

# Fossil Energy Historical Timeline\*

## The 2010s

**2010**

The **TOXECON™** process – which resulted from NETL research – is successfully demonstrated at a Michigan power plant. NETL says the process has application to an estimated **167 gigawatts** of existing coal-based capacity, helping a segment of the industry comply with future mercury regulations.



**2010**

FE announces **DryFining Technology™** developed through CCPI research is ready for commercial application. The process extracts more energy from high moisture coal at less cost while reducing harmful emission.



**2010**

Seven projects valued at almost **\$2.4 million** and aimed at advancing coal R&D while providing research exposure to a new generation of scientists and engineers are selected to participate in NETL's **University Coal Research (UCR)** program.

**Did You Know?**

**2010**

Another CCPI cooperative agreement is awarded to **Summit Texas Clean Energy LLC** to design, build and demonstrate a **275-MW IGCC** electric generating facility, complete with co-production of high value products and using carbon capture and storage. In addition to providing enough electricity to power **165,000 homes**, the new plant will boost the local economy by providing **1,500 construction jobs** and **125 permanent operational positions**.



**2010**

Three Recovery Act-funded projects are selected to continue testing **large-scale CCS** from industrial sources. The 3 projects will capture a total of **6.5 million tons of CO<sub>2</sub>** annually, as well as produce **10 million barrels** per year of additional oil using enhanced oil recovery.



**2010**

The **SEQURE™ Tracer Technology**, developed at NETL and winner of the prestigious R&D 100 Award, successfully demonstrates the ability to track the subsurface movement of CO<sub>2</sub> – an important component of carbon capture and storage – at a New Mexico pilot test site.



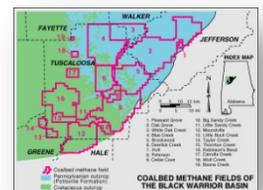
**2010**

The **Stripper Well Consortium** – a program that has successfully provided and transferred technological advances to small, independent oil and gas operators over the past nine years – is extended to 2015. Nearly **100 projects** have been funded since the initiation of the consortium in 2001.



**2010**

A team of regional FE partners tests the potential for combining **geologic CO<sub>2</sub> storage with enhanced methane recovery** at a site in Alabama.



**FE RESEARCH  
A CLOSER LOOK**

\* Click on images for more information

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**2010**

NETL researchers develop a process and related technology for rapidly forming methane hydrate that could eventually improve the nation's ability to use stranded natural gas and vast hydrate resources.



**2010**

An innovative telemetry communications system developed through FE's **Deep Trek Program** is commercialized and helps producers tap hard-to-reach natural gas resources deep underground. DOE estimates there are more than **125 trillion cubic feet** of untapped natural gas in place at depths of 15,000 feet and greater.



**2010**

Two NETL-developed technologies – one to extend the life of metal components used in high-efficiency energy production and the second an open-source software toolkit that streamlines the engineering and design process for advanced power generation systems – received prestigious **R&D 100** awards for 2010. NETL has won more than 30 of the awards – given for products and processes “that can change people's lives for the better” and “improve the standard of living for large numbers of people” – since 2000.



**2010**

DOE signs final cooperative agreements with the FutureGen Industrial Alliance and Emeren Energy Resources to formally commit \$1 billion in Recovery Act funding to build **FutureGen 2.0**. The retrofitting project, which will bring **900 jobs** to Illinois and another **1,000** to suppliers across the state, will help position the U.S. as a leader in innovative technologies for reducing carbon emissions from existing coal-fired power plants.



**2010**

The third edition of NETL's **Carbon Sequestration Atlas** estimates there may be as much as 5,700 years of CO<sub>2</sub> storage potential in geologic formations in the U.S. and portions of Canada.



**2011**

An FE/industry partnership installs the first fully instrumented gas hydrate test well in Alaska. The well is available for extensive production testing programs in coming years.



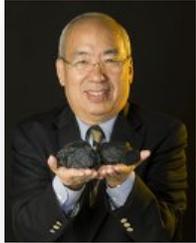
**2011**

NETL's **Basic Immobilized Amine Sorbent (BIAS)** process that improves CO<sub>2</sub> capture from power plants while reducing costs, is selected to receive a 2011 **Award for Excellence in Technology Transfer**.



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**2011**

An innovative technology that could help release some of the currently unusable energy in an **estimated 2 billion tons** of U.S. coal waste material is successfully demonstrated as part of an FE-supported project.

**2011**

NETL begins field testing a novel water cleaning technology that could significantly reduce potential environmental impacts from producing natural gas from Marcellus Shale and other geologic formations.



**2011**

A NETL-funded study concludes a private sector model with a state rather than federal-based regulatory framework is the approach that will most likely result in a "robust" **CO<sub>2</sub> pipeline system** in the United States.

**2011**

Under the **Carbon Capture Simulation Initiative (CCSI)**, FE partners with other national labs, universities, and industry to develop state-of-the-art computational modeling and simulation tools aimed at accelerating CCS technology commercialization.



**2011**

Assisted by additional Recovery Act funding, FE's **Advanced Turbines Systems** program continued groundbreaking research to develop advanced **hydrogen fueled gas turbines** that can operate at future IGCC plants employing carbon capture and storage. Achieving this goal will recover much of the performance penalty incurred in today's baseline IGCC with CCS as well as achieve emission of CO<sub>2</sub>, SO<sub>2</sub>, carbon monoxide and particulate matter that are near-zero when compared with other combustion-based methods of power generation.

