



Clean Energy for a Secure Future

FutureGen 2.0



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September 20, 2011

www.FutureGenAlliance.org

FutureGen 2.0

The Global Leadership Project

- A ***bold technology response*** to energy and environmental concerns related coal-fueled electricity production
- ***Validate the cost & performance*** of commercial-scale, near-zero emissions coal-fueled power generation with CCS
- ***Successfully meet the institutional and business challenges*** of near-zero emission power
- ***Build global technology acceptance***

FutureGen 2.0

Commercial-scale, Leading Edge

- 202-MWe (gross) Oxy-combustion repowering
- >90% capture
- >1 million tons/year CO₂ captured
- Pipeline transport to CO₂ storage
- Saline geologic formation
- Near-zero NO_x, SO_x, PM, Hg, and HAPs emissions
- Visitor, research, and training facilities
- Stakeholder involvement



Oxy-combustion Repowering **Host Site**



Performance Overview

Gross Output (MWe)	202
Net Output (MWe)	139
CO ₂ Generated (TPY)	1.45M
CO ₂ Captured (TPY)	1.31M
CO ₂ Captured (%)	90

Meredosias Plant

- Location - Meredosias, IL
- Operated by Ameren Energy Resources
- 4 existing units, 3-coal fired (2 idle), 1-oil-fired (idle)
- Truck & barge unloading facilities for coal
- Unit 4 is an excellent plant to repower with Oxy-Combustion technology:
 - Built in 1975
 - Currently idle
 - Appropriate scale; 200 MWe, 2400psig, 1000F, 1000F
 - Turbine/generator have low operating hours and can be placed in service as part of repowered plant

Pipeline and Storage Site

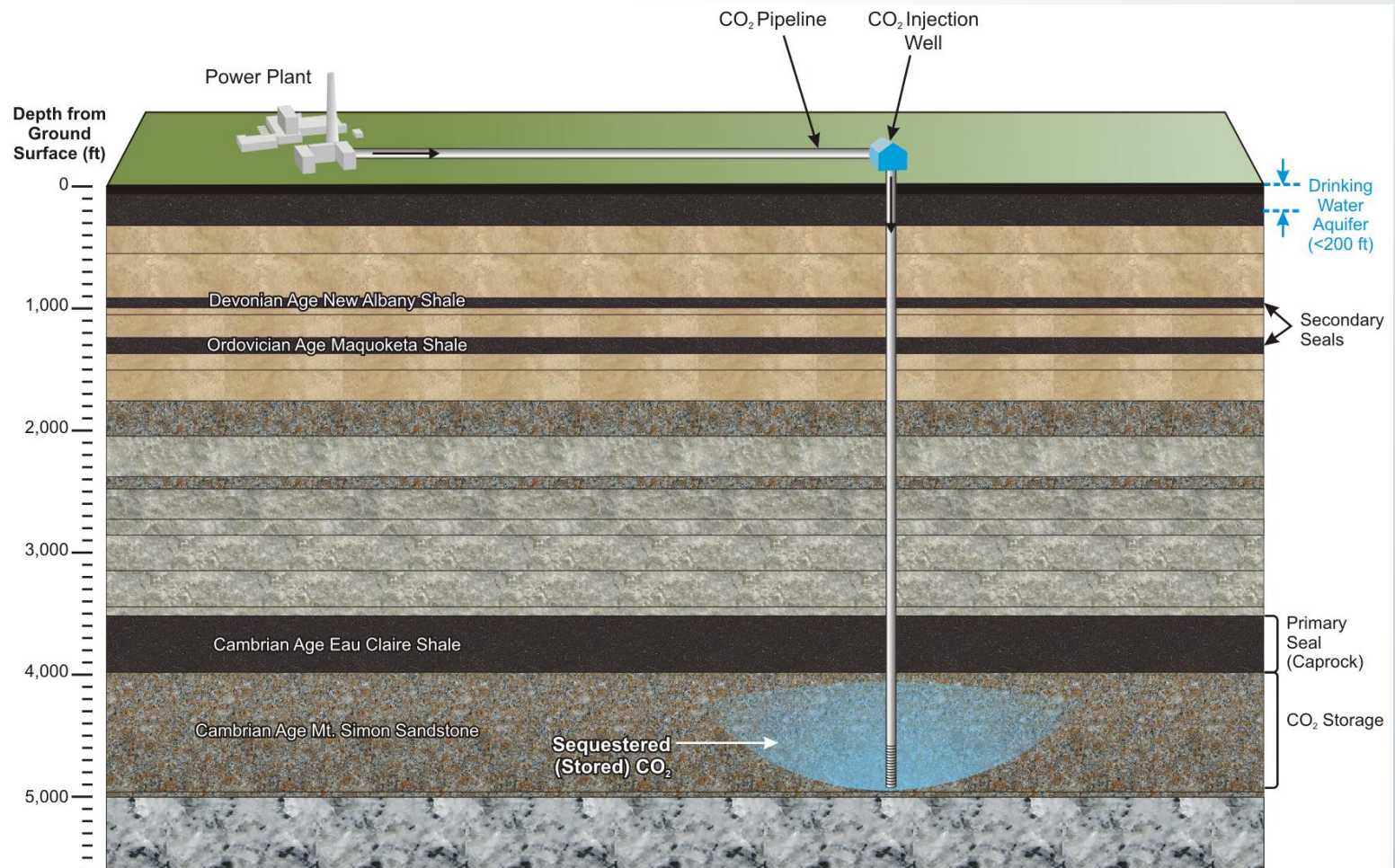
Morgan County Pipeline

- Design Basis
 - 28.9 miles
 - 12" Pipe
 - Minimum four feet burial
 - Two Meter stations
 - Gas Chromatograph
 - Four Main Line Block Valves
 - Sender and Receiver Stations for Pigging
 - Three 750 hp booster pumps



Pipeline and Storage Site

Morgan County Geology

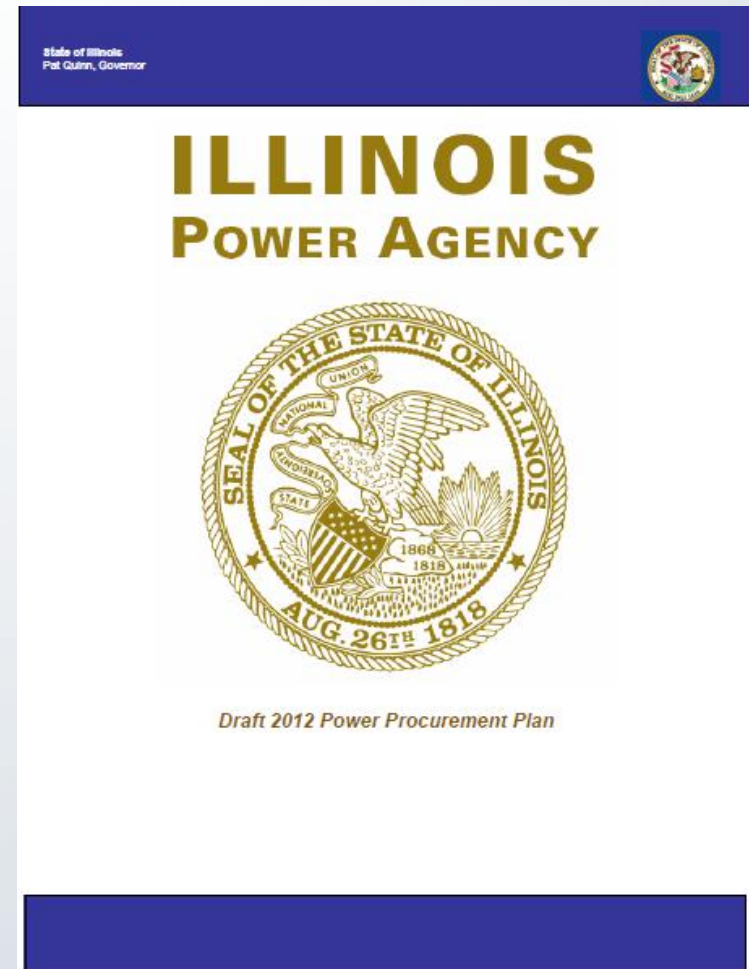


Not to Scale

Non-Technical Factors

Power Purchase Agreement

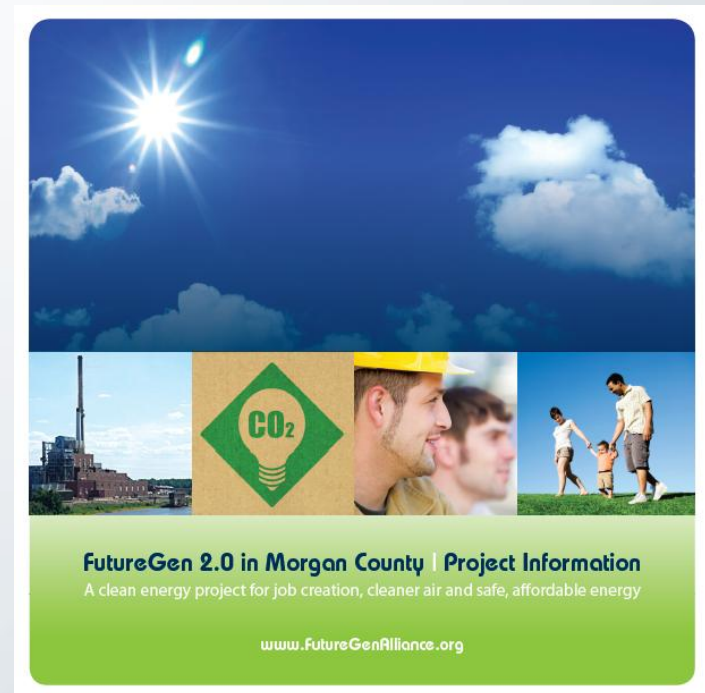
- DOE and Industry funding support the CAPEX
- OPEX must be supported by the power purchase agreement (PPA)
- State Government will facilitate the PPA
 - Special legislation to support CCS projects
 - “Cost-of-service” higher than average market prices is permitted



Non-Technical Factors

Stakeholder Involvement

- Major communications effort
 - Newspaper educational inserts
 - Radio spots
 - Community event sponsorship
 - “Community Corner” updates
 - Community leader updates
 - Open house
- Major engagement effort
 - Established a citizen’s board
 - Public hearings
 - One-on-one landowner visits
 - Union outreach



Non-Technical Factors

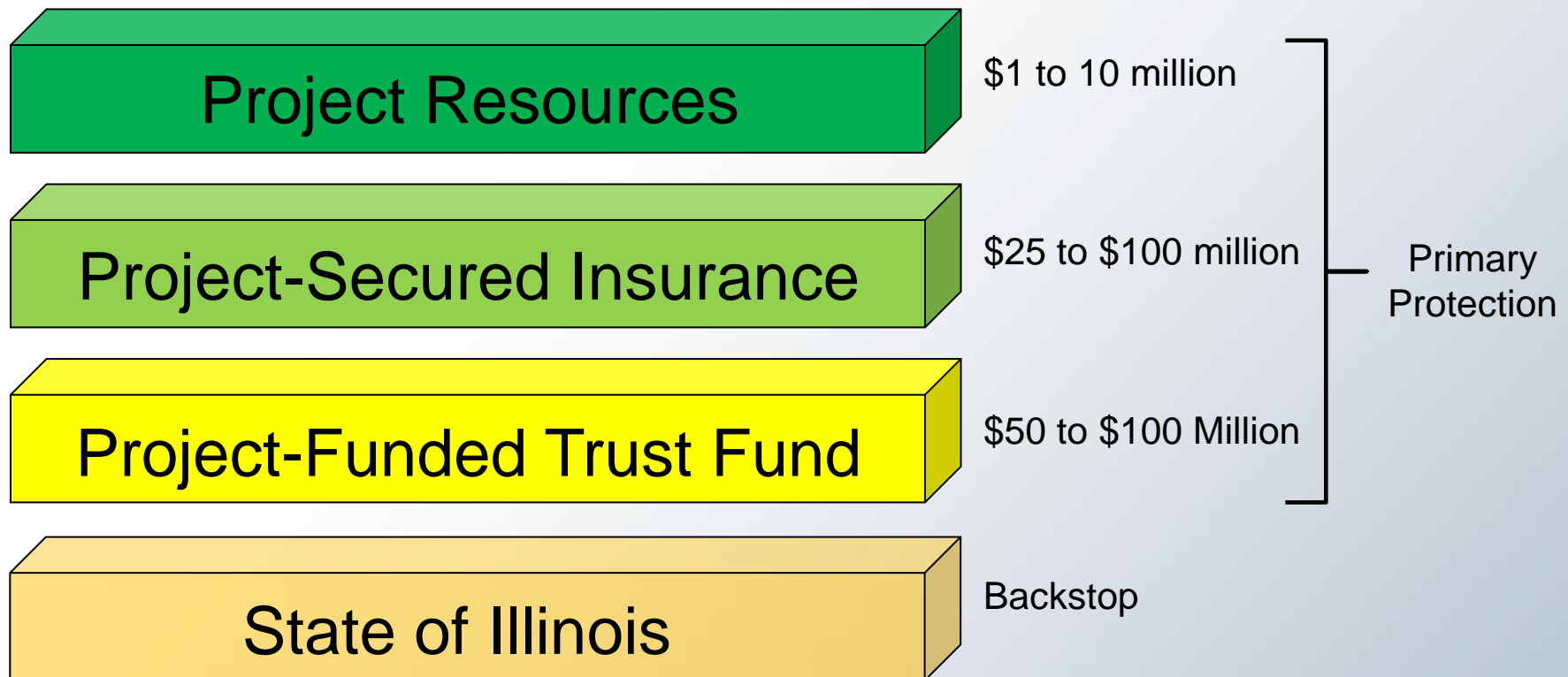
Injection Regulations

- National regulations for CO₂ injection became effective in January 2011
- Govern well field design including monitoring requirements
 - Many implementation issues to be resolved in early projects
- Established financial responsibility requirements for protecting groundwater including:
 - Funding for remediation
 - Funding for post-injection site care



Non-Technical Factors

Liability Management Framework



Summary

U.S. Government Commitment



“FutureGen is a priority”

*President Obama
January 2009*



U.S. DEPARTMENT OF
ENERGY

**The Administration's
commitment
is backed by
\$1 billion in funding**



**“FutureGen reflects
[the Obama]
Administration's
commitment to rapidly
developing carbon
capture and
sequestration
technology”**

Secretary of Energy Chu

Summary

Global Leadership Project

- FutureGen 2.0 represents one of the world's best prospects for a fully integrated near-zero emission project
 - Oxy-combustion
 - Minimum 90% capture on the entire plant
 - CO₂ pipeline network
 - CO₂ storage in deep saline formation
- Positioned for success
 - >\$1 billion in funding firmly allocated
 - Right partners with the right expertise
 - Strong community support
 - Liability management framework

Summary

DOE Acknowledgement

- DOE Acknowledgment:

"This material is based upon work supported by the Department of Energy under Award Number DE-FE0001882."

- DOE Disclaimer:

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Summary

Alliance Acknowledgement

