Meeting Regulatory Requirements with an Emissions Reporting and Calculating System

To meet the objectives of AB 32, the California Air Resources Board (ARB) needed a solution that would enable 150+ companies to record their CO_2 emissions on a quarterly basis. An ideal solution would also account for ARB's need to review system data and administer the results. To ensure that they could meet their objectives within the allotted timeframe, the Stationary Source Division (SSD) of ARB contracted a nonprofit to avoid the more time-consuming bid process. TrinityTG was called in to remedy the situation when the nonprofit failed to build a standards-based design, and ARB was unprepared to meet the deadline. Though faced with two critical risks, a three-month timeframe and an implementation that would mark ARB's first internally hosted .Net system, TrinityTG delivered a solution that ensured that regulatory requirements would be met. TrinityTG's solution champions the ARB standards and allows the system's users to do the same.

Overview

To effectively and efficiently reduce greenhouse gas emissions as required by AB 32, the Low Carbon Fuel Standard (LCFS) System Development Project was implemented to assist the California Air Resources Board reduce CO_2 emissions by 10%, within the various fuel transportation categories, by the year 2020.

The Low Carbon Fuel Standard (LCFS) reporting tool enables regulated parties to meet quarterly reporting requirements on transportation fuel transactions. Regulated parties include oil companies, fuel producers and other energy companies worldwide.

Users:

Approximately 100 users in California's Department of Insurance Investigation spread over 9 regional offices across the State of California.

Key Benefits to the Client

- **Ease of Use** – The system boasts a friendly interface that provides a simple, straightforward method for entering and reporting fuel transaction data. Business rules enforced by the user interface help to ensure data integrity. The LCFS system allows for thousands of transactions to be uploaded and validated in a matter of seconds.

- **Accurate calculation and tracking of quarterly deficits/credits** – By automating the formulas for determining carbon credits and deficits, credit balances, additions and updates are calculated in real time. A detailed transaction history allows ARB staff to administer and manage data change.

- **Support for compliance and enforcement –** The system's infrastructure allows ARB to conduct detailed data analysis for ongoing monitoring and compliance with state regulations.

- **Enhanced technical infrastructure capability** – By hosting the system, ARB's technology support staff gain valuable experience in administering Microsoft-based solutions, providing a model for managing and supporting all future system design and implementation efforts at the agency.

TrinityTG worked with ARB to identify user needs and applied best business practices to create a sustainable solution. With the implementation of the LCFS system, users also saw the following changes and benefits:

Re-factoring the existing source code:

- The re-designed application framework applied best industry practices.
- The LCFS system was converted into a 3-tier architecture which a business logic and data access layer in between the presentation layer and the database.
- The re-factored code offers robust organization, user account management, security, and enforcement of data integrity and quality as per AB 32 regulations.
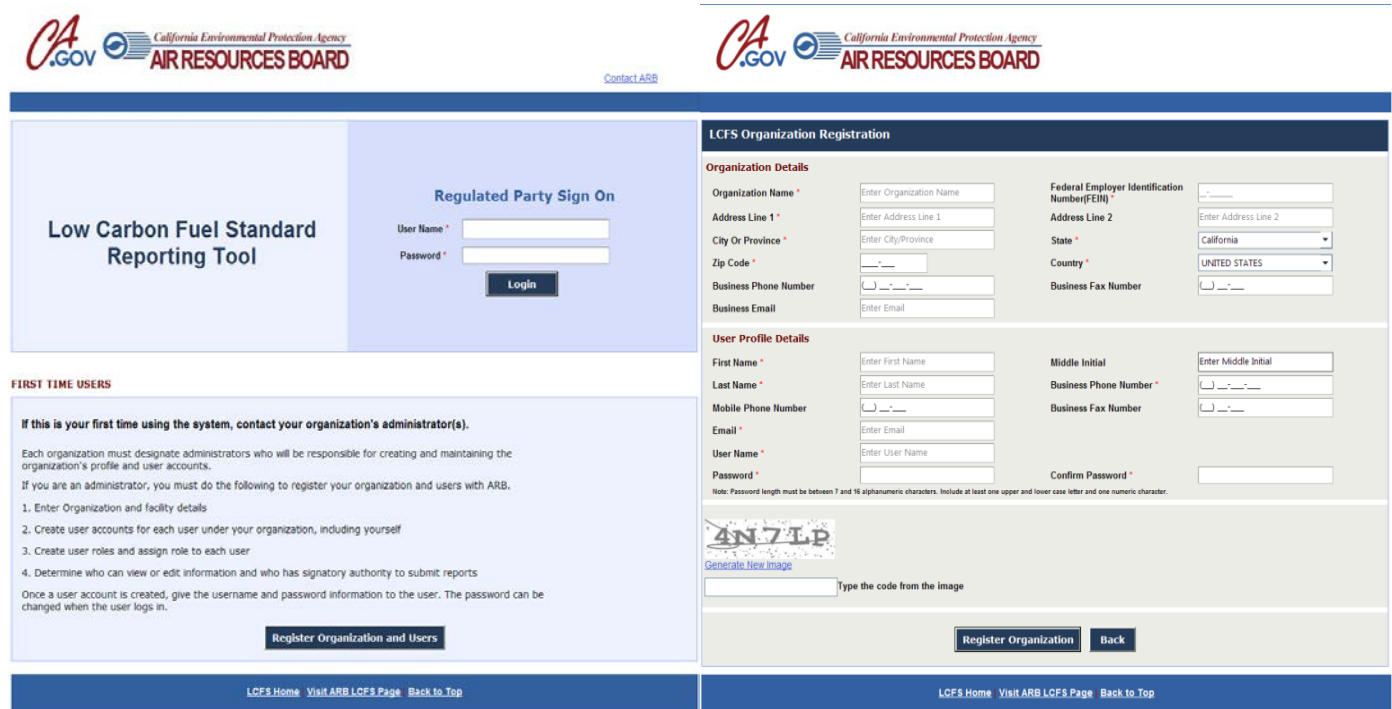

Figure 1. The screenshot on the left shows the LCFS system sign on screen. A user will be directed to the page on the right if s/he is associated with an organization that needs to register with ARB.

Improves Reporting Processes:
- The system generates annual report summaries.
- LCFS allows regulated parties to submit reports to ARB on a quarterly and annual basis.
- The system manages a series of report statuses to determine if the data has been finalized and ready for submission.

TrinityTG provided support for internal hosting:
- With the initial version of the LCFS being hosted at ARB, Trinity provided support for configuration and release management, as well as consultation on the server specifications.

The workflow is developed for corrections:

- Because the credits/deficits can be traded amongst regulated parties, it is critical that changes to historical data be tracked and managed.
- The system provides a workflow to manage the request and approval of any changes made to submitted reports.
- LCFS calculation logic was re-designed and re-tested to ensure that quarterly carbon credit/deficit amounts are properly calculated.

Direct data entry of quarterly fuel transactions through a user-friendly web interface:
- Trinity architected a bulk data management module that allows LCFS to validate all incoming data against business validation rules to ensure data integrity and compliance.
- LCFS offers bulk data entry of quarterly fuel transactions and administration of quarterly/annual data by ARB staff, particularly on requests and approvals of changes.
- The system also maintains a transaction-level history of all additions and updates to data, helping manage data quality when multiple submissions are made.

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| LCFS Home | Organization Profile | User Profile | LCFS Report |

Welcome: Trinity Technology Group for Demo Organization

Upload XML File

Organization: Demo Organization   Reporting Period: Quarter-3 , 2010   Status: Open

File Name * [_____] [Browse...]

[Upload XML File] [Back]

XML data validation Messages

[Export to Pdf]

Row Description	Validation Message
Invoice Date: 2010-06-02, Trans Type: Acquire: With Obligation, BP FEIN #: 477670099, Desc: Transaction 1	Invalid Invoice Date for the quarter, value '2010-06-02'
Invoice Date: 2010-06-02, Trans Type: Transfer: Release Obligation, BP FEIN #: 477670099, Desc: Transaction 2	Invalid Invoice Date for the quarter, value '2010-06-02'
Invoice Date: 2010-01-02, Trans Type: Transfer: Release Obligation, BP FEIN #: 477670099, Desc: B	Invalid Invoice Date for the quarter, value '2010-01-02'
Invoice Date: 2010-01-02, Trans Type: Import, BP FEIN #: 477670099, Desc: C	Invalid Invoice Date for the quarter, value '2010-01-02'

LCFS Home | Visit ARB LCFS Page | Back to Top

Figure 2. Demo of where to find, upload, and export reporting files.

Trinity Technology Group Provides Innovative Solutions

At TrinityTG, we are in the business of solving the problems that arise with shifts in business strategies and operations. **No matter what information technology challenges you face, we can use those challenges as opportunities to find solutions that fit your current and future needs.** We can help to develop business, technical, and enterprise architectures to improve business processes and transactions. **Our Strategic Planning approach focuses on re-use and adaptation vs. re-building from scratch.** We perform process analysis with an eye to best leverage your current system. We design process maps to enable effective communication between business and technical users throughout the project life cycle. **At every phase, we use new technologies and techniques to maximize your investment in business systems.** To establish cohesive and effective interaction through the project life cycle, we produce formal plans for all of the following critical processes for every project: Communication, Risk Management, Change Management, Configuration Management, Implementation Management, and Project Management.

TrinityTG's Success is Measured in the Satisfaction of our Clients

Our clients are among the largest of state agencies across the public sector and the most progressive and advanced in the private sector. Our clients' success drives our business; 95% of our business comes from referrals from current and past clients. **We distinguish ourselves by our approach, working in connection with our clients to ensure their satisfaction every step of the way.**

We Listen.
We Produce.
And We Deliver Extraordinary Results.
Give us an opportunity to show you what we can do for you.

Our clients include:

2015 J Street, Suite 105
Sacramento, CA 95811
916.779.0201
www.trinitytg.com