LoCARNet 7th Annual Meeting

Experience on the participatory processes for low carbon future

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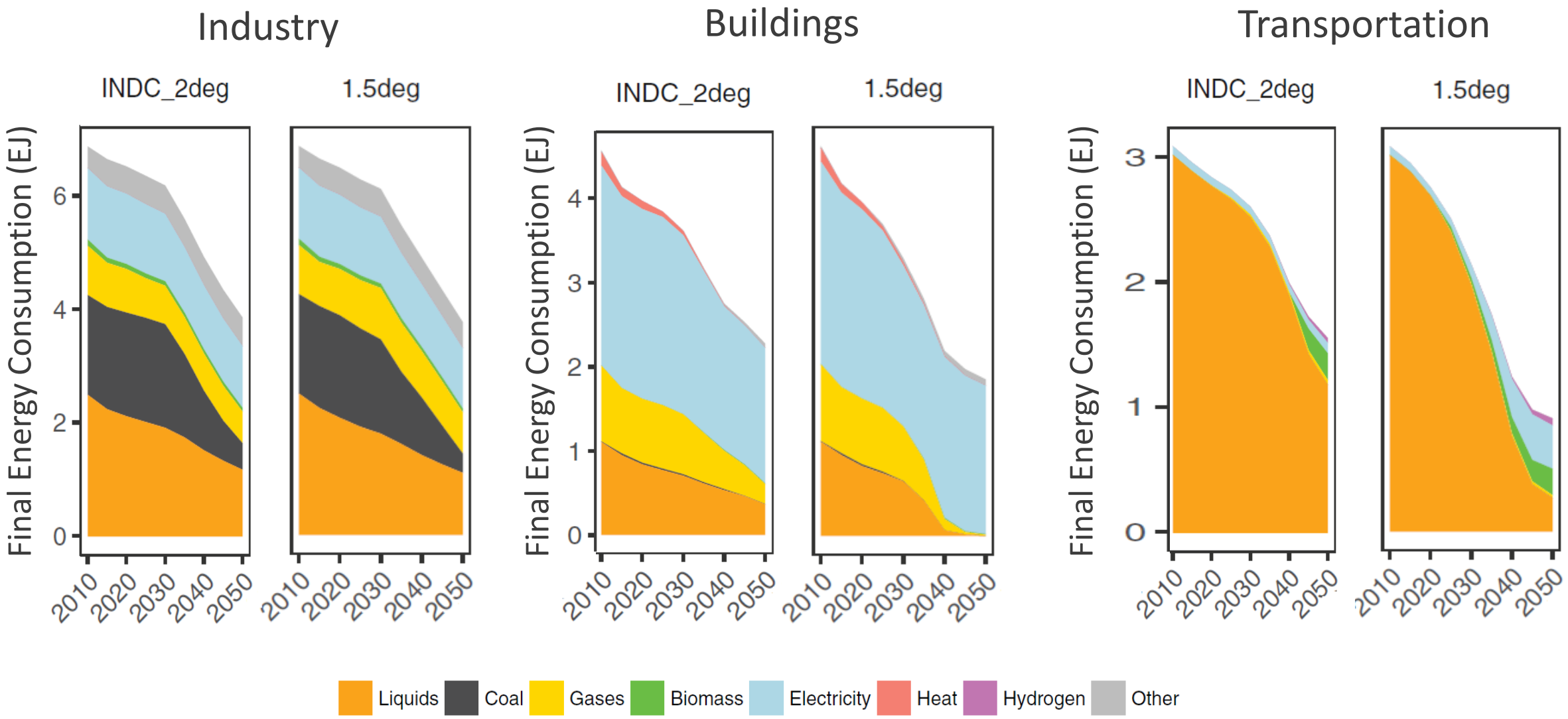
Pathways to limit the global warming to 1.5°C are feasible

- Several country scenarios to limit the global warming to 1.5°C have been published (e.g. Special Issue on 1.5°C Assessment of pathways of the net zero GHG emission consistent with 1.5 degree target studies deep decarbonization potential in Asia as well as perspectives of other countries.)
- The actions for achieving a 2°C target and a 1.5°C target are mostly the same, except that the depth and urgency become higher for the latter.
- Scenarios show some different mitigation potentials by sectors. Energy supply sector requires a radical transformation, including reliance on carbon dioxide removal options such as bioenergy with CCS (BECCS). The building sector may need to be decarbonized even in the 2°C case. The transportation sector will face additional challenges, such as electrification and penetration of biofuel, in the 1.5°C case. In the industry sector, as most of the affordable mitigation options have already been introduced in the 2°C cases, additional mitigation is a challenge.

Sectoral changes to zero emissions – results from AIM/Enduse [Japan]

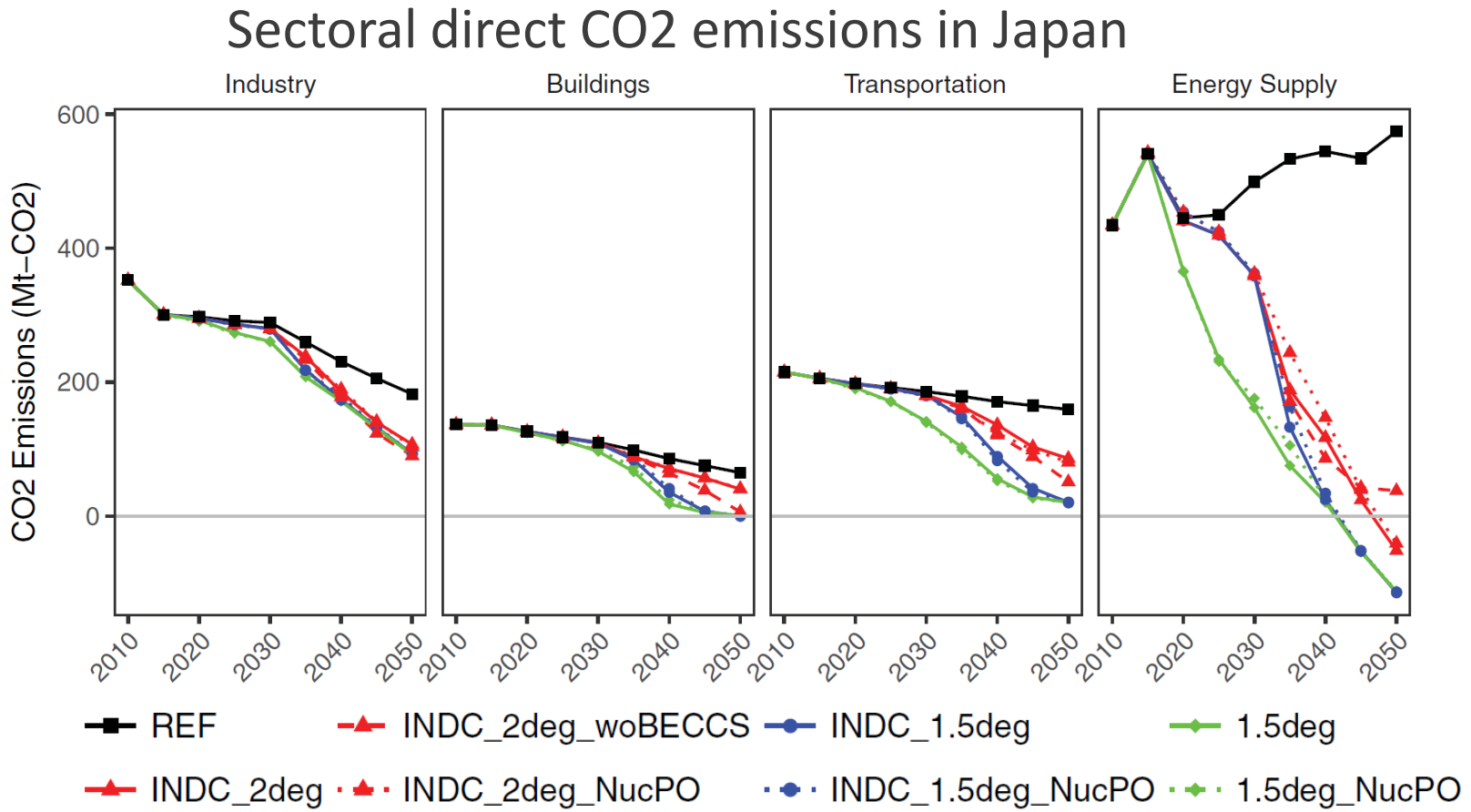
Final energy demand by sector and by energy carrier in Japan



Oshiro, K., Masui, T. & Kainuma, M. (2017). Transformation of Japan's energy system to attain net zero emissions by 2050. Carbon Management

Sectoral changes to zero emissions – results from AIM/Enduse [Japan]

- Power sector requires large scale transformation.
- Difference in net-zero (1.5deg) and 80% reduction (INDC_2deg) cases is moderate in the industry and the buildings sectors.
- Buildings sector needs to be almost decarbonized even in 80% reduction case.



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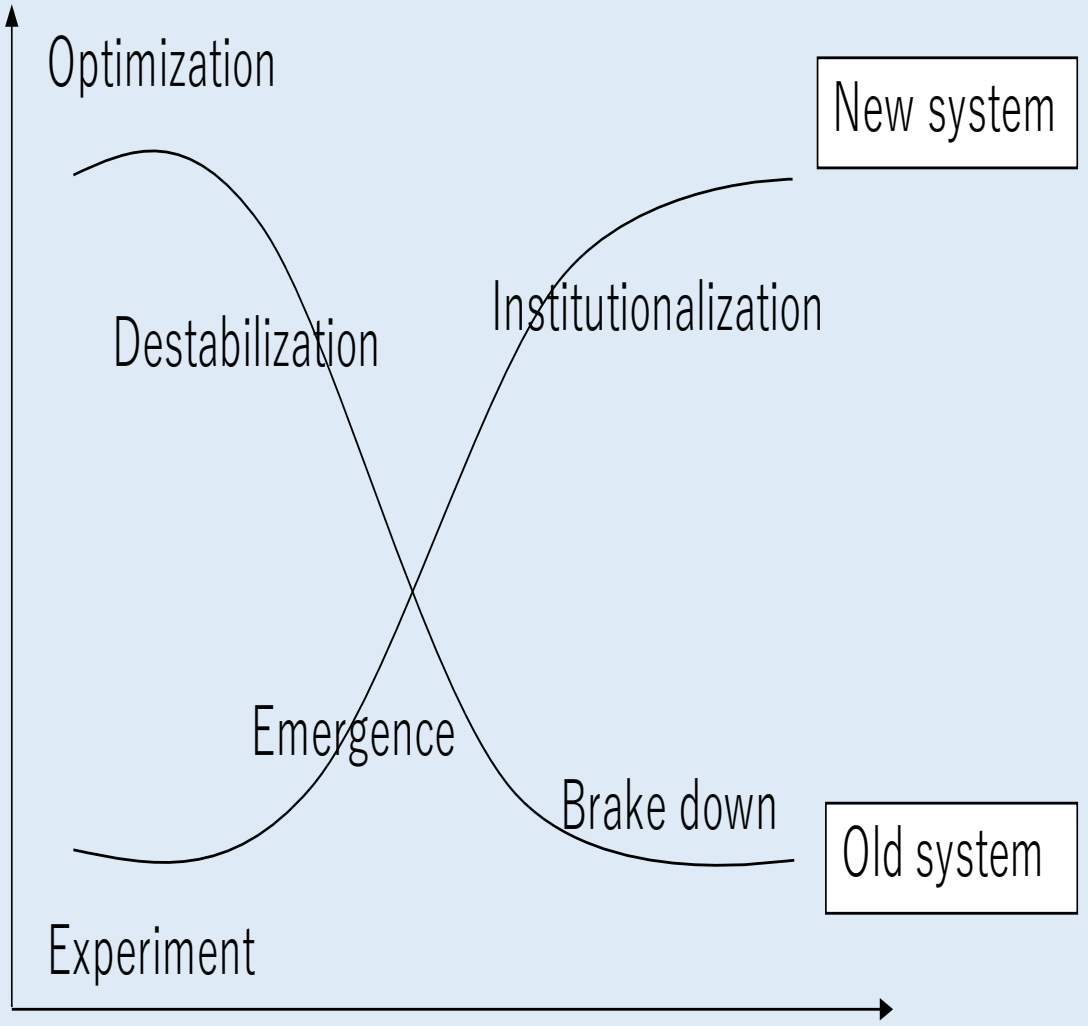
Fast and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems are required to limit global warming to 1.5^{O}C (IPCC SR1.5)

These requires:

- Vision
- Technology innovation
- Social and policy innovation
- Link with sustainable development
- Stakeholders participation

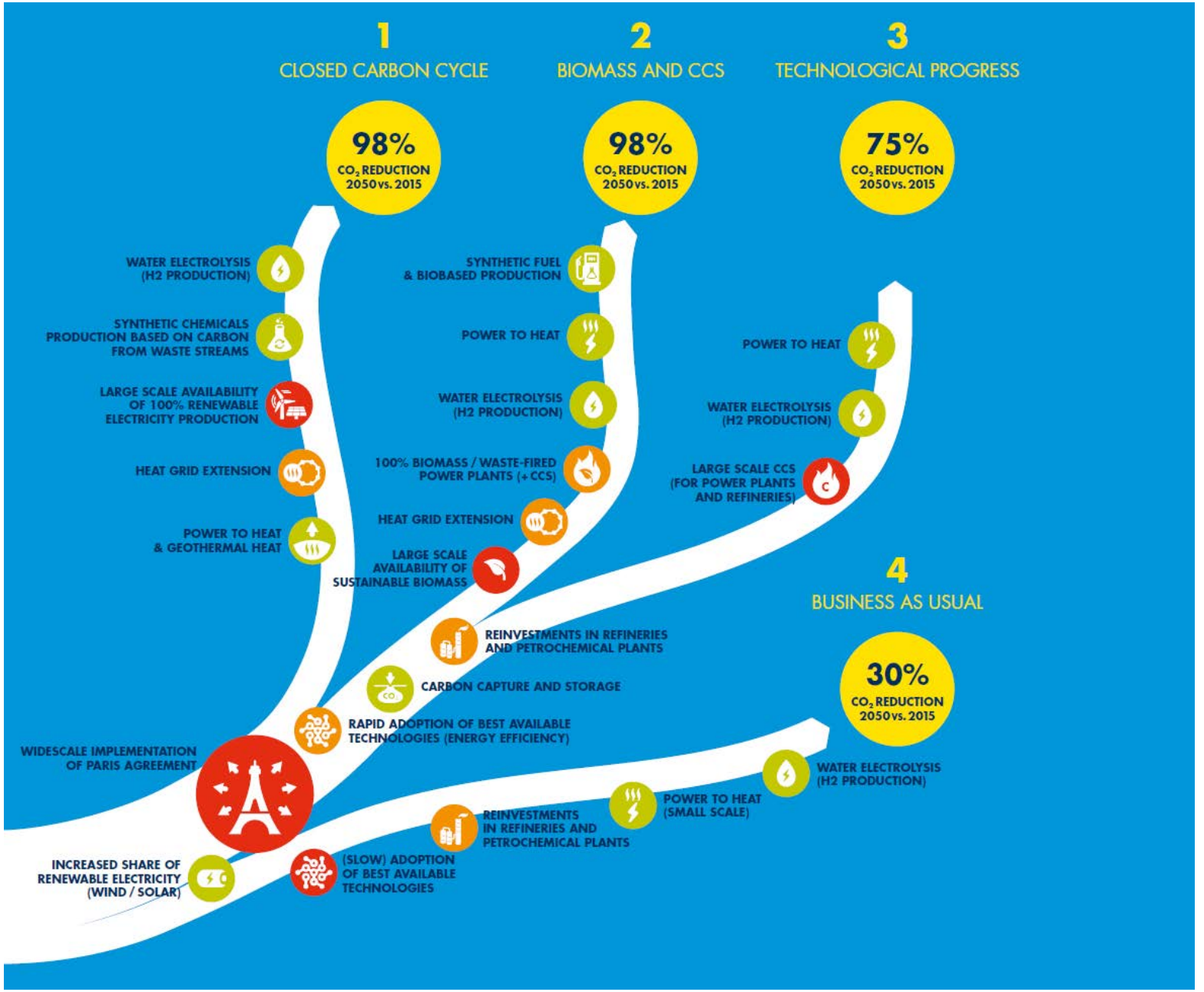


Conceptual diagram for transformation drawn based on the idea from Loorback, DRIFT

Case Studies for low carbon future

Case of Rotterdam Port

- Collaborating with Wuppertal Institute, Rotterdam Port Authority plans to achieve 49% reduction by 2030 and 95% by 2050. Their final goal is carbon neutral.
- Five Transition arena workshops were held during half an year in 2015 with participation from various fields in the authority and clarified their role to make transition happen in Rotterdam Port.



Case of North Rhine-Westphalia (NRW)

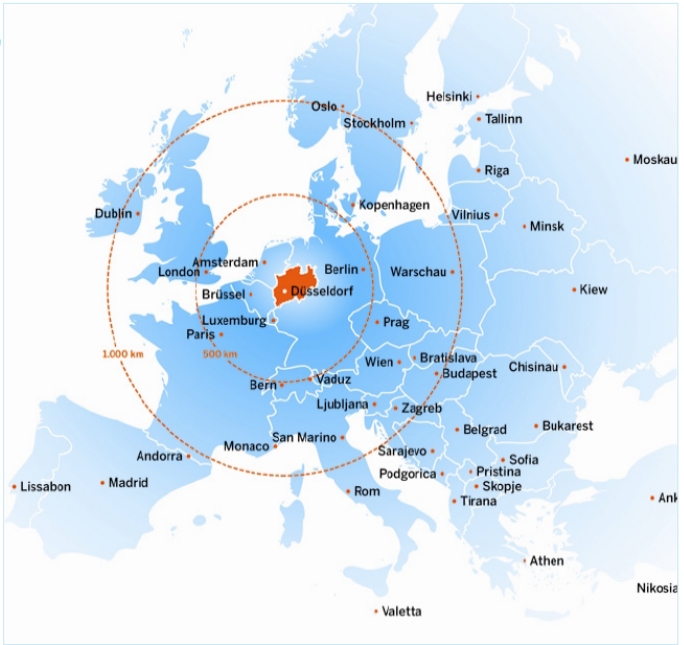
- Climate Protection Act in 2013 and Climate Protection Plan in 2015.
- 25% reduction by 2020 and 80% reduction by 2050.
- 54 strategies and 154 actions
- CPA requests active stakeholders participation.
- Inclusiveness: 6 working groups for mitigation and 4 working groups for adaptation.
- Iterative processes for stakeholders participation.
- Active participation from industry groups with sense of ownerships.
- Soft agreement among stakeholders.

NWR is

Industrial heart of Germany and energy supplier No. 1

Wuppertal Institut

- NRW is a German federal state with a population of 18 million inhabitants (4% of EU, 22% of Germany).
- Share of industry in gross value added (GVA) is 27% (German average: 26%, EU average: 20%)
- Backbone of its economic structure is the energy sector and a huge energy-intensive industry
- 30% of Germany´s electricity supply is produced in NRW (70% coal based, 90% fossil).
- 35% of German greenhouse gas (GHG) emissions (~300 Mio. t/a) comes from NRW (6%-7% of the entire EU GHG emissions).



Role of scientific inputs

Three prototypical scenarios of a low carbon industry in NRW

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	iCCS	*PtX Import*	*all-electric*
TRANSPORT	biofuels	synthetic fuels import	electric motors
BUILDINGS	mixed system: heat pumps, decentralised CHP, bio etc.		
STEEL	coal+CCS	H-DRI (H2 import)	H-DRI
PLASTICS	Steam Cracking+CCS	PtC via methanol (import)	PtC via methanol
INDUSTRY OVENS	fossil fuel + CCS	biomethane (import)	electric ovens
STEAM	fossil+CCS / biomethane		PtH

Source: WI study on "Low carbon Infrastructures"

Shift of participatory approach from sequential to interactive.

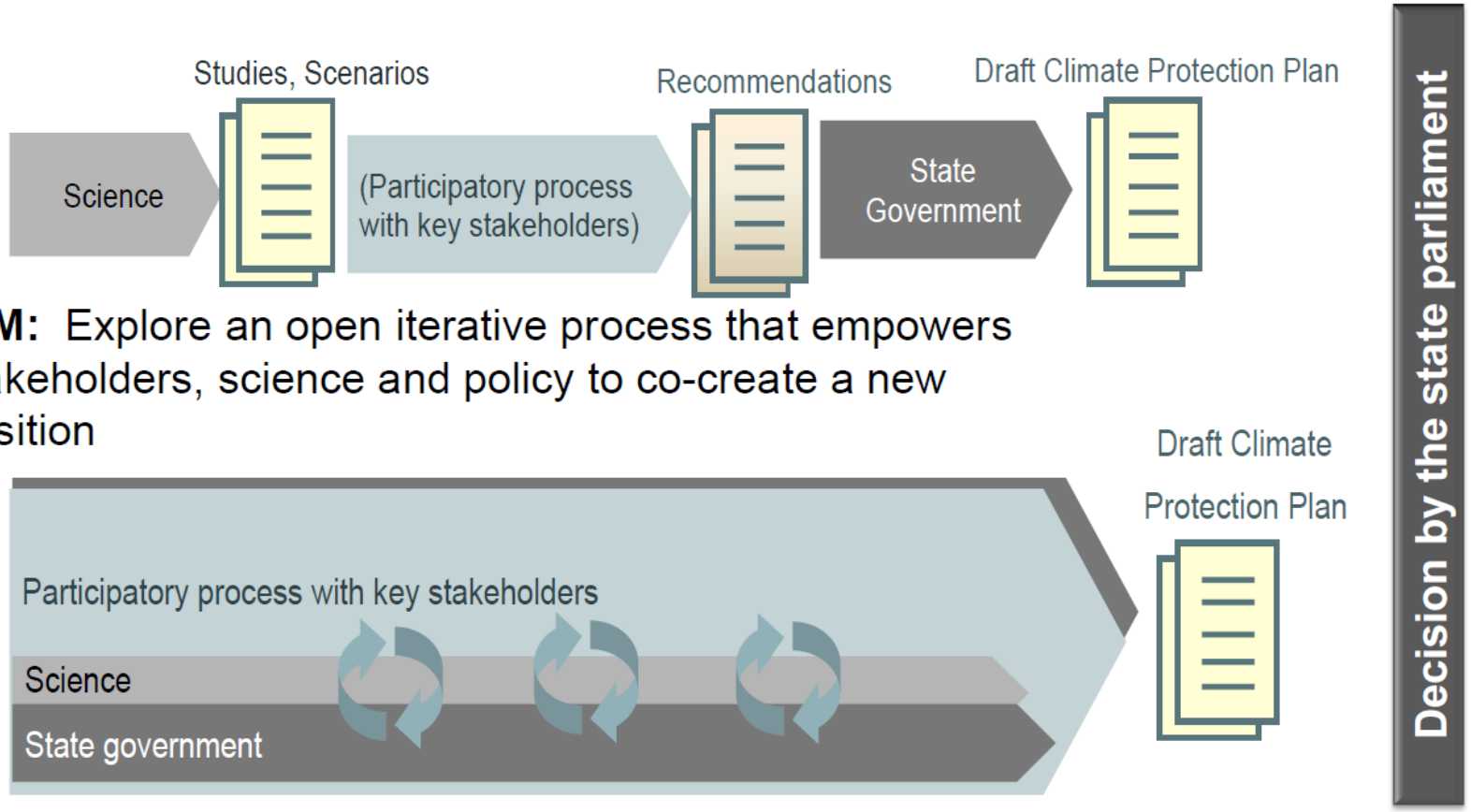
Key factors to promote dialogue

- Leadership of the government/ authorities
- Independent technical support organization: Scientific institute, experts for facilitation

Participatory approach of the Climate Protection Plan

Wuppertal Institut

IDEA: Overcome traditional linear approach of science, society, policy integration



AIM: Explore an open iterative process that empowers stakeholders, science and policy to co-create a new position

Ifok and WI 2012, modified

Experience in “Community of learning for Natural Capital valuation”

- It becomes more and more important to link climate polices with sustainable development policies.
- One of the important factors is natural capital. Some of the `public goods` lack market prices and the value of natural capital benefits are sometimes overlooked.
- Recently several attempts have been made to properly evaluate natural capital for sustainable use of materials.
- These contribute to realize low carbon future.

Lessons learned from business engagement (1/2)

- Experience in "Community of learning for Natural Capital valuation" -

About the community of learning:

- Established among Japanese companies in April 2018 in collaboration with the Institute for Global Environmental Strategies (IGES), Conservation International Japan and Ministry of the Environment, Japan and the Nikkei BP ESG Management Forum as a private sector initiative to introduce, share and research Natural Capital valuation related issues among the business sector. <meet every two month>

Purpose & Expected outputs:

- To share knowledge of related case studies that apply the Natural Capital Protocol, international framework for Natural Capital valuation, to global and Japanese companies along with different methodologies for quantifying subsequent impacts and benefits produced by these companies.
- To exchange of practice and information regarding Natural Capital valuation.
- To promote a mutual learning environment among Japanese companies interested in the valuation of Natural Capital.
- To promote and encourage for Japanese companies to implement Natural Capital valuation in their development strategies.

Source: I. Matsumoto, IGES

Lessons learned from business engagement (2/2)

- Experience in "Community of learning for Natural Capital valuation" -

- Continuous dialogue with members of the community of learning
- Having enough Q&A session and providing a space for mutual learning among members such as small group discussion.

1. Introduction of Int'l framework on Natural Capital valuation (with Director of Natural Capital Coalition)

2. Explanation of detailed step by step process of valuation including Japanese companies example (in Japanese)

2.1. Many questions about purpose and scoping of valuation

3. Planed to explain detailed technical methods of valuation
-> 3.1. <u>Changed a plan to explain more examples of how to set purpose and scoping of valuation (with small group discussion)</u>

<u>4. Organized additional session to explain another Japanese example</u> from the member company (supported a member company to set purpose and scoping of valuation as an example)

Concluding remarks

- There are feasible pathways for liming global warming to 1.5^{o}C.
- These need fast and far-reaching system transitions including all sectors and stakeholders.
- Linkage among stakeholders is important to find the ways. And there are many attempts to communicate among stakeholders for decarbonization.
- Science can provide low or zero carbon scenarios based on scientific findings and policy can provide measures to implement them. Industry can provide low or zero emissions technologies. People can contribute to zero emissions world by choosing zero emissions technologies without decreasing their service demands.
- Participatory processes increase the opportunities to find the ways for decarbonization.

“Live simply so that others may simply live.”

— Mahatma Gandhi

Thank you very much for your kind attention!