

Carbon Assets

SOLUTIONS

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- ▶ Background:

- ▶ The Western Climate Initiative (WCI) and the California Air Resources Board (ARB) have mandated a Cap-and-Trade program to reduce emissions to *40% below 1990* levels. All businesses emitting over 25,000 metric tons of emissions must roll back their emissions to zero through the purchase of carbon credits/offsets. These may be from sequestration programs and or investment in renewable energy sources. One carbon credit offset = 1 metric ton of CO₂ or GHG emission reduction.

- ▶ Two Types of Buyers:

- ▶ Compliance Buyers. Mandate legally binding targets. An example of a compliance buyer, Oil and Gas Industry, Public Utilities, Heavy Manufacturing. Under a compliance market targets must be met by November of each year other wise penalty is = 4x the auction price.

- ▶ Voluntary Buyers: A buyer who voluntarily purchases offsets. As an example, Individuals may buy to offset their annual commercial flight CO₂ footprint or a socially conscious corporation emitting under the 25k MT maximum limit.

- ▶ Canada's Quebec, Ontario and Manitoba have also joined the market.

- ▶ *To obtain the ARB certification for compliance offsets the process is rigorous time consuming and costly.*

- ▶ Under ARB, The Forest Protocol provides requirements and methods for quantifying the net climate benefits of activities that sequester carbon on forestland. The protocol provides offset project eligibility rules; methods to calculate an offset project's net effects on greenhouse gas (GHG) emissions and removals of CO₂ from the atmosphere (removals); procedures for assessing the risk that carbon sequestered by a project may be reversed (i.e., released back to the atmosphere); and approaches for long-term project monitoring and reporting. The protocol is designed to ensure that the net GHG reductions and GHG removal enhancements caused by an offset project are accounted for in a complete, consistent, transparent, accurate, and conservative manner and may therefore be reported as the basis for issuing ARB or registry offset credits.

“Additionality”. Additionality is the added growth as a result of an IFM program. The ability to monitor and account for this growth is what allows for the creation of GHG offsets over the long periods of a growth cycle.

- ▶ Under ARB a carbon sequestration program is implemented, for purposes of this writing we assume through an improved forest management program. A new IFM project generates carbon credits through the sequestering of CO₂. (photosynthesis) The credits are certified by one of the certifying bodies, ARB for example or VERA, then purchased by companies to claim the underlying reductions towards their GHG reduction goals.

- ▶ Carbon credit programs are now internationally adopted for voluntary and compliance markets. Credits are certified by governments and international certification bodies and are traded privately and on numerous exchanges worldwide.

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- ▶ We offer a program for privately owned forested lands to create significant additional streams of revenue by implementing an Improved Forest Management IFM program. Our program does not eliminate the ability to harvest merchantable timber. As a result, our program generates two cash flow streams.
 1. Selective harvesting under the IFM protocol requires selling board feet of timber from the mature trees. We define mature trees as those whose sequestration dynamic is neutral to negative.
 2. Selective harvesting allows for faster growth of younger trees, as such more sustainable forest stands and a carbon project that sequester carbon allow for the sale of offsets and significant revenue for extended periods of time.
- ▶ Current Project Under Development:
- ▶ Highsprint, Harlan County Kentucky.
- ▶ 5686 acres under a 50-year land lease and 100-year easement. Lease encumbers all timber and environmental assets. I.e., carbon offset credits.
- ▶ Project development: 4 phases 12-14 months. Total development cost, \$32 per acre.
- ▶ Lease cost: \$219 per acre pre-paid year one. \$1.25m
- ▶ Expected PV of timber and carbon revenue year 2-25 @ 10% discount rate \$875.
- ▶ Equity Multiple: $\$875/\$251=3.48X$

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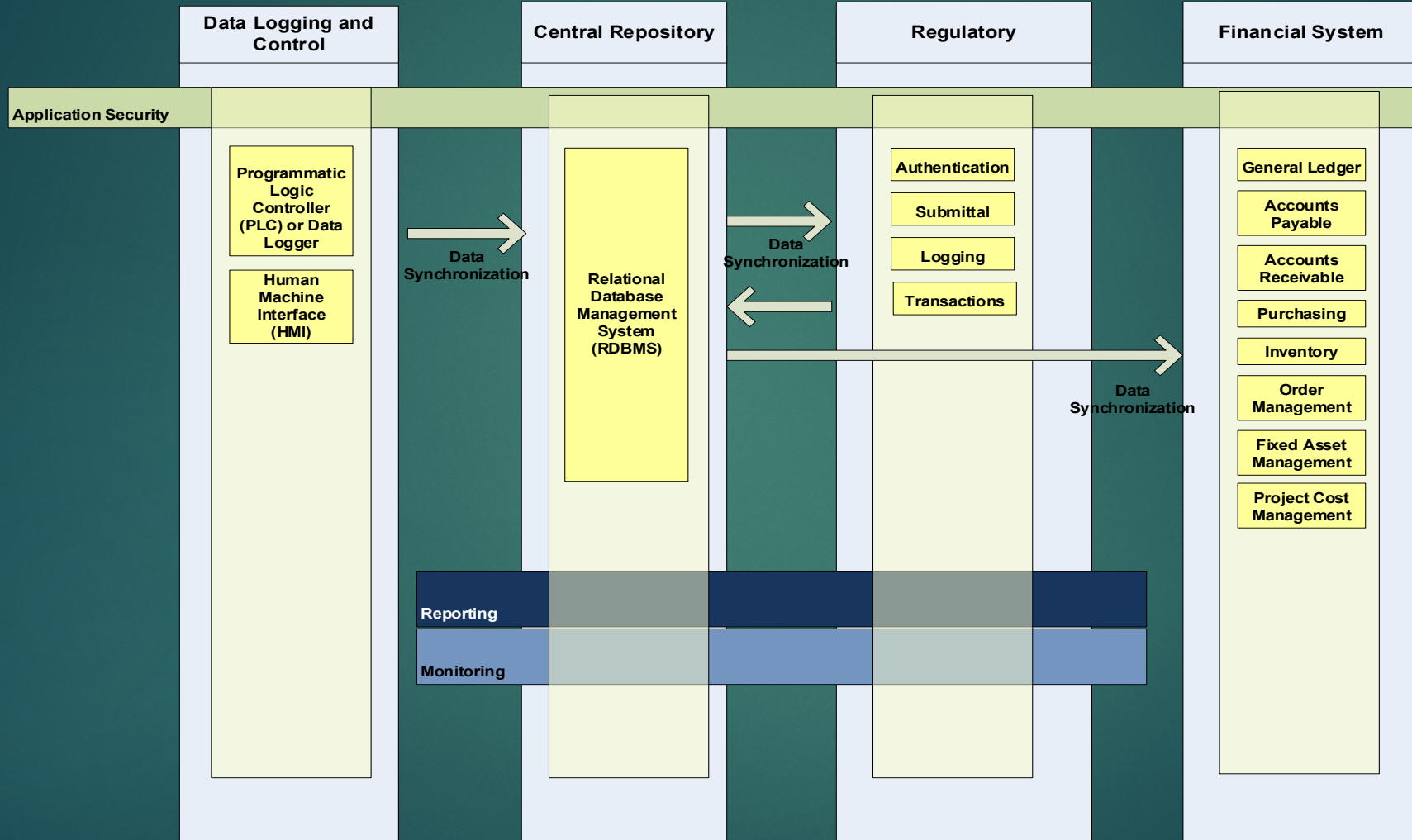


The system provides solutions that are secure, scalable, quickly deployed, and remotely maintainable

Solutions include:

- ▶ Data Logging and Control
- ▶ Central Repository
- ▶ Monitoring & Reporting
- ▶ Regulatory Integration
- ▶ Financial System Integration

Carbon Assets - Architecture



Carbon Assets – Data Logging and Control

- ▶ All site equipment can be monitored and controlled by Programmable Logic Controllers (PLCs)
- ▶ Programmable Logic Controllers (PLCs) data is stored locally and synchronized to the Central Repository using various methods such as Internet, cellular, and manual storage retrieval
- ▶ The Programmable Logic Controller (PLC) is the brain of the system through the use of inputs such as sensors to regulate potential outputs

Carbon Assets – Central Repository



- ▶ The Central Repository utilizes the following functionality to gather and store information from all sites and resources.
 - ▶ The solution is based on a centralized Relational Database Management System (RDBMS) located at a hosting facility or cloud based solution
 - ▶ Data captured at each site is synchronized to the central database on a regular interval

Carbon Assets – Monitoring and Reporting

- ▶ Numerous monitoring and reporting solutions are utilized to provide business intelligence
 - ▶ Remote monitoring using dashboards, reports, and alerts provides management key performance indicators, central administration and support
 - ▶ Daily production information is stored in the Centralized Repository
 - ▶ Data analysis tools are available for custom report development
 - ▶ Interactive visualization solutions provide feedback of on-site production activities

Carbon Assets – Regulatory Integration

- ▶ Options

- ▶ Automated integration including authentication, submittal, logging, and transaction tracking
- ▶ XML and CVS file generation
- ▶ Technical document development

Carbon Assets – Financial System Integration

- ▶ Options
 - ▶ Automated integration of inventory
 - ▶ XML and CVS file generation

Carbon Assets - Security

- ▶ Security Features
 - ▶ Software requires various levels of authentication
 - ▶ Data and network communications are encrypted