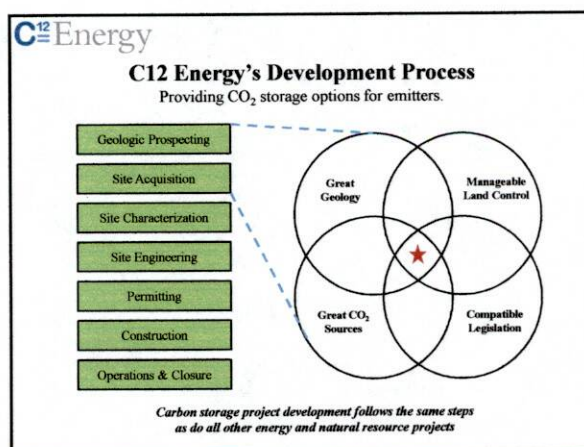
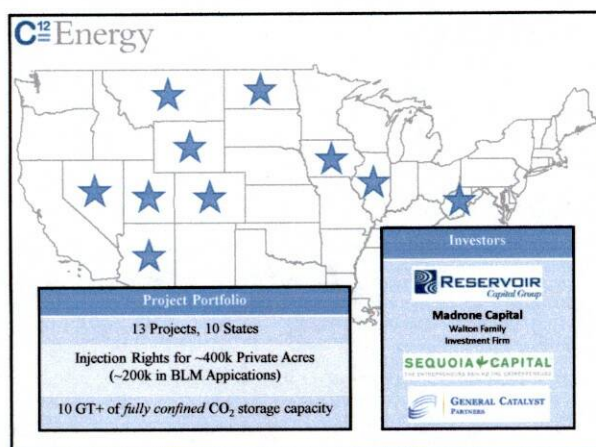
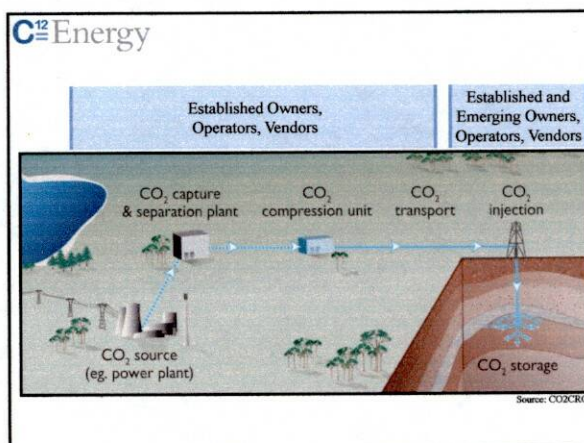
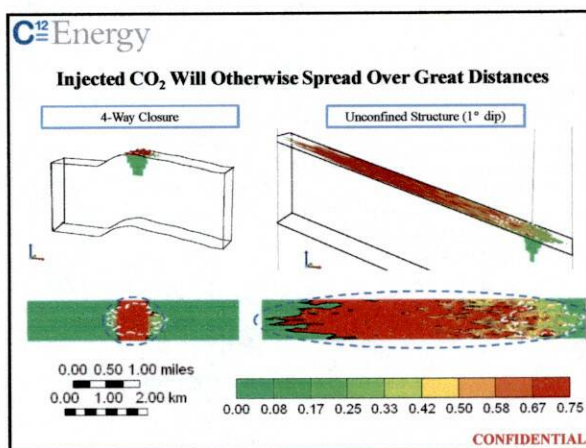
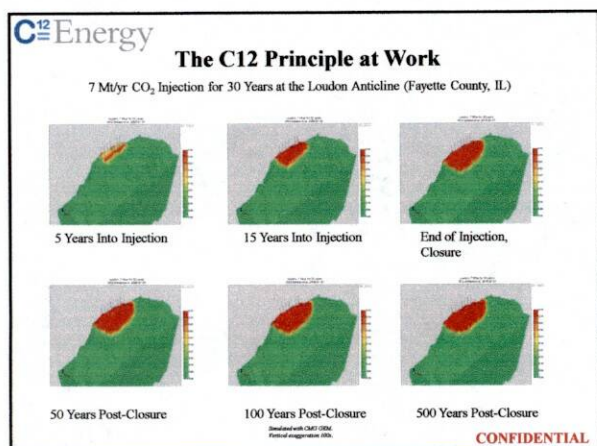
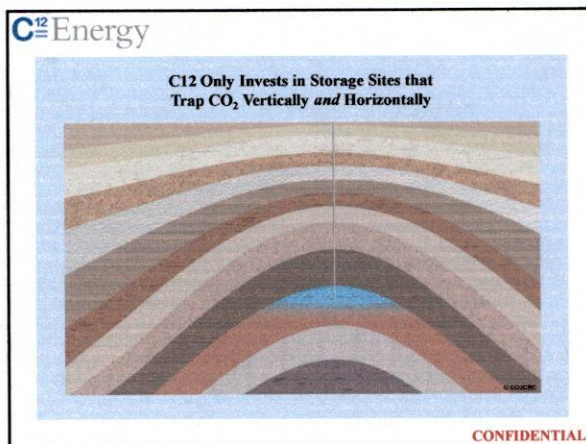
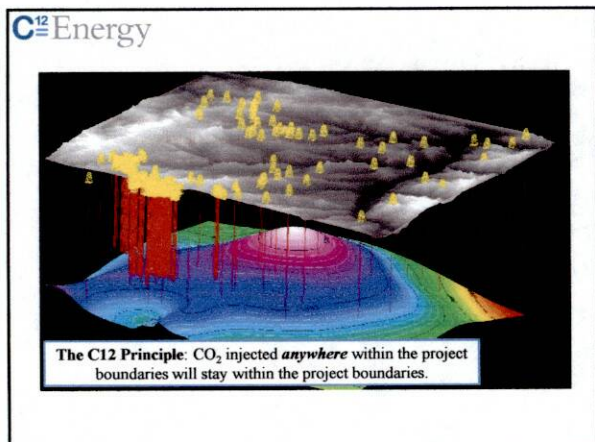
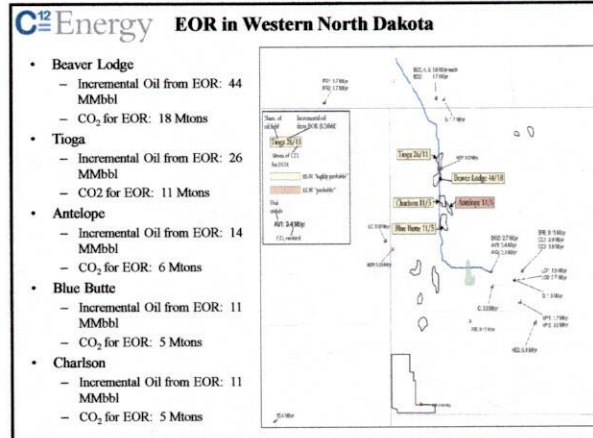
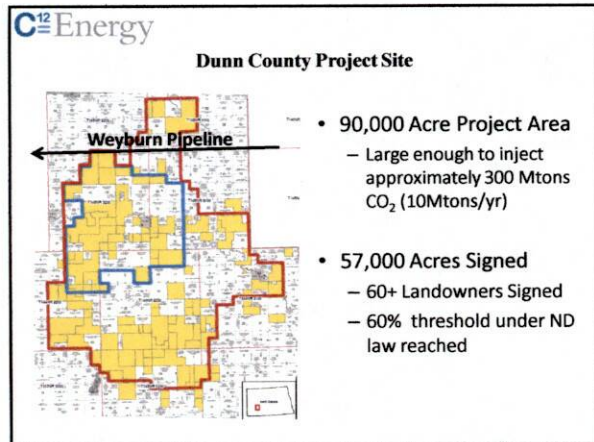


**C<sup>12</sup> Energy**

## C12 Energy and Commercial Carbon Storage Project Development









## Dunn County Carbon Dioxide Storage Project

Before the North Dakota Energy Development and Transmission Committee

October 3, 2011

Barclay Rogers  
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## 1 Introduction

Mr. Chairman, and members of the committee, thank you for the opportunity to speak to you today. My name is Barclay Rogers, and I am the Director of Development for C12 Energy. I am joined by Daniel Enderton, our Director of Government Affairs.

We are developing a CO<sub>2</sub> storage project in Dunn County because it will enable enhanced oil recovery in the state and will provide a viable compliance option in the event that CO<sub>2</sub> regulation is imposed in the future. In much the same way that the legislature enabled CO<sub>2</sub> storage project development by passing an excellent law in the form of Chapter 38-22, we are developing CO<sub>2</sub> storage projects to facilitate further development of North Dakota's abundant energy resources, in particular coal and oil.

## 2 Introduction to C12 Energy

C12 Energy (C12) is a developer, owner, and operator of geologic CO<sub>2</sub> storage facilities. Our business is to manage CO<sub>2</sub> streams to provide dispatchable CO<sub>2</sub> for enhanced oil and gas recovery operations as well as provide permanent storage options for coal-burning facilities. The development of new carbon storage projects will facilitate enhanced oil recovery as well as bolster the competitiveness of coal in a world of regulated CO<sub>2</sub> emissions.

C12 is currently developing 13 projects across 10 different states, including a project here in North Dakota. We have acquired injection rights to over 400,000 acres of privately owned pore space and have submitted applications for over 200,000 acres of pore space managed by the Bureau of Land Management (BLM). We have partnered with nearly 80 landowners with approximately 60,000 acres of land in Dunn County, and will soon be seeking a permit for a major CO<sub>2</sub> storage project from the North Dakota Industrial Commission.

C12 is a commercial enterprise privately financed by some of the nation's leading private equity firms, include Reservoir Capital, Sequoia Capital, Madrone Capital, and General Catalyst Partners.

## 3 CO<sub>2</sub> Storage Project Development

Storage project development starts with identifying and acquiring the rights to reservoirs suitable for the long-term storage of CO<sub>2</sub>. At C12, we follow the simple principle that one must define a project boundary such that any CO<sub>2</sub> injected within a boundary will stay within that boundary in perpetuity. The simplest, safest, and most cost-effective approach to satisfying this principle is to utilize a geologic structure such as an anticline that we know will trap fluids in the subsurface for millions of years, as experience from oil and gas have taught us (think of an upside-down bowl under water trapping a bubble of air).

We take pride in including landowners as part of our projects by working with them directly to educate and compensate them for the rights to use their pore space. By way of example,

landowners at our Dunn County project stand to make between \$25-\$50 per acre per year during injection for a commercial-scale CO<sub>2</sub> storage project, which would generate additional income of \$20,000-\$40,000 per year for a period of approximately 30 years for an average-sized landowner in the project area.

Once sites are identified and acquired, we continue to develop them through characterization, engineering, permitting, construction, and operation – a process exactly analogous to other natural resource project development industries. We have commenced the process of preparing a permit application for the Dunn County project, and look forward to filing that application with the NDIC in the next few months.

#### 4 The Dunn County Project

Our Dunn County project is based near the town of Halliday, approximately 60 miles northeast of Dickinson. The project spans nearly 90,000 acres, and has the capacity to store the CO<sub>2</sub> emissions from 1 or more large coal-fired power plants or other CO<sub>2</sub> sources. The injection target is the Dakota Sands (sometimes referred to as the Inya Kara formation), which is approximately 5,000 feet beneath the surface. The Dakota Sands sit approximately 3,000 feet below the drinking water aquifer in the region, and approximately 5,000 feet above the oil bearing formations (e.g., the Bakken). Given its superior injection properties (i.e., excellent porosity and permeability), the Dakota Sands is often used for brine disposal.

As members of this committee are well aware, there are several existing coal-burning stations in this area, including Antelope Valley, Coal Creek, Milton Young, Leland Olds, and others. In addition, the Dakota Gasification Synfuels plant, which has been very successful in selling its CO<sub>2</sub> for enhanced oil recovery purposes in Saskatchewan, lies about 30 miles to the east of the project area. We understand that there are other proposed coal-fired facilities in the region.

As the members of the committee are also well aware, several oil fields that have been identified as prime candidates for enhanced oil recovery lie to the west of the project area. The estimated recoverable oil from enhanced oil recovery for some of the key fields in the region exceeds 100 MMbbl with field estimates as follows:

- Beaver Lodge: 44 MMbbl
- Tioga: 26 MMbbl
- Antelope: 14 MMbbl
- Blue Butte: 11 MMbbl
- Charlson: 11 MMbbl

We are developing the Dunn County project to ensure that North Dakota's energy resources – in particular, its coal and oil -- are used to greatest effect under all regulatory environments. We will unlock 100 MMbbl of additional oil by providing a source of stable, secure CO<sub>2</sub> for enhanced oil recovery purposes. And we will ensure that North Dakota's coal-burning facilities have a viable compliance option in the event that CO<sub>2</sub> emissions are



regulated in the future. I am happy to answer any of your questions. Thank you.