

Infrastructure for Sustainability: Climate Change and Energy Storage

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Infrastructure

"...both specific functional modes ... electric power generation and transmission ... and the combined system these modal elements comprise. ... not only these public works facilities, but also the operating procedures, management practices, and development policies that interact together with societal demand and the physical world to facilitate the ... provision of energy where it is needed ... "

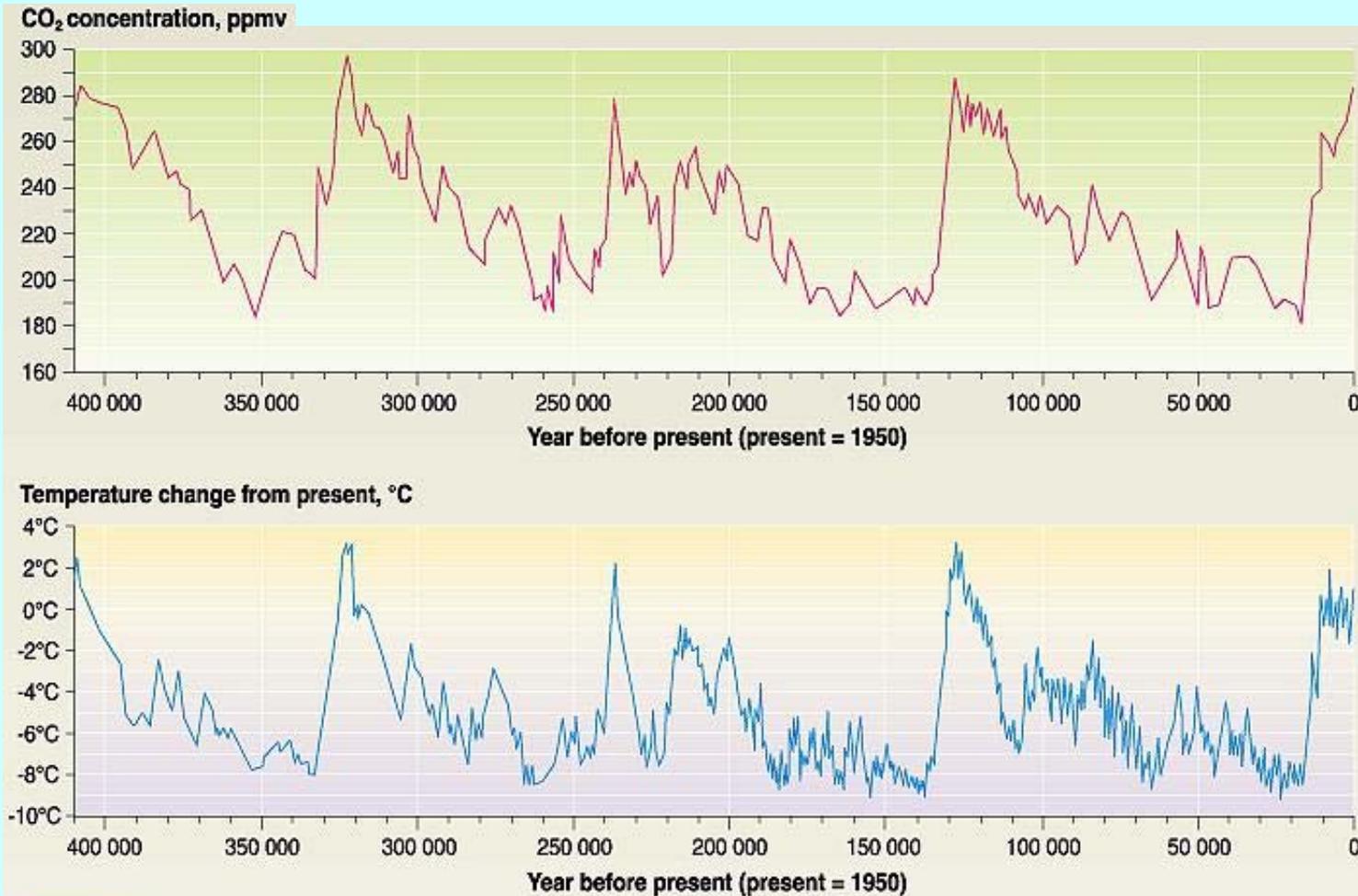
National Research Council, *Infrastructure for the 21st Century*,
National Academy Press, 1987



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Carbon vs. Temperature



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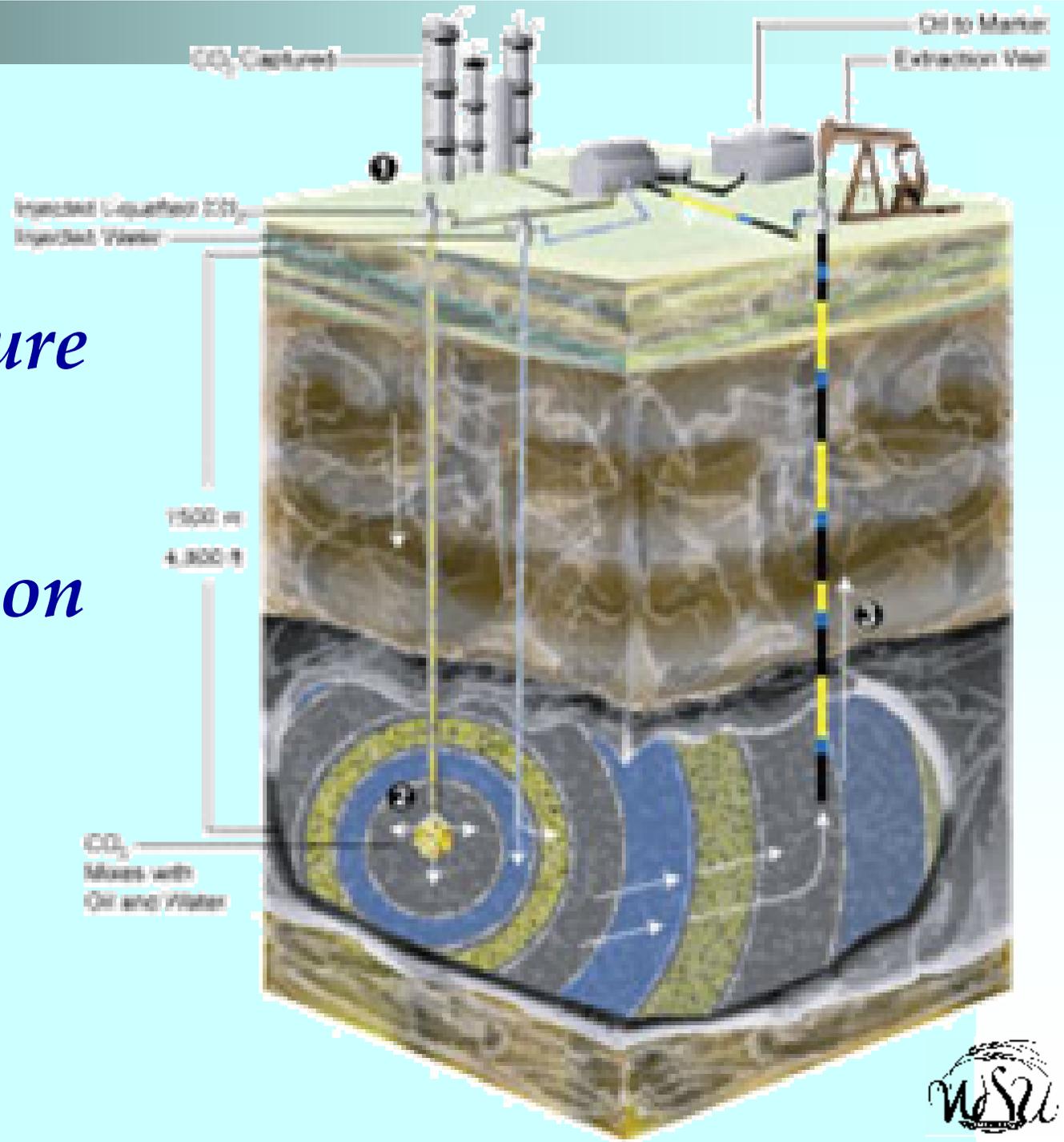


Source: J.R. Petit, J. Jouzel, et al. Climate and atmospheric history of the past 420 000 years from the Vostok ice core in Antarctica, Nature 399 (3June), pp 429-436, 1999.

GRAPHIC DESIGN : PHILIPPE REKACEWICZ



Infrastructure for Carbon Sequestration



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Infrastructure for Markets and Carbon Limits



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Infrastructure for Conservation



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Advanced low-carbon generating technologies



**Supercritical coal
Chungcheongnam-do
Korean Midland Power Co**

Nuclear



Renewable Carbon-neutral Generators



Biomass

Solar

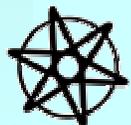


Wind



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Electric Vehicle / Plug Hybrid Infrastructure



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Infrastructure to Accommodate Extreme Weather



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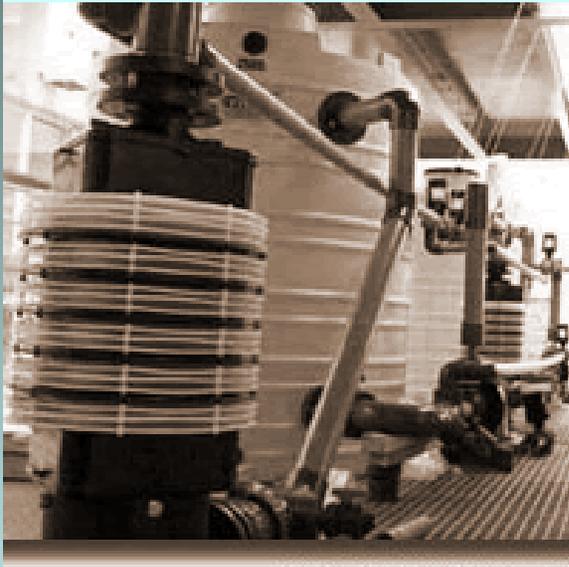
Bulk Energy Storage



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Battery storage technologies



Vanadium Redox

**Lead
Acid**



Sodium Sulphur



**Zinc
Bromine**



Infrastructure for Sustainability: Climate Change and Energy Storage

- CO₂ regulations will have varying but significant infrastructure needs.
- Storage can help but requires significant infrastructure investment.

