Response to the Market Tracking System Request for Information

DTCC Confidential and Proprietary Information

To the Attention of:
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Office of Climate Change

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1. Executive Summary

The Depository Trust & Clearing Corporation (DTCC) has the process, systems and data communications capabilities to provide the Market Tracking System. DTCC has *existing* capabilities which cover:

- 100% of the market registry functions,
- 88% of the transaction recording functions and
- 100% of the market data reporting functions

described in the request-for-information (RFI). Further, DTCC has more than 30 years experience:

- Building and providing shared registry and data repository functions and
- Managing and satisfying diverse stakeholders such as government agencies, the regulated community, and members of the public

Deriv/SERV, an unregulated subsidiary of DTCC, invented centralized, front-to-back registration, post-trade processing and reporting for OTC derivatives, creating transparency and accuracy of information which has been critical to stabilizing credit markets. DTCC's Commodity Trade Information Warehouse extends these capabilities to OTC derivatives written on commodity underlyers, including emissions instruments.

As a market-neutral cooperative enterprise DTCC is in a unique position to provide the Market Tracking System to all market participants with equal access, levels of service, reliability and security. DTCC's ability to interoperate with a large, diverse range of market participants is evidenced by its rich data communications network: high-speed private line connections with exchanges, alternative trading venues, other clearinghouses, broker-dealers, custodian banks and other market infrastructure providers; secure Internet connections with government agencies, regulators, smaller customers and institutions; and secure Web GUI interfaces to its applications for use by administrators and operations personnel. DTCC is multi-lingual, speaking across this network in the full range of electronic message formats: Swift, FpML, FIX, EFETnet XML and others.

Finally, DTCC can offer economies of scale and scope that will allow California and market participants to achieve, for this new market, very low unit costs that can otherwise be enjoyed only by much larger, more mature markets. Three things make these low unit costs possible:

1. Achieving great scale by providing tracking system and other infrastructure services to the largest markets in the world
2. Sharing infrastructure across businesses and customers and
3. Foregoing the profit margin commercial enterprises must charge to satisfy their shareholders and investors

DTCC would be delighted to provide the Market Tracking System. Using our expertise and capabilities to make U.S. emissions markets a success has been a corporate goal of DTCC since 2008. We are confident that we can meet the deadlines described in the request-for-information.

2. Capabilities and Experience

2.1 Overview of DTCC

DTCC serves markets, regulators, and the public acting as the primary infrastructure organization supporting the capital markets in the U.S. It is a cooperative that is unaligned with any one regulator, trading venue or commercial enterprise. It is owned and governed by its members and customers. DTCC operates at cost: revenues in excess of the actual cost of operation are returned to members and customers. DTCC is a holding company. All services are provided by one or more DTCC subsidiaries, some of which are regulated and some of which are not. DTCC's regulated subsidiaries are overseen by the Securities and Exchange Commission (SEC), the Federal Reserve Board of Governors (the Fed), the New York State Banking Department, the Commodities Futures Trading Commission (CFTC) and the Financial Services Authority in the United Kingdom. We have a 36-year history of bringing safety, soundness, risk mitigation and transparency to markets.

At its core, DTCC is a huge data processing and risk management business, providing safekeeping, transfer of ownership, risk management and settlement of market transactions worth trillions of dollars every day and under tight deadlines. DTCC's primary mission is to protect and mitigate risk for its members and customers and to safeguard the integrity of the U.S. financial system. Mitigating risk means we not only have the capacity to handle spikes in trading volume, but that we have business continuity and resiliency on par with critical military and governmental organizations.

Last year DTCC settled $1.48 quadrillion in securities transactions across multiple asset classes. This means we turn over the equivalent of the U.S. gross domestic product (GDP) every three days. DTCC, through its subsidiaries, provides clearing, settlement and information services for virtually all equities, corporate and municipal bonds, U.S. government securities, mortgage-backed securities, commercial paper and other money market instruments traded in the U.S., as well as serving as the central repository and central life-cycle event processing facility for the global credit default swap (CDS) and over-the-counter (OTC) equity derivative markets. DTCC has supported the enormous growth and consumer choice in the purchase of mutual funds and annuity transactions, linking funds and carriers with the firms who market these products.

Today, DTCC's central securities depository (a.k.a. tracking system) is the largest securities depository in the world, providing custody and asset servicing for 3.5 million securities issues (not shares or certificates, issues) from the United States and 110 other countries and territories valued at $40 trillion. As global financial markets went through crisis over the last couple of years, DTCC's recordkeeping, transparency and risk mitigation systems helped federal regulators identify the true exposure of major market participants, and afforded regulators the ability to make informed decisions about to how to work through that exposure and how best to protect the public.

DTCC supports both exchange-traded markets and over-the-counter (off-exchange, bilateral or brokered) markets. In both cases, DTCC has the scale and capacity to serve the largest of these markets in the world: the U.S. equity markets on the exchange-traded side and the U.S. corporate bond, Treasury security and money markets on the

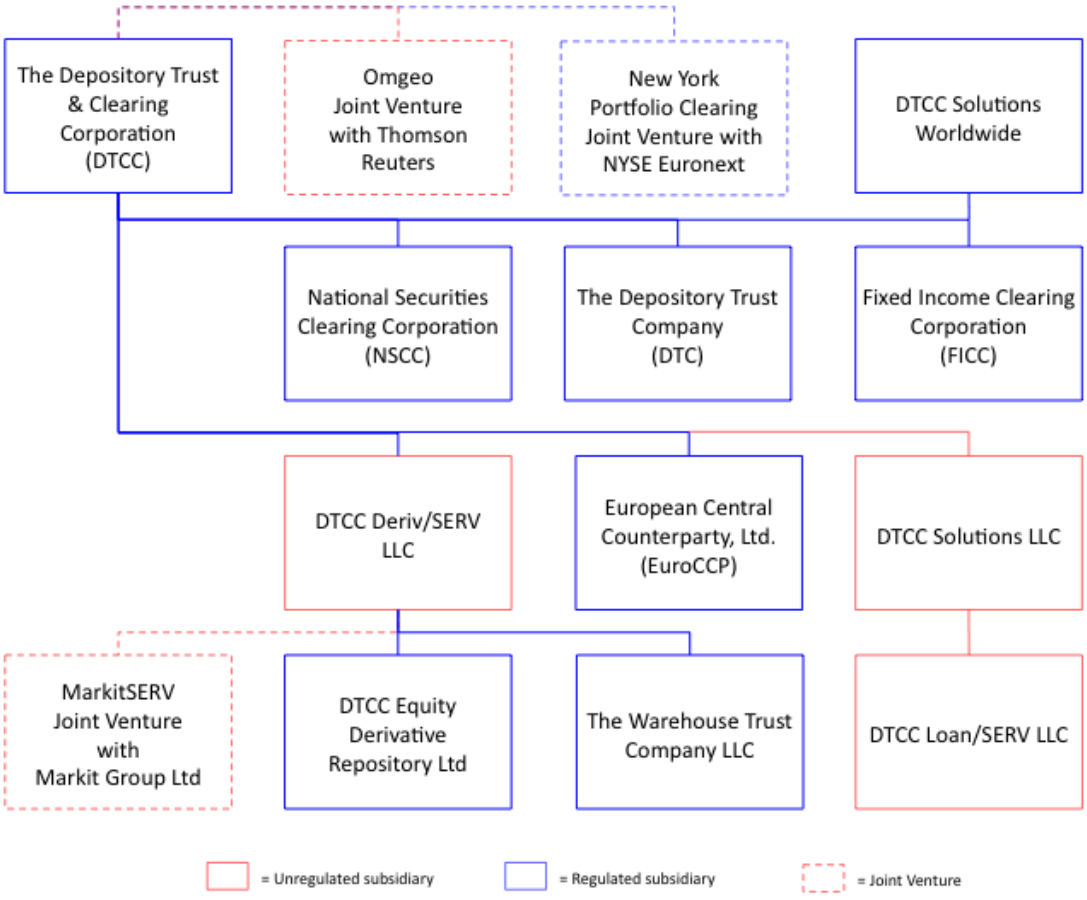
OTC side. The scale and scope of DTCC processing makes DTCC a very low-cost provider. For example, the cost of processing 100 equity shares through DTCC is 10 times lower than the lowest cost European provider and 100 times lower than the European average. These large economies of scale and scope are achieved by sharing processing infrastructure (e.g. data centers, communications links) across businesses and services.

Operators of new markets that choose to use DTCC infrastructure are able to share in these economies of scale and scope, processing instruments with cost efficiency typical of much larger, more mature markets.

2.1.1 Holding Company Structure

DTCC is a holding company. All DTCC services are provided through one or more operating subsidiaries. Some of these subsidiaries are regulated and some are not. All of DTCC's regulated subsidiaries hold Standard & Poor's highest credit rating: AAA/A-1+. Exhibit 1 shows the structure of these subsidiaries. The purpose of Exhibit 1 is to communicate the flexibility with which DTCC can address the governance and regulatory needs of a particular activity through legal entity structure.

Exhibit 1 – DTCC Holding Company Structure, with Principal Operating Subsidiaries



National Securities Clearing Corporation (NSCC) provides clearing, settlement, risk management, central counterparty services and a guarantee of completion for virtually all US equities, corporate and municipal debt, American depositary receipts, exchange traded funds and unit investment trusts. NSCC also nets trades and payments among its participants, reducing the value of securities and payments that need to be exchanged by an average of 99% each day. NSCC generally clears and settles trades on a T+3 basis (within three days of trade date).

The Depository Trust Company (DTC) DTC, established in 1973, was created to reduce costs and provide efficiencies in transfers of ownership of security instruments. DTC provides securities movements for NSCC's net settlements, and settlement for institutional trades and money market instruments. In 2009, DTC settled transactions worth more than $209 trillion. In addition to settlement services, DTC brings efficiency to the securities industry by retaining custody of about 3.5 million securities issues worth about $33.9 trillion, including securities issued in the US and 121 other countries.

The Fixed Income Clearing Corporation (FICC) provides real-time trade matching, clearing, risk management and netting for trades in US Government debt issues, mortgage-back securities and corporate bonds.

European Central Counterparty, Ltd. (EuroCCP) was established in 2007 to provide low-cost, pan-European clearing services. EuroCCP's services were launched in September 2008 for Turquoise, owned by nine global banks that have formed a trading platform to compete in Europe with established trading venues. EuroCCP has also been selected to clear and settle for the block trading platform, SmartPool, the high-frequency trading platform, NYSE Arca Europe, Pipeline Financial Group Limited and the Nasdaq OMX Nordic markets. EuroCCP currently clears and settles trades for 5,000 securities in 15 countries in seven currencies. In the longer term, it will clear and settle trades throughout Europe. EuroCCP is a Recognised Clearing House in the U.K and is headquartered in London.

DTCC Deriv/SERV LLC (Deriv/SERV) provides central trade repository, trade lifecycle management and central settlement services for OTC derivative transactions. Working with market participants DTCC launched its central repository known as the Trade Information Warehouse ("Warehouse") in November 2006, to provide an automated central repository to house and service all credit default swap (CDS) contracts globally. Today, over 95% of the CDS market is captured in this automated environment. Since March 2010 this service is operated by a new regulated subsidiary, The Warehouse Trust Company LLC. DTCC has won the mandate to extend the Warehouse to OTC equity derivatives and has completed development of an extension of the Warehouse to energy commodity derivatives, including OTC derivative contracts written on emissions allowances and credit offsets.

While Deriv/SERV LLC is unregulated, it does operate two narrow-purpose regulated subsidiaries: DTCC Equity Derivative Repository Ltd (under FSA oversight) and The Warehouse Trust Company LLC (under Fed oversight). During the recent global financial crisis it became clear that central trade repositories were important tools that regulators could use to achieve transparency and maintain oversight. These two

narrow-purpose regulated subsidiaries house the trade repository and reporting elements of a broader set of Warehouse services.

DTCC Solutions LLC (Solutions) is the legal entity which houses DTCC's information services. For example, DTCC Solutions houses DTCC Global Corporate Actions service: a solution that delivers comprehensive, accurate and timely information relating to dividends, reorganizations and other corporate action announcements for equities and fixed income instruments traded in Europe, Asia-Pacific, and the Americas.

DTCC Solutions Worldwide delivers mutual fund services similar to those offered by DTCC Solutions in the U.S. to the European markets.

DTCC Loan/SERV LLC provides services to the corporate loan market which lower the cost associated with post-transaction processing of OTC trades in these instruments.

Omgeo has 6,000 customers in 42 countries and plays a critical role in institutional post-trade processing, acting as a central information management and processing hub for brokers, investment managers and custodian banks around the world.

MarkitSERV is a joint venture which combines the OTC derivative electronic trade confirmation services of Markit with the complementary services of DTCC Deriv/SERV. The combined capabilities of MarkitSERV provide electronic trade confirmation, position matching and other services which cover the full range of OTC derivative transactions, including CDS, equities, rates and commodities.

New York Portfolio Clearing is DTCC's newest joint venture. Its purpose is to create a fixed income clearing and settlement approach which is much more efficient from what has been available. Cash transactions are often a hedge against derivative transactions and *visa versa* and this means that one position offsets the other. Rather than posting collateral twice: once against the cash position in New York and again against the derivative position at a separate clearinghouse in Chicago, New York Portfolio Clearing combines the cash instrument and derivative instrument positions in a single clearing and settlement pool. Because the two types of positions offset one another, the amount of collateral that a counterparty must post against the combined position is greatly reduced. This translates into greater working capital efficiency and improved return on capital for DTCC's customers who use the service.

The structure of the U.S. capital markets developed organically with derivative clearinghouses developing in Chicago and cash market clearinghouse developing in New York. Any new market, emissions markets being one example, which anticipates that listed and OTC derivatives will be written on its cash instruments should consider taking out a blank sheet of paper and using the clearing pool approach NYPC will operate. The approach reduced transaction costs greatly.

2.1.2 Ownership and Governance

As DTCC serves virtually the entire U.S. financial industry, from broker-dealers to banks to insurance carriers to mutual funds to hedge funds, our governance structure represents the entirety of the marketplace. DTCC currently has 360 individual

shareholders, and no single shareholder holds more than a 6% interest in the company. We allocate shares based entirely on usage, and roughly every three years we reallocate these shares to realign our governance. DTCC members are required to hold shares, customers are not.

Our shares cannot be traded among our members. This prevents any one firm or group of firms from attempting to gain control of our Board of Directors. More importantly, since we operate on a at-cost basis, the primary concern of our Board of Directors has consistently been on reducing cost, mitigating risk and protecting market safety and soundness – not profit.

The DTCC Board of Directors is made up of representatives from major firms and stakeholder groups which use DTCC services. As a matter of practice, the DTCC Board delegates decision making for specific services to special boards comprised of users of the service itself, while maintaining the decision making authority on matters that affect the whole of DTCC and its safety and soundness. Examples of delegated decision-making authority include service pricing, capital investment specific to a service and service level agreements.

2.1.3 History

Throughout its history, DTCC has played a central role in helping markets grow and become more efficient. Our subsidiaries, The Depository Trust Company (DTC) and National Securities Clearing Corporation (NSCC), were created in the 1970s to help address the paperwork crisis on Wall Street, when thousands of messengers carried bags of stock certificates and checks to settle trades and recordkeeping strains forced the New York Stock Exchange to shut down on Wednesdays to process the backlog of trade records. During this period the NYSE traded an average of 15 million shares daily. Today, DTCC supports more than 50 equity markets, including the NYSE, NASDAQ, ECNs and ATSs, and we have processed as many as 19.3 billion shares traded in a single day. In the mid-1980s, we implemented similar protections for the U.S. Treasury markets, providing automation and processing safeguards to protect the certainty and attractiveness of trading in U.S. Government securities. In the late 1980s, we removed the barriers preventing the growth in sales of mutual funds, providing U.S. investors with unprecedented choice and low cost.

2.1.4 Size, Volumes and Number of Employees

DTCC's corporate offices are located at 55 Water Street in lower Manhattan, New York. DTCC has other office locations in the United Kingdom (London), India (Chennai) and China (Shanghai). DTCC has three large data centers located more that 1200 miles from each other in the United States. In total, DTCC has slightly less than 3000 employees across all locations.

An obvious implication of such large transaction volumes on such a small employee base is that DTCC business processes are highly automated. A less obvious implication is that expertise in designing, building and operating technology is central to DTCC's success.

2.2 Capabilities

DTCC has the process, systems and data communications capabilities to provide the Market Tracking System. DTCC has *existing* capabilities which cover:

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2.2.1 Market Registry Functions

Table 1: Coverage of Market Registry Functions

#	Market Registry Function	Existing DTCC Capability?	Description of DTCC Processes and Systems	Supporting DTCC Systems
1	A system for qualification of market participants	Yes	• DTCC applies a rigorous process for accepting participants and users of its services • Vetting includes OFAC and AML checks • The extent of additional vetting depends on the set of services being used • The most extensive process of application and acceptance applies to participants that will be credit counterparties to DTCC • Vetting of participants and other users is refreshed at regular intervals	• Membership Portal • Membership Online Tracking System • Office of Corporate and Regulatory Compliance
2	A system for registration of market participants	Yes	• DTCC has a standing customer-facing organization for onboarding participants and other users of its services • This organization is complemented by an internal, technical organizations charged with implementation of data communications, user IDs and passwords, application permissioning, etc. • Data required for management of participant activities is stored electronically and is accessible to system applications • DTCC also conducts user training on applications for customers	• Entity Master Files • Customer Registration System

#	Market Registry Function	Existing DTCC Capability?	Description of DTCC Processes and Systems	Supporting DTCC Systems
3	A method to regularly create compliance instruments (allowance and offsets) in the tracking system	Yes	• DTCC works with issuers and underwriters on thousands of new security issues per year • The process includes controls to ensure that all the legal and administrative requirements needed to issue the instrument have been met • The process also includes controls that insure that the issuer has fulfilled the regulatory and administrative requirements of an issuer (applicable to offset credits)	DTC Underwriting Service
4	A process to allocate compliance instrument to account holders per executive officer direction and authority	Yes	• DTCC has a standing organization charged with facilitating the process of moving instruments bought at auction or initial public offering into the appropriate accounts in its tracking system • In addition to being able to take instructions from underwriters, DTCC directly supports the Treasury instrument auction process, moving instruments into winning bidder accounts according to the results of each auction	DTC Underwriting Service
5	A connection to auction platforms to update the tracking system with auction results	Yes	• DTCC maintains connections with over 50 equity trading venues, ranging across open outcry markets, to electronic central limit order books, over-the counter, etc. • DTCC maintains connections with a range of trading venues covering corporate bonds, municipal bonds, mortgage backed securities, OTC derivatives, exchange traded funds and other auction and exchange mechanisms • DTCC directly supports the auction of U.S. Treasury instruments	Security Master Files

#	Market Registry Function	Existing DTCC Capability?	Description of DTCC Processes and Systems	Supporting DTCC Systems
6	A connection to existing emission reporting databases to receive emissions data	No	• DTCC has no existing connection with emissions reporting databases • DTCC is capable of linking with databases in any number of standard message formats (e.g. Swift, FpML, FIX) and bespoke formats • DTCC is able create one- and two-way connections using a variety of technologies, including private line, secure Internet FTP, secure file upload	• SMART Network • Swift, XML and other message interfaces • CDTS System for secure FTP
7	The ability to update account holdings and information from clearinghouses serving the secondary cash market	Yes	• DTCC updates account holdings based on information received from its own netting and clearing activities • DTCC updates account holdings based on information received from the netting and clearing activities of external clearing houses (i.e. New York Portfolio Clearing)	ATP
8	The ability to update account holdings from clearinghouses serving the derivative markets	Yes	• The Trade Information Warehouse updates trade records based on the status information received from external clearing houses which clear credit default swaps and equity derivatives (e.g. ICE, LCH) • The Trade Information Warehouse also update trade records with information received from other OTC derivative service providers (e.g. trade compression providers like TriOptima) • DTCC has the capability to update account holdings based on information received from a listed derivative clearinghouse: New York Portfolio Clearing	Trade Information Warehouse

#	Market Registry Function	Existing DTCC Capability?	Description of DTCC Processes and Systems	Supporting DTCC Systems
9	A mechanism for both registrants and administrative agencies to move compliance instruments among accounts through automatic and manual transfers	Yes	• DTCC moves instruments between holding accounts only on electronic instruction of such a movement that is confirmed with both parties to the transaction • DTCC has the functional capability to act on movement instructions submitted by administrative agencies, however, it does not do so now	• ATP • Underwriting System
10	The ability to limit or restrict allowance transfers or surrenders according to regulatory requirements	Yes	• DTCC has the ability to restrict account activity and holdings according to specified business rules • While DTCC provides this capability, in the U.S. financial markets enforcing restrictions is the responsibility of the intermediaries serving the account holders (i.e. brokers) not DTCC itself	• Entity Master Files • CRS
11	The ability to support large numbers of potential system registrants	Yes	• DTCC supports a large number of direct participants (members) in addition to non-participant customers • Examples of non-participant customers include thousands of institutional investment firms which use the TIW to manage their inventory of credit default swaps (CDS)	• Entity Master Files • Customer Registration System (CRS)
12	Scalability and information sharing features to support California linkage with the WCI, national and regional trading programs and external offset crediting systems	Yes	DTCC regularly exchanges trade and risk information with various external bodies including NYSE, CHX and FINRA	Centralized Information Regulatory Repository

#	Market Registry Function	Existing DTCC Capability?	Description of DTCC Processes and Systems	Supporting DTCC Systems
13	Reliable, secure, real-time communications with the clearing and settlement processes of relevant secondary and derivative markets, including electronic confirmation service providers or other sources of OTC derivative transaction details	Yes	• DTCC maintains high-speed electronic connections with over 50 equity trading venues • DTCC maintains high-speed electronic connections with clearinghouse, settlement agents and central counterparties (e.g. LCH, the Canadian Securities Depository, European central security depositories (CSDs) • DTCC maintains high-speed electronic connections with MarkitSERV, and can accept EFETnet, ConfirmHub and other electronic confirmation data over MQ	• Swift interface • SMART Network • MQ Interface
14	Administrative features available to ARB and other agencies (CFTC, SEC, etc.) to maintain regulatory and administrative control of the Market Tracking System, including the compliance instruments and accounts held in the registry	Yes	DTCC Security Master File systems provide administrative functions to view and update the underlying instruments.	• Security Master Files • Entity Master Files

2.2.2 Transaction Recording Functions

Table 2: Coverage of Transaction Recording Functions

#	Transaction Reporting Function	Existing DTCC Capability?	Description of DTCC Processes and Systems	Supporting DTCC Systems
1	Recording of all transaction details related to the auction, allocation and trading of compliance instruments	Yes	• DTC's Deliver Order system records and processes over 1 million delivery versus payment transactions on a daily basis. Deliver orders are submitted by authorized parties of DTC participants including: vendors, agents, service bureaus, central counter parties, trade matching services, and other central security depositories. • The Historical Database keeps trade level transactions in a warehouse style database for 2 years. There are as many as 70 million trade sides input into the warehouse daily. Trades are eventually offloaded to high density tape where they are kept for 7 years.	• Deliver Order System • Historical Database • Account Transaction Processor
2	Collecting transaction details (position and trade data) for all listed derivative contracts whose value is contractually related to the value of compliance instruments	Yes	New York Portfolio Clearing systems collect transaction details on listed derivative contracts in connection with its pooling of listed derivative and cash securities transactions for clearing and settlement	New York Portfolio Clearing Systems

#	Transaction Reporting Function	Existing DTCC Capability?	Description of DTCC Processes and Systems	Supporting DTCC Systems
3	Collecting transaction details (position and trade data) for all OTC derivative contracts whose value is contractually related to the value of compliance instruments	Yes	• The Commodity Trade Information Warehouse accepts submissions of trade data on OTC derivatives written on commodity underlyers (including emissions instruments) • It accepts trade records in FpML, EFETnet XML, ConfirmHub XML and spreadsheet • Will accept trade records in ICE eConfirm message format when ICE becomes willing to share this format with DTCC	Commodity Trade Information Warehouse
4	Recording of transactions details needed to link California's cap-and-trade program to WCI, national and regional cap-and-trade programs, including external offset crediting systems	Yes	See Function 1	See Function 1
5	Scalability and information sharing features to support California linkage with WCI, national and regional trading programs and external offset crediting agencies	Yes	See Function 1	See Function 1
6	Reliable, secure, real-time communications with the trade confirmation processes of relevant secondary and derivative markets, include electronic confirmation service providers or clearing facilities for cap-and-trade related OTC derivative transactions	Yes	• Commodity Trade Information Warehouse has connections to variety of OTC derivative electronic confirmation service providers • Other markets are accessible through DTCC's SMART network	• MarkitSERV applications • Commodity Trade Information Warehouse interfaces to electronic confirmation service providers • SMART network

#	Transaction Reporting Function	Existing DTCC Capability?	Description of DTCC Processes and Systems	Supporting DTCC Systems
7	Record keeping of the retirement (surrender) of compliance instruments by market participants	No	• DTCC does not currently process emissions compliance instruments and, so, has no existing capability to do this function • That being said, this function could easily be implemented in DTCC's current process and systems as it resembles several trade lifecycle events which DTCC currently handles • At very least it could be implemented as a delivery order from a market participant's account into a California holding account established to hold retired instruments	• Delivery Order system • Account Transaction Processor system • Historical Database
8	Provide transactions data to enable market oversight agencies to conduct price mitigation operations	Yes	The National Securities Clearing Corporation (NSCC), reports on all covered sales (SEC Section 31) sales. Sales data is extracted on settlement date after 12AM when all trades for that settlement date have been received. After specified exclusions and adjustments take place, the Section 31 machine readable output (MRO) file is automatically transmitted to the SEC via DTCC's Common Data Transmission Service (CDTS), The section 31 MRO is transmitted nightly to the SEC via Autoroute	SEC Section 31 Reporting
9	Provide transaction data to enable market oversight agencies to conduct market oversight and enforcement operations	Yes	See Function 8, above	See Function 8, above

2.2.3 Market Data Reporting Functions

Table 3: Coverage of Market Data Reporting Functions

#	Market Data Reporting Function	Existing DTCC Capability?	Description of DTCC Processes and Systems	Supporting DTCC Systems
1	Provide carefully coordinated public disclosure of timely and accurate information regarding market participants' compliance activities through web-based or other standard reporting mechanism	Yes	DTCC Deriv/SERV publish information on balances, activity, concentration and other statics in the global credit default swap market every	Trade Information Warehouse Reporting System
2	Provide carefully coordinated public disclosure of timely and accurate information regarding the attributes, status and market values of compliance instruments through web-based or other standard reporting mechanism	Yes	DTCC Deriv/SERV publish information on balances, activity, concentration and other statics in the global credit default swap market every	Trade Information Warehouse Reporting System
3	Public reporting of offset credit verification, approval, retirement and trading relating to market participants and external programs	Yes	DTCC Deriv/SERV publish information on balances, activity, concentration and other statics in the global credit default swap market every	Trade Information Warehouse Reporting System
4	Coordinated distribution of public disclosures to electronic information distributors and news services	Yes	• DTCC's Vocus system distributes press releases to all relevant parties via email. • dtcc.com publishes all press releases, rule filings, etc.	• Vocus • Corporate Communications System

#	Market Data Reporting Function	Existing DTCC Capability?	Description of DTCC Processes and Systems	Supporting DTCC Systems
5	Provide standardized and *ad hoc* reporting for State and Federal oversight agencies including information on registrants, account holdings and transaction/position details	Yes	• DTCC has an existing capability to do *ad hoc* reporting, on demand, for various agencies • Because of the increased demand for ad hoc reporting (particularly related to OTC derivatives) DTCC is investing in creating a solution which will increase the speed with which ad hoc reports can be prepared.	• FED Reporting • Trade Information Warehouse Reporting

2.3 DTCC Systems with Relevant Functionality

2.3.1 Customer Registration Service (CRS)

CRS is used by Access Coordinators at each participant or customer firm to set up and authorized users of DTCC applications within their firm. It is used to assigned and manage user IDs and passwords, issue digital certificates and maintain contact information on individual users.

2.3.2 Delivery Order System (DO)

DTC's delivery process allows participants to settle transactions by making electronic deliveries to another participant's account. The securities are immobilized in DTC's custody, eliminating the need for physical movement of certificates. DTC reduces the seller's position and increases the buyer's position without the need to move physical certificates. Deliveries can be made with or without the condition of money payment, depending on the delivery instructions.

DTC's deliver order system processes over one million delivery versus payment transactions on a daily basis. Deliver orders can be submitted to DTC directly by participants via file input, MQ series messages, or via DTC's browser-based and 3270-based networks (PBS/PTS). Additionally, deliver orders may be submitted by authorized parties of DTC participants including: vendors, agents, service bureaus, central counter parties, trade matching services, and other central security depositories.

2.3.3 Underwriting Systems (UW SOURCE, NIIDS, MMI, IPO and PRS)

- Through the New Issue Eligibility program offered by DTC, underwriters can distribute both primary and secondary offerings of securities quickly and economically via electronic book-entry delivery and settlement. These newly issued instruments are then available for the full range of depository services. In 2009, DTC processed 44,219 underwriting issues valued at more than $2.6 trillion.

- DTC's Underwriting Service offers solutions that create efficiencies in the capital markets and reduce risk to the industry by facilitating the distribution and settlement of new and secondary equity issues, and new corporate and municipal debt issues (including 144A issues in the U.S. market and its Regulation S counterparts, which are distributed abroad).

- DTC offers a high level of straight-through processing by leveraging new technologies that replace manually intensive processes with electronic alternatives.

- All programs use DTC's highly efficient electronic book-entry system and standardized operational arrangements to significantly reduce the cost and risk associated with physical processing.

- Underwriting capabilities include the UW SOURCE application, the New Issue Information Dissemination System (NIIDS) for Municipal Securities, the Money Market Instrument (MMI) Program, the Initial Public Offering (IPO) Tracking Service, and the Prospectus (PRS) application.

- The web-based Securities Origination, Underwriting and Reliable Corporate Action Environment (UW SOURCE) allows for the electronic transmission of both securities offering data and offering documentation for Municipal and Equity issues. Corporate Debt issues will become available in UW SOURCE in October 2010. Customers are able to choose a number of different transmission options for submitting data, such as a Web-based screen, a spreadsheet upload or a vendor-provided electronic file (via MQ using XML formatted messages). The objective of this underwriting application is to reduce risks, improve efficiency and productivity, and reduce costs for DTC and its customers.

- The UW SOURCE application maintains an extensive set of databases to warehouse the offer, issue and securities information associated with an underwriting, and offers inquiry and search capabilities.

- NIIDS assists underwriters in meeting the reporting standards set forth by the Municipal Securities Rule Making Board (MSRB). This new process also allows for more timely, accurate and efficient processing of new municipal issues and gives expanded access to underwriters enabling them to better manage their deals. The dissemination of securities information is also facilitated by the NIIDS application which allows the flow of securities information to the industry and vendors.

- MMI provides customers and issuing and paying agents with a fully automated book-entry environment for the issuance and settlement of money market securities.
- The automated IPO Tracking system allows underwriters to track deliveries of equity securities by syndicate members to identify securities sold back during the underwriting stabilization period.
- The Prospectus Repository System (PRS), provides an online vehicle to view, retrieve and print offering material. For a new or secondary issue distribution and settlement at DTC, a participant requesting that an issue be made eligible must submit an offering document (e.g., prospectus, official statement, offering memorandum) and eligibility information, such as issue and contact information, CUSIP numbers, pricing data, etc.
- After a verification process, which includes ensuring that the underwriting parties and documents are in order, that the securities information is passed to the securities master file application, and that the issue is OFAC compliant, the issue is packaged and closed.

2.3.4 Account Transaction Processor (ATP)

DTC's Account Transaction Processor (ATP) is a flexible bookkeeping platform that supports the settlement of all DTC-eligible instruments. ATP processes over 1.5 million transactions per day valued at nearly 1 trillion dollars.

Bookkeeping services include databases for position and activity reporting with long-term record retention. Risk management functions are applied to ensure that participants cannot exceed their credit limits. The bookkeeping system automatically recycles transactions that cannot complete on their first attempt due to risk management controls. At every step in the process, all parties receive real-time messages regarding the transaction's status.

2.3.5 Entity Master Files

This is a database application which is used to record and maintain all information related to a participant or customer that is used by any other application.

2.3.6 Security Master Files

This is a database application which is used to record and maintain all information related to a given instrument. Storage and management of the instruments take place in the Security Master Files system. Dissemination of securities information, including NIIDS, is also performed by Securities Master Files

2.3.7 Deriv/SERV Trade Information Warehouse (TIW)

DTCC's Trade Information Warehouse (TIW) – launched in 2006 – is the world's only comprehensive database and repository for OTC credit derivatives. The establishment of this global repository marked the first time that the financial services industry had addressed OTC derivative inventory control and transparency systematically. TIW provides a central automated repository to house and service virtually all credit default swap (CDS) contracts.

At the height of the Lehman Brothers crisis, TIW held a large proportion of the information on CDS positions. Although market speculation put the CDS risk exposure from Lehman Brothers at $400 billion, DTCC was quickly able to tell the market publicly that the true exposure to Lehman Brothers was closer to a net notional value of about $6 billion. The actual value that changed hands eventually was $5.2 billion. Since then, TIW has been publishing aggregated OTC derivatives data for the public on a weekly basis on the website www.dtcc.com, and has been providing regulators in the Americas and Europe information which they require, with the agreement of the market participants where necessary.

2.3.8 Historical Database

The Historical Database keeps trade level transactions in a warehouse style database for 2 years. There are as many as 70 million trade sides input into the warehouse daily. Trades are eventually offloaded to high density tape where they are kept for 7 years.

2.4 Additional Design Considerations

The items below respond to the design considerations described in Appendix B of the request-for-information.

2.4.1 Forward Compatibility

DTCC's ability to integrate with new or incremental markets is evidenced by the number of existing OTC and exchange traded markets (over 50 equity markets alone) and its ability to quickly taken on new markets as they are launched (as in the case of EuroCCP).

Key to forward compatibility is being “multi-lingual”. DTCC interoperates with electronic by means of a broad set of electronic message standards: Swift, FIX, eFET XML, ConfirmHub XLM, FpML and others.

As a neutral, cooperative service organization we have the ability to work directly with service providers with whom we compete: our mission is to reduce risk and expenses for our users, not to make additional profits by succeeding at the expense of others.

2.4.2 Network Connections

DTCC offers a range of data communications options to the firms with which it interacts. Firms requiring low latency and messaging bandwidth may elect to use MQ messaging over dedicated private lines and the DTCC SMART network. DTCC also support secure, Internet-based FTP, secure file upload through a Web GUI.

2.4.3 Data Communication and Security Standards

DTCC will be able to satisfy California’s data communications and security standards.

Examples of outbound data communications networks used at DTCC include:

- Centralized Information Regulatory Repository (an automated risk system at DTCC that sends Market Maker information to FINRA)
- SWIFT messaging from DTCC to external banks including Citi, BONY
- MQ messaging connectivity to all major DTCC participants

For Web GUI interfaces, DTCC uses a two-level authentication process. To gain access to Web GUIs access coordinators are designated at each firm and are required to complete the Access Coordinator Authorization Form. Access coordinators are responsible for evaluating registration requests, authorizing access and managing the assignment of credentials for users of DTCC services at their firm.

Firms using MQ messaging must be connected to DTCC’s SMART network. MQ messaging customers must ensure they have TCP/IP connectivity prior to defining a new MQ channel. The IP addresses presented to DTCC by customers must be provisioned in our routers and firewalls. A Router Information Exchange Form must be submitted to Deriv/SERV in order for messages originating from a new IP address not to be blocked.

Data is only accessible through the secure Web GUI. Authentication for both GUI and API is achieved through user ID and password combined with matching IP address to an address that is registered during onboarding. There is a comprehensive and sophisticated access control mechanism built into DTCC applications that is administered by DTCC’s customer services team on written instruction from individuals within the client firms who are nominated during on boarding.

2.5 Experience

The synopses below describe DTCC’s experience on each of the criteria listed in the RFI.

- *Building and providing shared registry and data repository services for use by large, diverse groups of firms and institutions*. DTCC's participants, customers include *broker*-dealers, institutional investors, custodian banks, settlement agents, transfer agents, other clearinghouses, confirmation service providers.

- *Managing and satisfying diverse stakeholders such as government agencies, the regulated community, and members of the public*. DTCC is involved with a broad range of stakeholders. These range from government agencies (the Treasury Department), regulators (SEC, the Fed, the New York State Banking Department, CFTC, the FSA, FINRA), associations of regulators (IOSCO), industry associations (SIFMA, ISDA). Deriv/SERV's weekly public reporting of the global credit default swap market has provided unprecedented transparency during periods of public concern such as the Lehman bankruptcy and the Greek credit crisis.

- *Building and operating post-trade processing infrastructure for traded markets securities and commodities, exchange-traded and OTC*. DTCC is the primary infrastructure provider to the securities markets in the United Stated and is tightly integrated with its counterparts in Canada, Europe and Asia. It invented centralized front-to-back post-trade processing of OTC derivatives when it formed Deriv/SERV, built and launched the Trade Information Warehouse. The Commodity Trade Information Warehouse breaks new ground in supplying centralized, outsourced servicing of OTC commodity derivatives to dealers and end-users. New York Portfolio Clearing *de novo* clearing and settlement operation for listed commodity derivatives (interest rate and other fixed income futures and options) overseen by the CFTC.

- *Existing software, hardware and telecommunication assets that can be leveraged to provide the services*. Tables 1 through 3 reference the software and process assets DTCC can deploy in operating the market tracking system. Section 2.2.6 describes the telecommunications assets DTCC can deploy. Below are statistics which describe some of DTCC's hardware capabilities:

  Server Infrastructure

  1. Three sites connected via redundant private dark fiber

     1.1. Six sets of Nortel 5200 DWDM systems
        1.1.1. 100-to-2000 megabit channels
        1.1.2. 320 channels in total

  2. 1180 servers distributed over all three sites

     2.1. Windows, AIX, Sun/Solaris, VMS, Stratus, AS400, & Linux
     2.2. Approximately 45%/45%/10% split between the three sites
     2.3. CRE (Common Runtime Environment): web-based applications share clustered servers
     2.4. VMware virtualization in use
     2.5. Fiber Channel SAN datastores

Mainframe Statistics

1. 89,900 batch jobs per-day
2. 10.7 million online transactions per day, peaking at 440 transactions-per-second
3. 2.430 billion DB2 database accesses per day, averaging of 28,000 access per second, peaking at 62,000 per second
4. 900 million disk accesses per day, averaging 10,400 per second and peaking at 14,700 per second

- *Ability to successfully scale up registry and repository functions to handle high transactional volumes (potentially billions of transactions) at the regional, national, or international scale*. DTCC infrastructure is engineered to handle large spikes in trading volumes without exceeding the bounds of processing windows.

- *Maintaining transaction records for OTC derivatives that provide record-keeping, reporting, payment calculation, and netting services*. Deriv/SERV, an unregulated subsidiary of DTCC, invented centralized, front-to-back registration, post-trade processing and reporting for OTC derivatives, creating transparency and accuracy of information which has been critical to stabilizing credit markets. DTCC's Commodity Trade Information Warehouse extends these capabilities to OTC derivatives written on commodity underlyers, including emissions compliance instruments.

- *Supporting market regulators with the ability to access all trade data at the position level, as well as run ad hoc/standard surveillance inquiries and reports on market activity, position concentrations and risk management*. DTCC does large amounts of reporting to the SEC, the FED, FSA, FINRA and other regulators on the cash markets it serves. DTCC Deriv/SERV has supported regulators from all over the world in their efforts to understand market activity, positions and risk concentrations in the credit default swap market. It has provided both ad hoc aggregate reports, as well as individual trade level information for particular sets of counterparties and reference names.

2.5.1 Experience and Expertise of Key Staff

Peter Stockman is senior commodities advisor to DTCC and leads all of DTCC's commodity and emission market initiatives. Prior to taking his current role at DTCC, Stockman was a partner at PA Consulting Group where he led that firm's New York-based capital markets practice. Prior to joining PA, Peter was a Partner at Accenture where he was a member of that firm's Global Financial Markets and Global Energy industry verticals. He co-lead the SIA's (now SIFMA) analysis of the costs and benefits of moving the U.S. to a T+1 clearing and settlement cycle. He has also co-authored papers sponsored by the Committee of Chief Risk Officers on market clearing in the energy sector. Stockman has a BA from Reed and an MBA in Finance from the University of Chicago.

Stewart Macbeth is the General Manager of the Deriv/SERV Trade Information Warehouse (TIW), and responsible for the production operations and business development of TIW services. Prior to joining Deriv/SERV, Stewart was a managing director at UBS. At UBS he most recently served as the head of operations risk and

business architecture. Stewart served as global head of OTC derivatives operations at UBS from 2002 to 2005. Stewart qualified as a Chartered Accountant (ICAEW) at KPMG as a member of that firm's financial services assurance practice.

Patrick Kirby is Managing Director, responsible for DTCC's Asset Services Group. In this position Kirby is responsible for managing the custody and asset servicing businesses of The Depository Trust Company (DTC), as well as other information businesses. Prior to joining DTCC, Kirby was Managing Director at Citigroup Capital Markets and Banking, where he was Global Operations Head of Cash Products. While at Citigroup Kirby led operations which ranged from trade processing, global loan and treasury operations, global settlements processing and fixed income and equity operations. Kirby graduated from New York Institute of Technology with a B.S. in Accounting and Marketing.

Jacob Feuchtwanger is Managing Director and Chief Development Officer, responsible for all business application development at DTCC. In his more than 25 years of service at the company, Feuchtwanger has had direct hands-on experience in almost every major area of applications development, including both international and domestic settlement, asset services, equities and fixed income clearing. Feuchtwanger has a B.A. in Mathematics from Temple University and an M.S. in Computer Science from New York University.

Rob Gambardella is Managing Director of Application Development at DTCC. His tenure at DTCC provides him with deep knowledge and expertise of the financial industry. Gambardella is also responsible for DTCC's Enterprise Risk Management applications, which include market, credit and operational risk management. He has over 20 years of experience in building and managing global, large scale IT applications, technology infrastructures and implementing leading edge technologies at DTCC. Gambardella has a B. A. in Computer Science from LeMoyne College and an M.B.A. from Pace University in Information Systems.

3. Cost and Timeframe

3.1 Cost

DTCC is reluctant to estimate the cost of implementation and operation of the Market Tracking System. The source of this reluctance is not the vendor's usual desire to avoid being pinned down or to bring up unpleasant subjects like money. Rather it is because implementation and operating costs will vary greatly depending on the infrastructure model the California Air Resource Board wishes to adopt.

For example, an infrastructure model that makes maximum use of existing capital markets institutional arrangements and the DTCC processes and systems that support these institutional arrangements would have negligible implementation and operations costs that would accrue to California. Under this model, the cost of implementing and operating the Market Tracking System would be borne by DTCC participants and customers. California would be in the role of an issuer and would pay a DTCC member to bring issues of allowances to market and to issue offset credits as they are created. The fees and process would resemble the fees and process California follows now when it issues bonds (bonds which are processed in DTCC's security depository/tracking system today). Let's refer to this approach as "Model A"

Under Model A, California would seek an exemption from the general rule that only SEC registered securities are "DTC eligible". There are precedents for such an exemption. 144A securities (a standardized, relatively liquid type of private placement security) are "DTC eligible" even though they are not instruments registered with the SEC. With such an exemption in hand, California would issue allowances and credit offsets as bonds and other securities are issued now. DTCC would work with the entity acting in the role of underwriter to review the characteristics of the allowances and credit offsets. Assuming that the allowances and prospective credit offsets met the other requirements for DTC eligibility, DTC would work with the underwriter and California to assign allowance to tracking system accounts following the auction or granting process.

At this point all the infrastructure which supports the US capital markets would be available to those holding or wishing to trade compliance instruments. Entities with compliance obligations, institutional investors and individual investors would hold allowances and credit offsets in brokerage accounts. These account balances would be reflected in the DTCC tracking system, as they are today for holdings in equities, bonds and other securities. As allowances and credit offsets are traded in secondary markets, DTCC would do all the things it does now to facilitate the efficient, legally enforceable transfer of ownership of the instruments between accounts. DTCC would execute mandatory and *ad hoc* reporting to regulators. Brokers would issue statements describing holdings and activity. Brokers would execute trades on various emission market trading venues and these trades would be reflected on brokerage statements and DTCC tracking system accounts. The trades would be confirmed on the electronic confirmation platforms and reported to DTCC as is done today.

If the structure and institutional arrangements of Model A were acceptable to California then intermediaries, rather than California, would pay the cost of operating the market infrastructure. Since so much of the Market Tracking System infrastructure will be

shared infrastructure, the operating costs passed through to investors and entities with compliance obligations will be very low.

For OTC derivative contracts written on compliance instruments the cost would range between $0.20 and $1.00 per contract per month for each month the contract is registered in the trade information warehouse, depending on the volume of contracts submitted for registration. For this cost counterparties could elect to use other warehouse services for no additional charge. These services include: cash flow matching, cash flow calculation, trade lifecycle management and central settlement. After registering OTC emissions derivative trades in the warehouse for purposes of market oversight and transparency, counterparties to these trades could elect to outsource much of the work needed to service the transactions bilaterally.

At the other end of the range of implementation options is Model B. Under Model B, few of the institutional arrangements now used in the US capital markets would be used. The process of issuing, holding, trading, clearing and settling emission market transactions would be tailored to the emission markets in which California participates.

To implement Model B, DTCC would work with California to define these processes in detail. DTCC would then take existing infrastructure components used for the capital markets and re-use them to implement an infrastructure and process structure that is specific to California. Under Model B there would be significant savings from re-use of existing DTCC capabilities. At the same time, significant re-arrangement and reconfiguration of these capabilities would be necessary. This will have the effect of increasing the effort associated with implementation and would raise the cost of implementation significantly. Adding to the cost would be the fact that more infrastructure would be configured specifically for California and could not be shared with other markets. This would reduce the economies of scale and raise the ongoing unit cost of operating the Market Tracking System.

Under Model B, the cost of OTC derivative operations would be the same and under Model A, as this is separate infrastructure and, from the requirements described in the RFI, no special configuration for the California market would be required.

In summary, the model that is likely to be adopted lies somewhere between Model A and Model B. What that model should be will be the result of discussions between the Air Resources Board and DTCC. It will be an iterative process in which the benefits of tailoring infrastructure to the emissions markets in which California operates is weighed against the costs of implementation and on-ongoing operations.

3.2 Timeframe

DTCC is confident that it can make a Market Tracking System operational by 3Q2011. However there are a great many details to be filled in regarding how the Market Tracking System will interact with other market infrastructure components. We recommend that California move quickly to the next phase of contracting and that it establish a process in which there are extensive and in-depth discussions between the prospective tracking system provider and the Air Resources Board's Office of Climate Change prior to formal bidding.

DTCC welcomes such discussions. Specifically, DTCC stands ready to prepare and conduct design workshops, to analyze the cost of implementation options and to engage with market infrastructure providers which will be interoperating with the Market Tracking System. Using our expertise and capabilities to make U.S. emissions markets a success has been a corporate goal of DTCC since 2008. Please call on us.