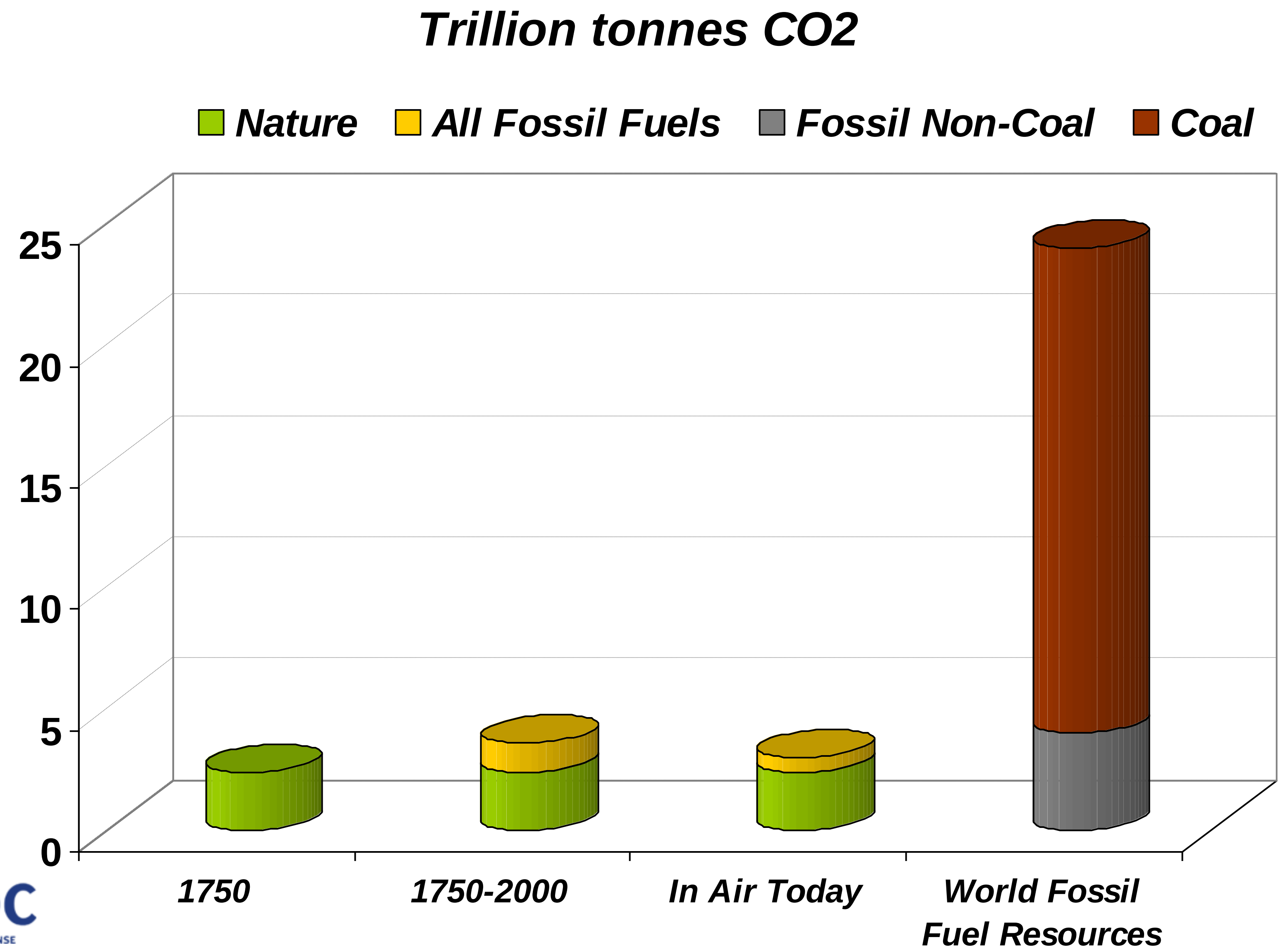
Coal in a Carbon-Constrained World

George Peridas

Natural Resources Defense Council

Apr 2, 2009

An enormous emissions potential



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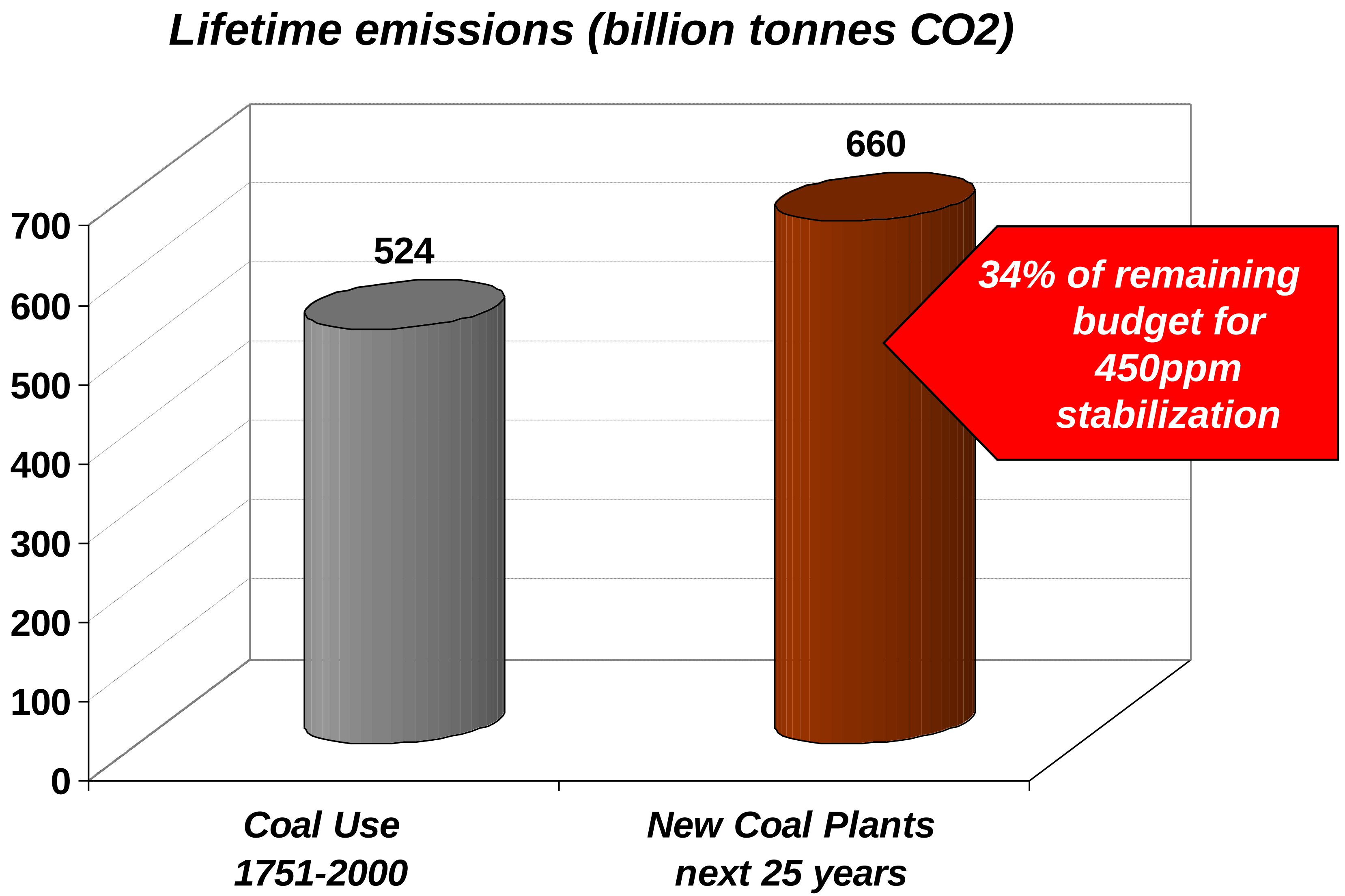
New coal plant emissions 26% greater than all historic coal CO_2



Source: ORNL, CDIAC; IEA, and WEO 2006

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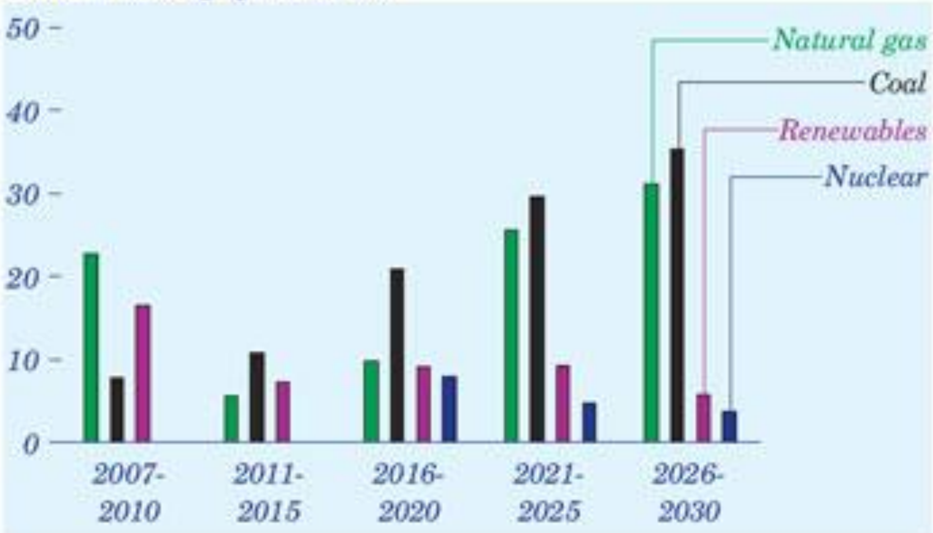
AEO2008 v. AEO2009

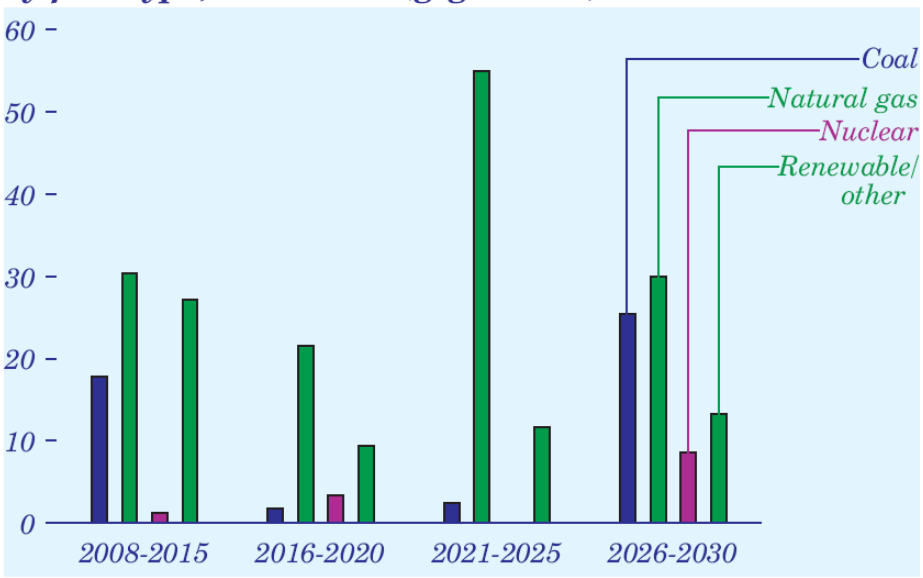
Figure 62. Electricity generation capacity additions by fuel type, including combined heat and power, 2007-2030 (gigawatts)



2008 - coal dominates new build

2009 – *"In contrast, uncertainty about future limits on GHG emissions and other possible environmental regulations (reflected in the AEO2009 reference case by adding 3 % points to the cost of capital for new coal-fired capacity) reduces the competitiveness of coal"*

Figure 56. Electricity generation capacity additions by fuel type, 2008-2030 (gigawatts)



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AEO2009

Coal under carbon constraints = CCS

Figure 23. Cumulative additions to U.S. generating capacity in three cases, 2008-2030 (gigawatts)

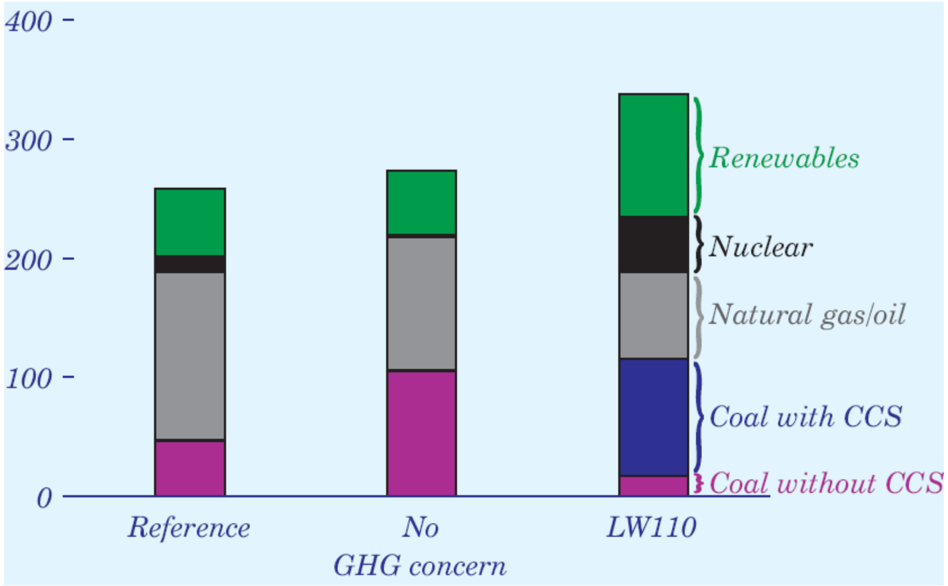
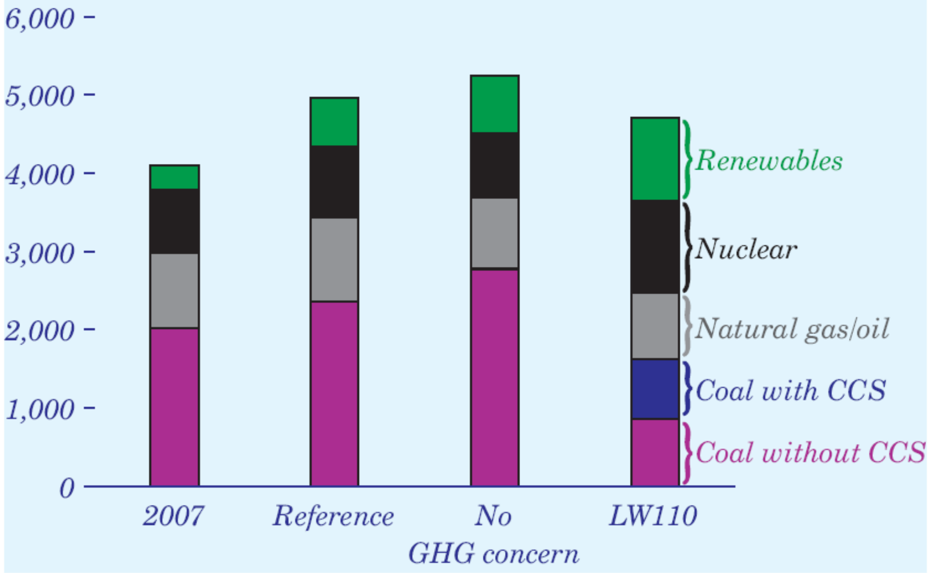


Figure 24. U.S. electricity generation by source in three cases, 2007 and 2030 (billion kilowatthours)



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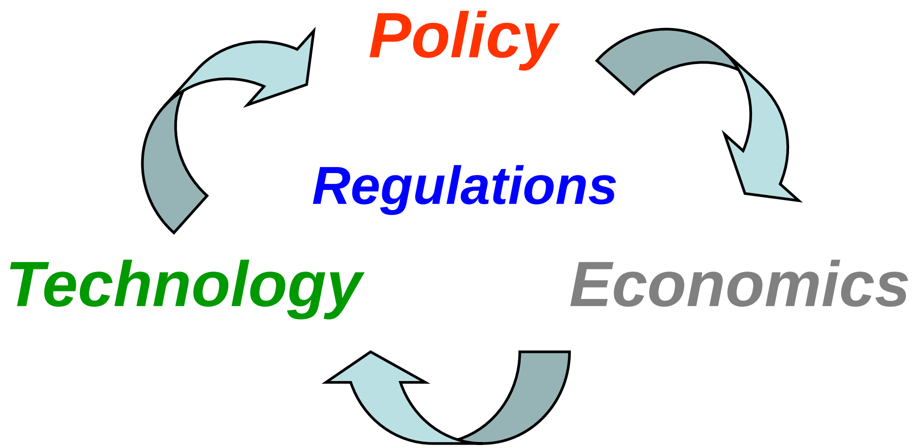
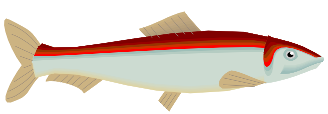
Barriers for CCS



- Technology is <u>not</u> the constraint for the first wave of CCS projects
- Injection regulations: *"Is it legal?"*
  - Standards; property rights; "liability"



- A supportive policy framework: *"Who will pay for it?"*
  - A price on carbon; incentives/tax credits
- "Commercially available"?

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USCAP recommendations

- Requ
  neede
  and p
- Gove
  CCS-
  2015
- Trans
  emiss
  – Sta
  – Cut
- Mand
  plants

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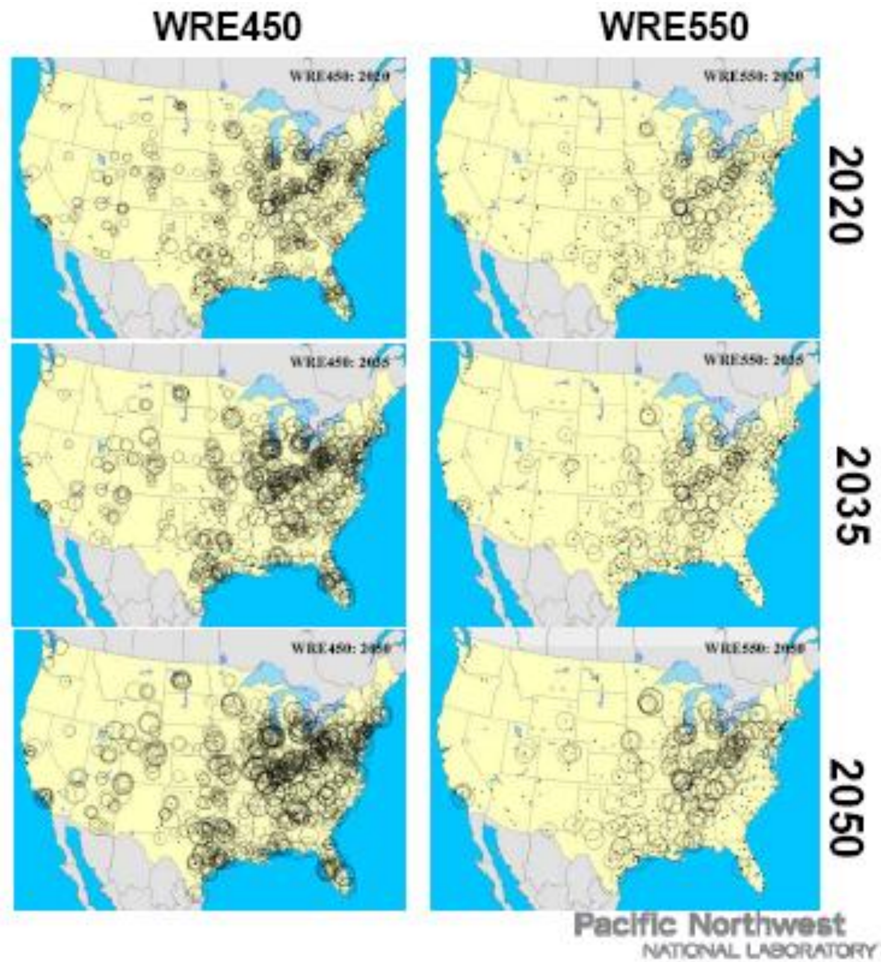
We are only at the beginning

- It is important to realize that we are in the earliest stages of the deployment of CCS technologies.
- The potential deployment of CCS technologies could be truly massive. The potential deployment of CCS in the US could entail:
  - 1,000s of power plants and industrial facilities capturing CO_2, 24-7-365.
  - 10,000s of miles of dedicated CO_2 pipelines.
  - 100s of millions of tons of CO_2 being injected into the subsurface annually.



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Source: J. Dooley, Joint Global Change Research Institute

Contact

George Peridas, Ph.D.

Natural Resources Defense Council

111 Sutter St. 20th Floor
San Francisco, CA 94104

☎ **415-875-6181**
202-390-9453
415-989-0062
🖂 **gperidas@nrdc.org**

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