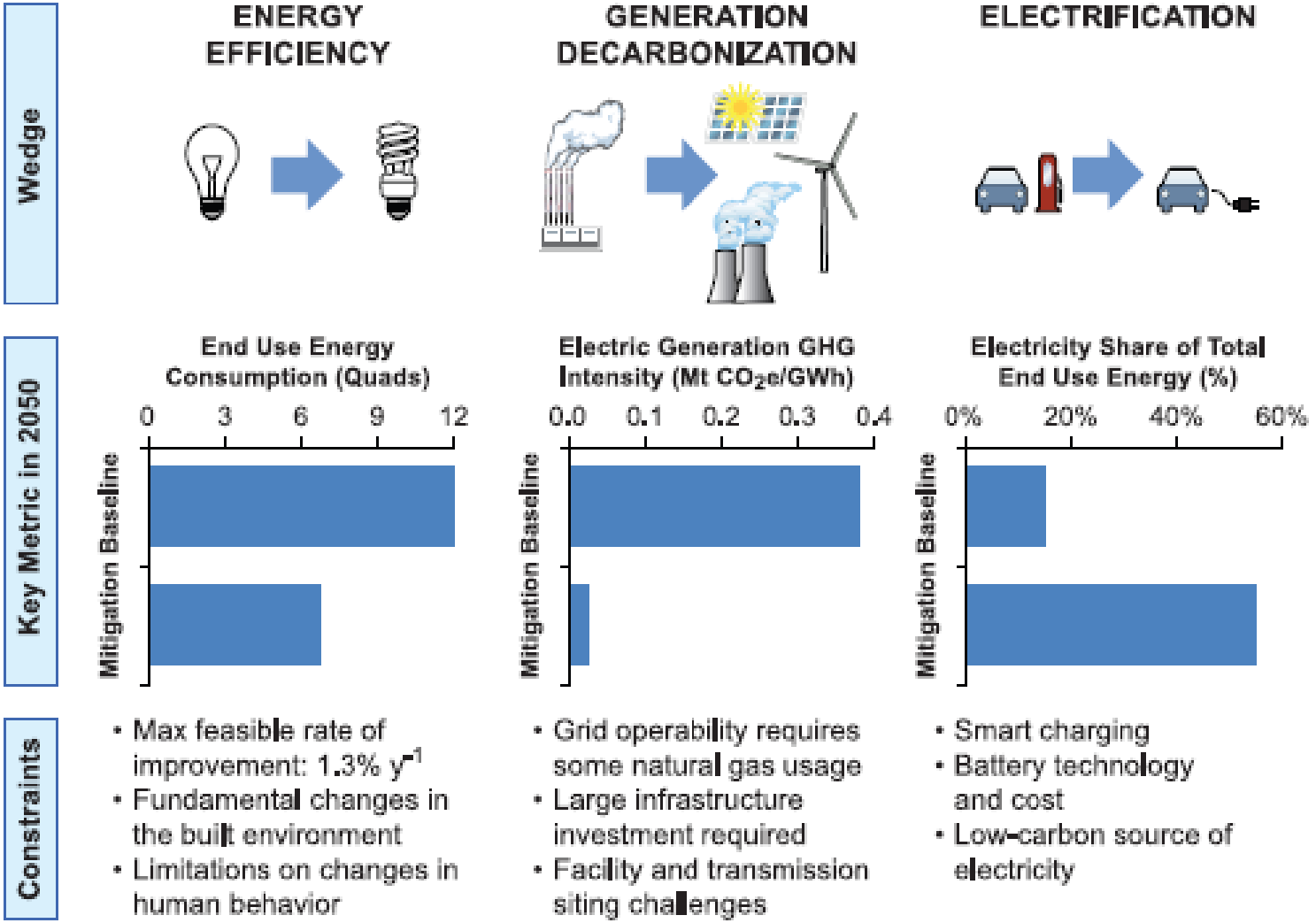
DDPP – The Deep Decarbonisation Pathways Project

- Deep Decarbonization Pathways for 15 major emitting countries: now 75% of world emission – to be extended

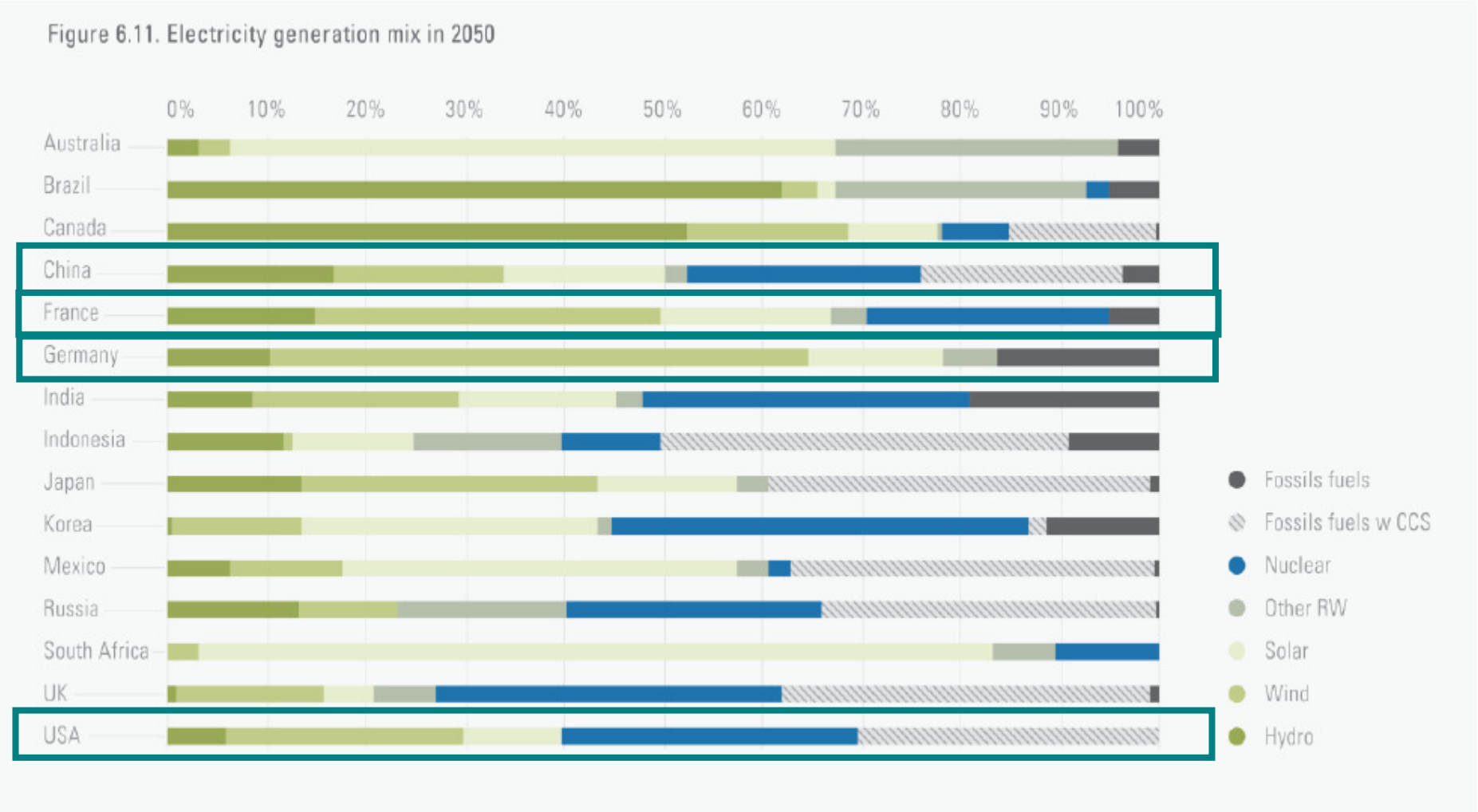
Part III. National Deep Decarbonization Pathways Developed by Country Research Partners

The three pillars of deep decarbonization

(Jim Williams, Science 2012)



Diversity in national solutions: the case of the power sector



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7 critical enabling conditions

1. Changes in technologies / behaviours / institutions for energy efficiency, retrofitting of building stocks and new transport systems
2. Ability to manage a high shares of Variable Renewable Electricity in reliable electricity grids => supergrids, smartgrids, storage
3. Necessity of price signals, implementation of a carbon tax, stabilization of the Emission Trading System
4. Availability of adequate financing for the energy transition
5. Corresponding employment policy, with professional transitions and training
6. Local energy policies, governance and socio-technical feasibility
7. Stabilized national, European and international climate policy framework

Co-benefits and opportunities

- A transition based on the decarbonization of energy systems will bring significant environmental co-benefits (e.g. local air pollution and health problems, water quality and availability...)
- It will also reduce the foreign trade deficit associated to energy imports and the corresponding economic and geopolitical risks
- Beyond these significant co-benefits the energy transition is also a major opportunities for Green Growth:
  - Sustainable energy solutions require more investment, both from the public and the private sector (energy efficiency, low carbon technologies, transport and storage, infrastructures)
  - It will thus create new jobs, as substitutes to imported natural capital (oil & gas, coal)
  - It is also a major area for industrial innovation, with a strong case for a “first-mover advantage” in a world that eventually will have to adopt low carbon options
- Decarbonization is thus a core element of a Green Growth for Europe

Thank for your attention…

- AMPERE project, EU-FP7:
  www.ampere-project.eu

- Deep Decarbonization Pathways Project, UN-SDSN + IDDRI:
  http://unsdsn.org/what-we-do/deep-decarbonization-pathways/

- New Climate Economy Report:
  http://newclimateeconomy.report/