

ENERGY RETAIL Association



HIGH LEVEL REQUIREMENTS SPECIFICATION

Green Deal Central Charge Database & Energy Supplier - Provider Payment Remittance Interface

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1 INTRODUCTION

1.1 Purpose

The purpose of this requirements specification is to:

- 1) Provide a repository for the high level requirements governing the design of the *Green Deal Central Charge Database*. [GD CC db] These requirements capture the expression of scope and high-level requirements discovered in ERA workstream meetings with stakeholders. These requirements will be further refined and expanded as the project progresses and will form the basis for the design verification and validation of the system. The intended audience for this document includes stakeholders, regulators, government agencies, solution architects (in all stages of the delivery chain), developers and testers.
- 2) Indicate the outline proposal for *Energy Supplier / Provider* payment remittance and interface data. This represents the ERA Workstream view of the mechanics and assumptions on which the interface would be based. These mechanics and assumptions are to be discussed and finalised during bilateral meetings with a Provider / Financier group.

This document will be updated periodically to reflect changes in legislative and regulatory requirements, including changes effected in the final stages of the Energy Bill 2011 and the consultation on Energy Supplier license code changes regarding the Green Deal.

2 GREEN DEAL CENTRAL CHARGE DATABASE

2.1 Guiding Principles

The GD CC db project is an element of the Green Deal which will enable Energy Suppliers to perform the billing and collection role for Green Deal monies. It will exist alongside other energy efficiency data

bases such as NEED and the EPC database. There will be other Green Deal specific databases, but they are outside the scope of this project.

The mandate to create the GD CC db will be contained in secondary legislation and/or modified Energy Supplier license codes as put forward by the Department of Energy and Climate Change. [DECC] The current draft mandate is:

*".....to maintain a suitable database and any associated payment processing infrastructure, to facilitate collection of the charge. The database must also ensure that information on individual Green Deal Plans can be shared easily between energy companies and Green Deal Providers, and facilitate switching between suppliers by consumers."*¹

The ERA GD CC db workstream has outlined a set of *Guiding Principles* which set the initial project objectives to ensure that:

- 1) The *right bill payer* is charged the *right amount*.
- 2) GD Providers and other parties are aware of changes to key bill payer data. (e.g. Change of Supplier, [COS] Change of Tenant², [COT] Change of Bill Payer)
- 3) GD Providers receive relevant information required for CCA purposes.
- 4) Energy Payment write-off information is communicated to GD Providers.
- 5) No data is stored which would contravene the Data Protection Acts (DPA) or require the operators and owners of the database to be registered under any Financial Services regulations.³

¹ This outline definition is contained in a letter from Gregory Barker, Minister of State, DECC, to the Energy Retail Association, 8th June 2011.

² In some COT scenarios, lack of disclosure will impact GD Billing and Financier Remittances.

³ A legal opinion regarding the applicability of DPA to the bill payer data being stored should be sought.

- 6) Those regulatory bodies mandated to oversee the Green Deal have access to the data and / or reports necessary to accomplish their role.
- 7) Data stored is the minimum necessary to support these guiding principles and Energy Supplier objectives. This will streamline development, operational and administration costs.
- 8) The overall intent of the GD CC db - to provide a service to Energy Suppliers and other stakeholders in order to carry out their mandated billing and collection role - is accomplished at minimum cost conducive with resilience, quality of service, scalability and security.

The GD CC db project consists of two development components.

- The first component is the development of the *GD CC database* - a system for sharing, quality controlling, and exchanging Green Deal and bill payer information.
- The second component is the development of information flows, triggers etc. that make effective use of the GD CC db by *pushing* event data to GD CC db users. These information flows will ultimately encompass the transmission of payment data and monies to GD Providers, but at present these flows cannot be included in this document until the agreed security and data protocols for the transfer of such information or data have been ratified with DECC and any relevant stakeholder.

The GD CC db will have a variety of users. The following is an initial list, which will likely grow as Green Deal legislative detail is developed, of these stakeholders:

- Energy Suppliers;
- Green Deal Financiers;
- Green Deal Providers;
- DECC;
- Electricity Registration System authorities;
- Regulatory Bodies governing the Green Deal;

- Accredited third parties. (e.g. the GD Remote Advice Line)

The GD CC db should include:

- Automated and manual update processes;
- Quality control of data with feedback to originators;
- Management of user's rights to input or extract role-specific data components;
- Data retrieval tools.

2.2 Scope

The scope of the GD CC db is defined by the following key functions;

- Storing Green Deal and associated Green Deal Bill payer data as supplied by GD Providers;
- Storing Green Deal estimated savings data as computed by the GD Provider at the point of installation. (This could be a compounded estimate where a second or subsequent measure is installed)
- Communicating GD data updates to the GD Bill payer's energy supplier;
- Validating GD bill payer data against energy registration systems;
- Holding status data on Green Deal records;
- Receiving GD charge data updates from Providers;
- Sending GD Charge data updates to Energy Suppliers;
- Exchanging dispute data with Energy Suppliers;
- Receiving Change of Supplier data from energy industry flows;
- Receiving Change of Tenant data from Energy Suppliers;
- Sending Change of Tenant data to Providers;
- Fulfilling information / reporting requests from the Regulator, DECC and bill-payers ;

- Subject to governance processes from industry agencies;
- Allowing access to role / bill payer-specific data by stakeholders.

The following functions are specifically EXCLUDED from the project scope;

- Assessor and Installer data
- Installation Assets data
- Consents data
- Asset / Location data
- Accreditation data
- Bill payer Complaint data
- GD Bill payer Payment History
- GD Advice Line data
- CCA statement production
- EPC detail data
- Energy Efficiency data
- ECO data

2.3 Definitions and Abbreviations

This document contains terms and abbreviations peculiar to the Green Deal and the Energy Supply industry. A dictionary of these terms and abbreviations can be found in Appendix A, below.

2.4 References

The following documents contain additional information pertaining to this project or have been referenced within this document:

1. *Energy Bill 2011.*
2. *ERA Green Deal Processes Flowcharts 13th June 2011.*
3. *Energy Bill 2011 Public Bill Committee debates, 7th - 21st June 2011.*
4. *ERA "Role of a Green Deal Database..." exploratory paper.*

2.5 Overview

The requirements presented in this document represent the high level objectives, constraints, and desires for the GD CC db.

Each requirement is identified by a unique GD CC db-specific identifier to allow the requirement to be referenced in future documents, providing traceability throughout the development process.

This requirements document states what must be accomplished to fulfill the GD CC db's mandated operations. It does not state how this is to be accomplished. This document describes each requirement and the basis for inclusion of that requirement.

The remaining sections of the document contain the requirements for the database. The sections and their content are as follows:

Section 2 - General Description provides a general overview of the entire system. This section describes the general factors that affect the database and its requirements.

Section 3 - Specific Requirements contains the requirements developed from ERA workstream meetings, DECC publications and stakeholders. This section organises the requirements into categories that facilitate the database development process. The categories in this document are: Functional Requirements, Performance Requirements, and Organisational Requirements.

2.6 General Description

This section provides an overview of the GD CC db database and its relationships. It also describes the general factors that affect the database and its requirements. This section does not state specific requirements, but instead is intended to make the requirements easier to understand by giving them some context. Descriptions of specific terms and acronyms used in this section may be found in Appendix A.

2.6.1 Database Context and Roles

The GD CC db will receive data from contributing parties, store and then communicate the data. The basic processes are shown in Figure 1 in terms of the GD CC db objects and their interactions. (Note that a single party could fulfill a number of roles) The ellipses represent specific types of data and user roles and the arrows represent the interactions between them⁴. For example, a *Provider* administers both an *Installer* and an *Assessor*, receives *Installation* and *Green Deal Plan assessment* data, and provides it to both the GD CC db and the *Financier*.

⁴ The arrows in this diagram do not indicate data flows, nor do they show all possible variants; they show the subject-object relationships.

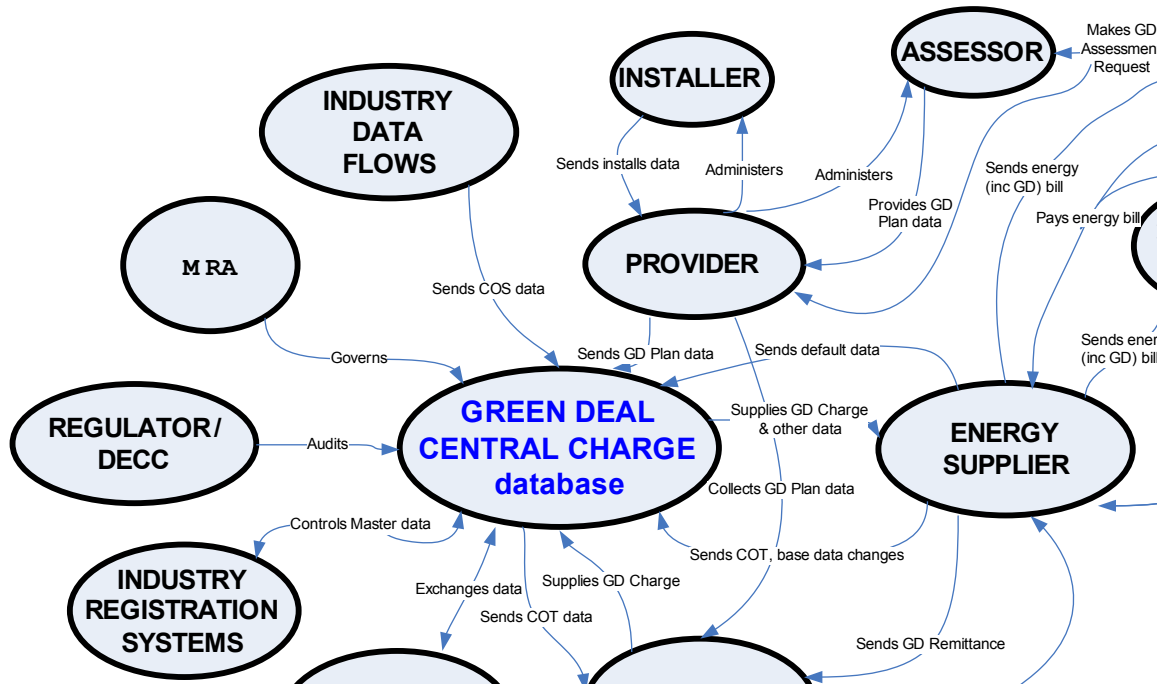


Figure 1 - Basic GD CC db objects and functions.

The volume of data involved in the Green Deal process is potentially very large. (GD plans can have a large lifespan: there is no legislative limit) The GD CC db database should be capable of handling data in a flexible manner that permits new data types to be added if necessary.

2.6.2 Proposed GD CC db data elements (M = Multiple Occurrences)

I D	Data Label	M	Initial Creator	Maintained by
1	MPAN [see also 2.6.3 NOTE 2.]		Provider	Energy Supplier
2	Electricity Meter Serial Number ⁵		Provider	N/A
3	Unique Property Reference [UPRN]		Provider	N/A
4	Energy Performance Certificate [EPC] Number ⁶		Provider	N/A
5	GD Plan ID		Provider	N/A
6	Status		Provider	CC db
7	GD record create date		Provider	N/A
8	GD Start Date		Provider	Provider
9	GD End Date		Provider	Provider
10	GD Bill payer ID [generated by CC db]	M	Provider	Energy Supplier
11	GD Bill payer Start Date	M	Provider	Energy Supplier
12	GD Bill payer Name	M	Provider	Energy Supplier
13	GD Bill payer Address	M	Provider	Energy Supplier
14	GD Bill payer Contact Details	M	Provider	Energy Supplier
15	GD Bill Payer Billing Frequency ⁷ (calendar days)	M	Provider	Energy Supplier
16	GD Bill Payer Billing Method ⁸⁷	M	Provider	Energy Supplier
17	Provider ID [generated by CC db]	M	Provider	Provider
18	Provider Start Date	M	Provider	Provider
19	Financier ID ⁹ [generated by CC db]	M	Provider	Provider
20	Financier Start Date ⁹	M	Provider	Provider

⁵ Meter serial number will be used once during initial GD Plan data validation; thereafter it will not be maintained.

⁶ EPC Number requirement is being reviewed by DECC (RCW, 29/09/11)

⁷ A limitation to the use of this data for CCA purposes only is to be incorporated into the Green Deal Arrangement Agreement. (RCW, 29/09/11)

⁸ It is to be decided whether this field is updated constantly or only when a CCA Statement is requested.

⁹ This field may be blank if remittances are made directly to the Provider.

21	Provider / Financier Bank Data	M	Provider	Provider
22	Provider/ Financier Bank Data Start Date	M	Provider	Provider
23	Electricity Supplier ID [generated by CC db]	M	Provider	Industry Flows
24	Electricity Supplier Start Date	M	Provider	Industry Flows
25	Property Owner ID [generated by CC db]	M	Provider	Provider
26	Property Owner Start Date	M	Provider	Provider
27	Property Owner Name	M	Provider	Provider
28	Property Owner Address	M	Provider	Provider
29	Property Owner Contact Details	M	Provider	Provider
30	Notification acknowledgement sent date		Energy Supplier	N/A
31	Charge acknowledgement sent date		Energy Supplier	N/A
32	Annual Savings - Electricity (£-99,999)		Provider	Provider
33	Annual Savings - Gas (£-99,999)		Provider	Provider
34	Annual Savings - Other fuels (£-99,999)		Provider	Provider
35	Daily GD Charge	M	Provider	Provider
36	Daily GD Charge Effective Date	M	Provider	Provider
37	Daily Administration Fee (£9.99) ¹⁰	M	Provider	Provider
38	Rejection ID	M	Energy Supplier	N/A
39	Rejection Code	M	Energy Supplier	N/A
40	Rejection Code Transmission Date	M	Energy Supplier	N/A
41	CCA indicator (Y/N)	M	Provider	Provider

¹⁰ The administration fee is fixed for the life of the GD Plan. The fee level is to be reviewed every three years. (RCW, 29/09/11)

2.6.3 Data Relationships

This diagram is intended to provide an appreciation of the relationships between the potential master GD CC db files containing the data proposed in section 2.6.2, above. Subsidiary data, such as *Daily GD Charge*, would be contained in detail files related to a parent master, in this case *GD Plan*. In the interests of clarity these relationships are not shown.

NOTES:

- 1) With the exception of the relationship shown in **RED**, where multiple occurrences are shown only ONE relationship can be effective for a specific date.
- 2) It is possible for a site MPAN to change. (e.g. where DNO sells assets to INO, or where a site is logically disconnected then reconnected)
- 3) It is proposed that the existence of a Green Deal for an MPAN is reflected by the addition of a "GD Flag" in MPAS. This would control processes such as COS, de-energisation etc.

Figure 2 - High-level data relationships.

2.6.4 User Characteristics

Direct and indirect use of the GD CC db could be made by a wide range of users. This section focuses on those users who have the most immediate contact with the system.

The primary user classes include the database owners (Energy Suppliers) and key entities such as Providers and Financiers.

The following is an initial list of stakeholders whose user needs are considered:

- Energy Suppliers;
- GD Providers;
- GD Financiers;
- GD Regulatory Body / Ombudsman;
- DECC;
- MRASCO (the administration company of the MRA, which is the proposed governance body for the GD CC db);
- Industry Registration systems and
- GD Advice Line operators.

2.6.5 General Constraints

Timeliness of data flows both from and to the database and reliability of the system are major constraints on the design. Both of these factors can be addressed through appropriate system architecture and implementation.

To address the timeliness factor, the system should be designed such that it can process potentially large volumes of data from a variety of sources and at high rates. An architecture which is implemented across multiple servers and communication channels may

address this issue. Given the existing uncertainty surrounding take-up rates for the Green Deal, the inherent scalability of such a design may also enable the system to expand and add new data sources and end-users both easily and at low cost.

The primary challenge on reliability will be the trade-off between the need for reliability and the cost of duplication in critical areas.

2.6.6 Assumptions

- 1) Only permitted, accredited stakeholders shall be allowed access to records pertaining to their bill payers only. [facilitated by links to industry registration systems]
- 2) The CC db shall hold a full E2E audit trail of transactions which have added, modified or deleted data.
- 3) The database shall retain data during the life of the Green Deal (there is no upper legislative limit for a GD lifespan, but for practical and design calculations, 25 years should be used) plus seven years;
- 4) The database will not hold information relating to bill-payer complaints.
- 5) The database will support ALL market segments eligible for the Green Deal. (Residential / SME / Corporate)
- 6) All bill payer eligibility checking will have been completed prior to the registration of GD data on the GD CC db.
- 7) Savings data shall be provided by the GDP / Assessor. [potentially using the EPC database as the master source]
- 8) Annual savings per GD Plan are expressed in monetary, non-indexed, terms per fuel and, in the case of multiple GD Plans, represent the *incremental* savings per plan.
- 9) Administration Fees are computed and loaded to the database by Providers.
- 10) Hard-to-Treat properties will be ECO-subsidised as an "up-front" payment. (reduces the GD total

cost) The CC db will therefore only show the daily charge relative to the net GD Plan amount financed, with any ECO subsidy amount not recorded.

- 11) Bill payers meeting "vulnerability" criteria will be ECO-subsidised as an "up-front" payment.
- 12) No information shall be held or passed to GD Providers relating to a bill payer's billing frequency or payment cycle.
- 13) No data shall be held on the database relating to GD payment default and no information will be passed to GD Providers relating to a bill payer's payment problems until write-off occurs.
- 14) The debt collection and management process for the combined electricity and GD charge will continue as per energy suppliers' existing BAU energy processes.
- 15) There will be no mechanism or data held for the calculation of interest on
 - o GD charges, or
 - o GD charge arrears.
- 16) No forecast future changes in GD charges shall be stored in the database, nor will any be incorporated into estimates of annual charges used for billing purposes. (i.e. direct debit reassessments will use the *latest actual* charge rate)
- 17) Early or part repayment of the Green Deal is negotiated between bill payer and financier. Energy Suppliers are informed by the BAU process of reducing or setting the charge to zero and, possibly, modification of GD expiry date.
- 18) The Provider (responsible for warranties) of a Green Deal could change during the lifetime of the deal.¹¹
- 19) The Provider to whom Green Deal remittances from Energy Suppliers are made could change during the lifetime of the deal.¹¹
- 20) No bill payer GD payment history data shall be held on the database. It is recognised that

¹¹ A process and owner will need to be defined for these changes.

- backing detail shall be forwarded to Providers with payments via other mechanisms. (to be determined by the *Provider Interfaces* workstream)
- 21) Electricity registration systems shall be used as the master source of data. (MPAN, Address, Meter Serial Number)
 - 22) The master source for bill payer name and address data will be that of the Energy Supplier.
 - 23) Service Level Agreements contained within the GDAA shall be required regarding lead times for the receipt of updates from Providers to the GD CC db.
 - 24) Energy Suppliers will probably create a local extract of GD CC db data in advance of billing runs. This needs to take into account the design of push and pull characteristics of data updates. It is assumed that all updates from the GD CC db will be pushed to energy suppliers.
 - 25) The initial GD Provider assessment of potential ECO subsidy relating to a Green Deal is outside the scope of the CC db.
 - 26) In the event of a post-installation dispute, (e.g. regarding charge amount) Energy Suppliers will need to follow the DECC advice to continue to bill, although certain categories of dispute will lead to charge suspension.
 - 27) As described in the ERA COS High-Level Process Chart, data regarding Green Deals attached to the bill payer's MPAN will be pushed from the database to the new supplier.
 - 28) The future Green Deal COS registration process shall have safeguards to ensure that a bill payer with a live Green Deal cannot be transferred to a new supplier who is opted-out of the Green Deal obligation.¹²
 - 29) ECO can be delivered outside Green Deal finance where 100% funded, and will therefore not appear in the database.
 - 30) A GD PLAN comprises of one or more measures which are to be installed concurrently. The GD CC db

¹² It is presumed that a supplier licence change will be made to allow this to happen.

and energy bills would therefore quote the Green Deal Plan ID only, not the details of individual measures.

- 31) A Green Deal Assessment covers ALL energy improvement options. It would separately identify those measures which can be funded as part of a Green Deal Plan. Finance arrangements for assessor-recommended measures which are not included in the Green Deal are outside the scope of the GD CC db.
- 32) There is no maximum number of GD PLANS which can be held per MPAN on the database.
- 33) The database will not hold a descriptor or type code for listed GD Plans, but will hold the *GD Plan ID*.

2.7 Specific Requirements

This section presents the high-level requirements for the GD CC db. These requirements describe the expected attributes and capabilities of the database as a whole.

The high-level requirements in this document are therefore those that can be derived from a context diagram (Figure 2) that pictures the database as a single functional block with its interfaces.

The types of requirements described in this section approximate to these functions and interfaces, i.e.

- what happens inside the GD CC db itself, and
- the characteristics about each interface;
 - o the collection of data from Providers as input,
 - o the dissemination of data to Energy Suppliers and Providers as output,
 - o the controlling rules and constraints under which the system operates, and
 - o the means (primarily data management) by which it works.

Figure 3 - Database High-Level Requirements Context

In this section, the requirements are divided into the following categories.

- Functional Requirements:
 - List the characteristics that the database must support;
 - Identifies what is to be achieved by the database;
 - What inputs should be transformed to what outputs, and
 - What specific operations are needed.

The functional requirements further include:

- Functional Data Requirements, which describe requirements specific to the definition and management of data used and provided by the system; and
- Functional Interface Requirements, which describe the functional interfaces to the GD CC db from information providers and users.
- Performance Requirements - Specifies static and dynamic capacity for the number of users,

connections, and other performance related factors. Performance requirements further include:

- Design Constraints, which identify constraints imposed by standards, regulations, software or hardware limitations; and
- Quality Requirements, which provide requirements which address the general quality, usability, scalability, flexibility, and maintainability of the system.
- Organisational Requirements - Includes requirements for policies and procedures to support the implementation, operations and institutional requirements to support the system. This category also:
 - Details logical characteristics between the system and external data sources;
 - Specifies level of integration with external systems and defines the interfaces with each user class; and
 - Specifies any communications interfaces and protocols that should be supported.

Table 1 shows the general layout of the requirements tables, and explains the purpose or content of each column of the requirements table. The requirements in this document are a subset of the requirements information that will be tracked in the detailed system "Requirements Matrix."

Table 2 provides an explanation of the requirement identification numbering system.

Table 1 - Explanation of the Requirements Tables

ID	Requirement	Comment	Criticality
A unique identifier used to trace requirements from beginning to end in the GD CC db development process.	The text of the actual requirement. Requirements formulated with "... shall..." are direct requirements; those using "... shall be able to..." are conditioned on other requirements being fulfilled or on factors outside the control of the requirement's subject.	Supporting text that may help explain the requirement.	H = High M = Medium L = Low

Table 2 - High-Level Requirement ID Format

High-Level Requirement Format	ID	Explanation of Format
Z-NNN	Z	Represents the classification of the requirements within the requirements document. The following classifications have been used in this requirements specification: D Design Constraints (Section 2.7.2.1) F General Functional Requirements (Section 2.7.1.1) H Functional Data Requirements (Section 2.7.1.2) I Functional Interface Requirements (Section 2.7.1.3) P System Performance Requirements (Section 2.7.2.3) Q Quality Requirements (Section 2.7.2.2) X Organisational Requirements (Section 2.7.3)
	NNN	Provides unique identification. Numbering is not necessarily sequential; gaps in the sequence leave room to add additional related requirements when they are discovered.

2.7.1 Functional Requirements

This section lists the functional characteristics that the GD CC db must support. It also identifies what the database does, what inputs should be transformed to what outputs, and what specific operations are required. The functional requirements are broken into subsections by general functions, data functions, and interface functions.

2.7.1.1 General Functional Requirements

The general functional requirements apply to the system as a whole, without respect to specific functions or processes.

ID	Requirement		Comment	Criticality
F-010	The GD CC db shall receive, validate, store and disseminate Green Deal data.		<i>Green Deal Data</i> includes the data elements summarised in Section 2.6.2	H
F-020	The GD CC db shall be able to exchange data with its prime data sources: Providers, Energy Suppliers and Providers		If there is no clearing house to process exchanges of monies, data will be exchanged with many Providers via a payments remittance interface. Access to data may be conditional based on multi-party agreements.	H
F-030	The GD CC db shall be able to process data based on the prime keys of <i>GD ID</i> and MPAN.		Change of Tenant transactions will entail the reassignment of all Green Deals associated with an MPAN to the new tenant,	H

ID	Requirement		Comment	Criticality
F-040	The GD CC db shall be able to securely exchange data with associated GD databases. (e.g. EPC, NEED, Provider, ECO, Remote Advice Service)		Access to data may be conditional, based on data sharing agreements to be reached with individual data-owning organisations.	H
F-050	The GD CC db shall be able to process data from Energy Industry flows.		New flows and changes to existing flows regarding COS need to be designed.	H
F-060	The GD CC db shall be able to respond to and process data contained in triggers from all associated databases.			H
F-070	The GD CC db shall be able to validate meter point data with Energy Industry registration systems.		MPAN-related data will be synchronised with an applicable registration system, e.g. ECOES	H
F-080	The GD CC db shall be able to <i>push</i> data updates to associated databases by the means of new industry flows (for Energy Suppliers) or by other forms of secure flow mechanisms.		Users of GD CC db data will operate by exception, i.e. a data status quo will exist unless new information is received.	H
F-090	The GD CC db shall facilitate a new commercial settlements-related systems involved in a <i>clearing house</i> function between energy suppliers and Providers.		Only when such functions are established and available.	L

ID	Requirement		Comment	Criticality
F-100	The GD CC db shall facilitate Energy Suppliers' charging of GD amounts to property owners. (when rented property is vacant)			H
F-110	The GD CC db shall process data flows in the sequence of the flows' timestamp.			H
F-120	The GD CC db shall be able to detect data submission errors.		Validation rules will be required	H
F-130	The GD CC db shall provide notification of data quality issues to data providers.			M
F-135	The GD CC db shall provide for an ad-hoc full/partial data extract capability in order for an energy supplier to undertake validation / refresh / data cleanse activities.			H
F-140	The GD CC db processes shall minimise the time for data acquisition from data providers.		SLAs will be required.	H
F-150	The GD CC db shall not modify original data supplied unless under the instruction of a Green Deal Ombudsman with delegated powers.			H

ID	Requirement		Comment	Criticality
F-155	The GD CC db shall incorporate an enquiry facility for the GD CC db Administration Service in order to facilitate dispute resolution for Energy Ombudsman, Financial Ombudsman and GD Oversight Body.			H
F-160	The GD CC db shall apply appropriate quality checks based on the completeness of received data.			M
F-170	The GD CC db shall, subject to definition, allow manual intervention to override automatically applied validation processes.			M
F-175	The GD CC db shall be able to receive updates from Energy Suppliers regarding changes to bill payer name or address details.		Need to ensure that CC db data reflects that which is notified to the Energy Suppliers for billing purposes.	H
F-180	The GD CC db shall be able to implement validation rules for specific data providers.			H
F-190	The GD CC db shall process data at speeds which minimise the time for data dissemination.		Essential for accurate billing by Energy Suppliers. SLAs will be required.	H

ID	Requirement		Comment	Criticality
F-200	The GD CC db shall maintain transaction history for seven years following the expiry date of a Green Deal agreement.		A full end-to-end audit trail is required. Maximum retention periods to be specified in the detail design phase	H
F-210	The GD CC db shall enable system administrators to manage security groups.			H
F-215	GD CC db security shall meet industry-wide standards.			H
F-220	The GD CC db shall be able to restrict data access based on requestor, role and dataset.		Example: <i>GD Providers should only be able to view the records of bill payers which they "own"</i> .	H
F-230	The GD CC db shall record statistics about its operations.			H

2.7.1.2 Functional Data Requirements

The data requirements identify and describe the management of information to be acquired and disseminated.

ID	Requirement		Comment	Criticality
H-010	The GD CC db baseline data types shall be those detailed in Section 2.6.2, above			H
H-015	The GD CC db design shall have flexibility to accommodate new data or database views at future dates.			H
H-020	The GD CC db shall be able to store the current <i>status</i> of a Green Deal agreement.		Status may be updated by events, the expiry of a date or the expiry of a period of time.	H
H-030	The GD CC db shall acquire and disseminate GD Bill payer Data.		For consistency, GD Providers' bill payer data should replicate that used by Energy Suppliers.	H
H-040	The GD CC db shall acquire and disseminate GD Charge Data.		This data is acquired from Providers and disseminated to Energy Suppliers.	H
H-050	The GD CC db shall acquire and disseminate GD Saving data.		This data is acquired from Providers and disseminated to Energy Suppliers for billing information use. It is possible that certain Savings data may originate from the EPC database.	H

ID	Requirement		Comment	Criticality
H-050	The GD CC db shall acquire and disseminate Property Owner data.		Where the energy bill is paid by a tenant, the property owner is a GD signatory. (liable for unoccupied period GD charges)	H
H-060	The GD CC db shall acquire and disseminate GD Provider data.		Providers could cease business and may be absorbed /replaced by others.	H
H-070	The GD CC db shall acquire and disseminate GD Provider data.		Providers could cease business and may be absorbed /replaced by others.	H

2.7.1.3 Functional Interface Requirements

The functional interface requirements describe the functional interfaces to the GD CC db from information providers and consumers.

ID	Requirement		Comment	Criticality
I-010	The GD CC db shall accept data through a standard bulk load interface.		Standard to be determined during design phase of this project.	H
I-020	The GD CC db shall be able to accept data that are manually entered.			H
I-030	The GD CC db shall process and transfer data as efficiently as possible.		SLAs will be required.	H

ID	Requirement		Comment	Criticality
I-040	The GD CC db shall employ industry standards to minimise implementation impact to users and providers.		"Standards" in this context refer to the data standards in common use among GD CC db stakeholders. GD CC db design tasks should include investigation of what standards are in use; detailed requirements will reflect the results of that research. [DTC/DTN is the energy industry standard method of communication and communication definition between industry parties. (suppliers, MPAS, ECOES etc.)	H
I-050	The GD CC db shall enable data queries by transaction timestamp.			H
I-060	The GD CC db shall enable data queries by source.			H
I-070	The GD CC db shall provide a user interface for management reporting and system administration.			H
I-080	The GD CC db shall manage system user privileges according to the GD CC db data sharing and multi-party agreements.		A "user" in this context is anyone who directly touches the system (for example, GD Provider supplying data or an associated database service which is retrieving data).	H

2.7.2 Performance Requirements

The requirements in this section specify static and dynamic capacity for the number of users, connections, and other performance related factors. The performance requirements are divided into subsections and are provided in the form of design constraints, quality requirements, and system performance requirements.

2.7.2.1 Design Constraints

Design constraints apply existing rules or external conditions to the system. Examples of design constraints are communication standards and requirements for standardised hardware or software.

ID	Requirement		Comment	Criticality
D-010	The GD CC db shall be able to be hosted at one or more physical locations.			H
D-020	The GD CC db shall use hardware that implements industry accepted standard interfaces.			H
D-030	The GD CC db shall use software that implements industry accepted standard interfaces.			H
D-040	<i>[original V0.1 requirement deleted]</i>			
D-050	The GD CC db shall disseminate data in response to a scheduled request.		Energy Suppliers may have requirements to download a daily set of updates to their local GD systems.	H

ID	Requirement		Comment	Criticality
D-060	The GD CC db shall collect data in response to polling ¹³ .			H
D-070	The GD CC db shall be able to notify associated databases when updated data becomes available.		<i>Associated Databases</i> advised by DECC currently include: EPC, GDP (multiple), ECO, NEED, Remote Advice Service.	H
D-080	The GD CC db shall disseminate data using standard Internet protocols.		If Web-enabled applications are used.	H
D-090	The GD CC db shall have a minimum of one system administrator.			H

2.7.2.2 Quality Requirements¹⁴

These quality requirements pertain directly to maintaining a high level of service quality.

ID	Requirement		Comment	Criticality
Q-010	The GD CC db shall be able to mitigate communication malfunctions.		This includes any <i>denial-of-service</i> attacks.	H
Q-020	The GD CC db shall be able to automatically recover from an unexpected shutdown.			H
Q-030	The GD CC db shall have a disaster recovery plan.			H

¹³ *Polling* software facilitates the collection of data from supplying databases by checking for updates at predefined intervals.

¹⁴ Figures in red require validation in the detail design phase.

ID	Requirement		Comment	Criticality
Q-040	The GD CC db shall be able to respond to 99% of all requests for Green Deal data for 99% of the time.		SLAs will be required.	H

2.7.2.3 System Performance Requirements

System performance requirements specify quantitatively what the system must do and in what timeframe. Figures in blue are estimates and those in red are unknown at the time of writing and require cost/benefit validation against forecasts of GD uptake from DECC. (Due October 2011)

ID	Requirement		Comment	Criticality
P-010	The GD CC db shall be able to prioritise data handling for time-critical data.		Demand for some data may necessitate that it be more readily available than other data. If this is the case, the detailed system requirements will identify the specific data to be provided and the timeliness criteria.	M
P-020	The GD CC db shall support 20 million Green Deal Plans.		13 year average GD length plus 7 years legal retention; 1 million GD Plans per year.	M
P-030	The GD CC db shall be able to complete an automated quality check of data within 9 seconds of data receipt.		SLAs will be required.	H

ID	Requirement		Comment	Criticality
P-040	The GD CC db shall respond to a request for information within 99 seconds.		SLAs will be required.	H
P-050	The GD CC db shall be able to handle 999 simultaneous requests for data.		Estimated that X% of the concurrent users may be requesting data at any one time.	H
P-060	The GD CC db shall be able to support 999 concurrent users.		An estimate of the number of concurrent potential users of the GD CC db: X% of the registered users at any one time.	H
P-070	The GD CC db shall be able to support 999 registered users.		An estimate of the number of individual users is required	H

2.7.3 Organisational Requirements¹⁵

Organisational requirements deal with policies regarding external parties involved with the system, personnel roles, training, and security needs.

ID	Requirement		Comment	Criticality
X-010	The GD CC db shall accept and supply data only from / to accredited users.		<i>Accredited users</i> are those with whom a multi-party or data sharing agreement has been established.	H
X-020	The GD CC db project shall establish data sharing agreements with all participating sources of Green Deal data.			H

¹⁵ Figures in red require validation in the detail design phase

ID	Requirement		Comment	Criticality
X-030	The GD CC db system shall maintain continuous 24x7x365 operations.			H
X-040	The GD CC db project shall provide an environment with uninterruptible power supplies for the database.			H
X-050	The GD CC db project shall provide an environment that has redundant communication for the GD CC db.		The DTN has backup communications.	H
X-060	The GD CC db project shall utilise network management tools.		Network management tools can be used to determine latency - delays incurred in the processing of network data.	H
X-070	The GD CC db project shall provide bill payer service standards by the use of agreed SLAs.		To be agreed as part of the detail design.	H
X-080	The GD CC db project shall provide a trained support staff.			H
X-090	The GD CC db project shall define data quality assurance methods and criteria.			H
X-100	The GD CC db project shall operate to those data retention standards which are enshrined in UK law.			H

ID	Requirement		Comment	Criticality
X-110	The GD CC db project shall provide documentation of GD CC db standards.		That is, the GD CC db project needs to provide documentation of whatever standards it creates for its own development, deployment, management, and operations.	H
X-120	The GD CC db project standards shall support multiple methods of data delivery to users.		Development cost per user base must be considered.	M
X-130	The GD CC db project shall maintain a comprehensive GD CC db test environment.			H
X-140	The GD CC db project shall test all software changes in a designated test environment before deployment to production.			H
X-150	The GD CC db project shall test all hardware changes in the designated test environment before deployment to production.			H
X-160	The GD CC db project shall operate the GD CC db according to its published IT Security Plan.			H

3 ENERGY SUPPLIER/PROVIDER PAYMENT REMITTANCE AND INTERFACE DATA

3.1 Scope

- 1) Energy Suppliers, in their capacity as obligated parties under the Green Deal, will only be involved in the design and development of systems that help to meet their obligated requirements under the Green Deal.
- 2) The work undertaken by the ERA Workstream only relates to the passing of monies and data to Green Deal Providers or their nominees when they are directly receiving GD monies and data associated with such monies from energy suppliers.
- 3) The remittance interface scope only encompasses situations where a bill payer remits GD monies, either in full or partially, to the energy supplier.
- 4) Governance issues are outside the scope of this document. They are dealt with by a separate ERA GD Governance workstream.
- 5) Payment remittance and interface data are separate from any aggregator or other vehicle used to securitise debt.

3.2 Guiding Principles and Assumptions

- 1) Energy Suppliers will collect GD monies and remit them to Green Deal Providers or their nominated parties:
 - ◆ when the energy bill payer pays the Energy Supplier and
 - ◆ when such monies have been processed, cleared through the banking cash settlement system and repackaged for payment to Providers. (this repackaging process would include activities such as *pari passu* computations)

Agreements relating to the timescales for completion of these activities are to be determined.

This principle applies to all energy bill payment methods **EXCEPT PREPAYMENT**. (See 3.3, below)

- 2) GD Daily Charge amounts will change at the most annually and will only change on the anniversary date of the initiation of the last Green Deal.
- 3) Providers will be responsible for generating ALL changes in the Green Deal charge amount.
- 4) Owners of Green Deal cash flows (or the Aggregator Company) will need to understand at any point in time what amounts are being paid and to which of their assets (i.e. GD Plans) they pertain.
- 5) A Service Level Agreement regarding the timing of both separation of bill payer monies into energy and Green Deal components and their remittance to Providers will be required as part of the Green Deal Arrangement Agreement.
- 6) Energy Suppliers will not bill retrospectively for Green Deal charges.
- 7) Energy Suppliers will have NO consumer-facing CCA related role.
- 8) Energy Suppliers will have a role in providing information to Green Deal Providers and a party nominated by the Green Deal Provider in order to facilitate their fulfillment of CCA obligations.
- 9) Green Deal Providers will be compelled to use a single common interface standard to receive Green Deal payments and data.
- 10) Energy Suppliers will bill within the existing billing pattern and will only alter Green Deal billing within the schedule of normal energy billing.

- 11) A process to reconcile GD charges and payments for *billed agreement* energy products (e.g. MDD and Regular Payment Schemes) will take place in line with existing energy supplier billing patterns and methodologies. This is to reflect the fact that these products are not charged on a regular basis with actual energy consumption, but charge a fixed amount per period. (this fixed amount will cover both energy, related products AND Green Deal charges) MDD products, for example, are reconciled biannually in order to reflect actual consumption, energy prices etc. and monthly charges changed in order to balance the bill payer's account to zero by the end of the next assessment period. The GD element of the fixed payment will therefore be adjusted on the same basis as energy products to reflect the differences described in 11) below. In common with energy products, this means that there will be no separate "reconciliation" payment for GD charges.
- 12) Billed Agreement products (e.g. MDD) products will have the GD element of their payments remitted to Providers in the form of a monthly payment. The reconciliation process described in 11), above, will accommodate:
- o The expected differences in the number of days billed due to the fact that:
 - MDD payments are monthly (one twelfth of annual charge) and billing periods reflect a defined number of calendar days, and
 - The GD charge may not be applicable to all days in a billing period, e.g. at the commencement and expiry of a GD.
 - o Changes in the daily GD charge rate. (see 3.3, below)
- 13) Energy Suppliers will notify Green Deal Providers when a change of tenancy occurs.

- 14) Providers will be notified when the energy element of a bill payer's debt has been written off.¹⁶ **An agreement will be required to determine the exact mechanism for informing Providers about such write-offs.** It is the ERA Workstream's assumption that, at the point when energy charges are written-off, GD charge arrears revert to the Provider for disposition.
- 15) There will be no notification of delayed or non-payment of the energy bill. Example situations where this could arise are:
- o A disputed meter read, or
 - o The energy bill not being produced (no consumption)
- 16) Green Deal Providers will be the sole source of life-cycle payment history of a GD Plan. (a bill-payer may switch energy suppliers several times during the life of a GD Plan)
- 17) GD CC db will not hold payment history data.
- 18) Energy Suppliers will need to maintain detailed account balance and transaction information at GD PLAN level in order to satisfy Provider data / audit requirements.
- 19) DECC have advised that the supply of GD Finance (i.e. the Green Deal Charge) will be exempt from VAT.
- 20) Remittance of GD monies from Energy Supplier to Provider and payment of Administration fees from Provider to Energy Supplier will follow separate processes.
- 21) VAT is applicable to the Administration fee when invoiced by Energy Suppliers to Providers.

¹⁶A legal opinion regarding the applicability of DPA to the communication of this data will need to be sought. It is possible that DPA implications could be avoided by indicating that the energy supplier is "no longer collecting GD payments"

- 22) Administration fees will be paid quarterly and represent a charge for the maintenance and management of the GD account by the Energy Supplier. As such the demand for their payment is NOT dependent on the bill payer's GD payment.

- 23) In certain circumstances, it is possible that a repayment made be required from Provider to Energy Supplier following a reconciliation process.

- 24) The Payment Remittance Interface should be designed so as to minimise transmission costs (data and payment) for Energy Suppliers and Green Deal Providers / nominated parties.

3.3 Remittance Processing – Data and Operating Principles

- 1) Green Deal monies will be available for transmission to Providers as per 3.2 bullet 5), above.
- 2) Remittance of GD monies will be made to Providers as per the principles described in section 3.2.1, above.
- 3) *Payment on demand* (POD) product interface data:

ID	POD Interface Data
1	MPAN
2	Green Deal Plan ID
3	Bill payer ID
4	Provider or Financier ID
5	Charge Period Start Date
6	Charge Period End Date
7	Total GD Charge for period
8	Total GD Payments received relating to charge period ¹⁷

- 4) The generic data in 3), above would be used for all *Payment on Demand* products.
- 5) *MDD Payment* processing will use the following interface data:

ID	Monthly Payment Interface Data
1	MPAN
2	Green Deal Plan ID
3	Bill payer ID
4	Provider or Financier ID
5	Payment Date
6	Payment Amount

¹⁷ *It is possible that CCA rules could dictate that individual payments / dates will be required.*

The monthly payment amount is the processed and cleared GD element of the MDD received in the "accounting" month.

- 6) *Billed agreement* type products such as MDD have their energy payments adjusted biannually. Energy Suppliers are conscious that MDD changes to reflect adjustments to the GD element will not be synchronised with these biannual dates. Experience from energy products where MDD changes are more frequent than biannual is that attrition rates increase and bill payers revert to the less-frequently paid POD products. As outlined in the ERA *Pari Passu* paper, Energy Suppliers will either:
- o Continue to use the BAU process for product price changes, i.e. defer incorporation of the new GD charge into the MDD until the next billing / reassessment when any under or over-charged GD amount would be recovered by incorporation in a revised MDD for the next assessment period.
 - o Incorporate the GD charge update into the MDD as soon as possible.
- 7) *Prepayment Meters (PPM)* present a unique challenge in administering the GD charge as the mechanism for collection (as a commingled element of energy debt) means that it cannot easily be identified in payment systems.¹⁸
- It is proposed that a monthly payment concept similar to that for billed agreements. (MDD etc.) is employed, but with a reconciliation and balancing adjustment taking place at either six or twelve month "billing point" intervals. (Intervals vary by energy supplier)
- 8) Monthly PPM payments will be those received by the Energy Supplier in the relevant "accounting" month and represented by the **weekly** GD payment

¹⁸ It should be noted that the mechanism for billing PPM customers and its associated payment remittance principles is still being considered by ERA Workstreams and DECC.

incorporated into the debt recovery rate and agreed with the bill payer. (if energy debt exists) Monthly PPM data is as per the table in 5), above.

9) PPM Reconciliation data is as per the table below.

ID	PPM Reconciliation Interface Data
1	MPAN
2	Green Deal Plan ID
3	Bill payer ID
4	Provider or Financier ID
5	Charge Period Start Date
6	Charge Period End Date
7	Total GD Charge for period
8	Total monthly payments in period
9	Net payment due or receivable ¹⁹

In this case the charge period start and end dates would be those covered by the bill. The key data items are the summary charge for the bill period (7) and the "balancing" payment. (9)

3.4 Administration Fee Processing

- 1) Green Deal Administration fee processing will be accomplished by Energy Suppliers using the GD CC db. The administration fee for each GD Provider's active GD records for the charge period (a calendar quarter is proposed) will be computed. (i.e. the sum of the administration fee effective for each day of the invoice period)

It is assumed that the charge is subject to standard-rate VAT and that it will be initially invoiced on a quarterly basis.

Administration Fee invoice data is as per the table below.

¹⁹ ***This could be a positive or negative amount.***

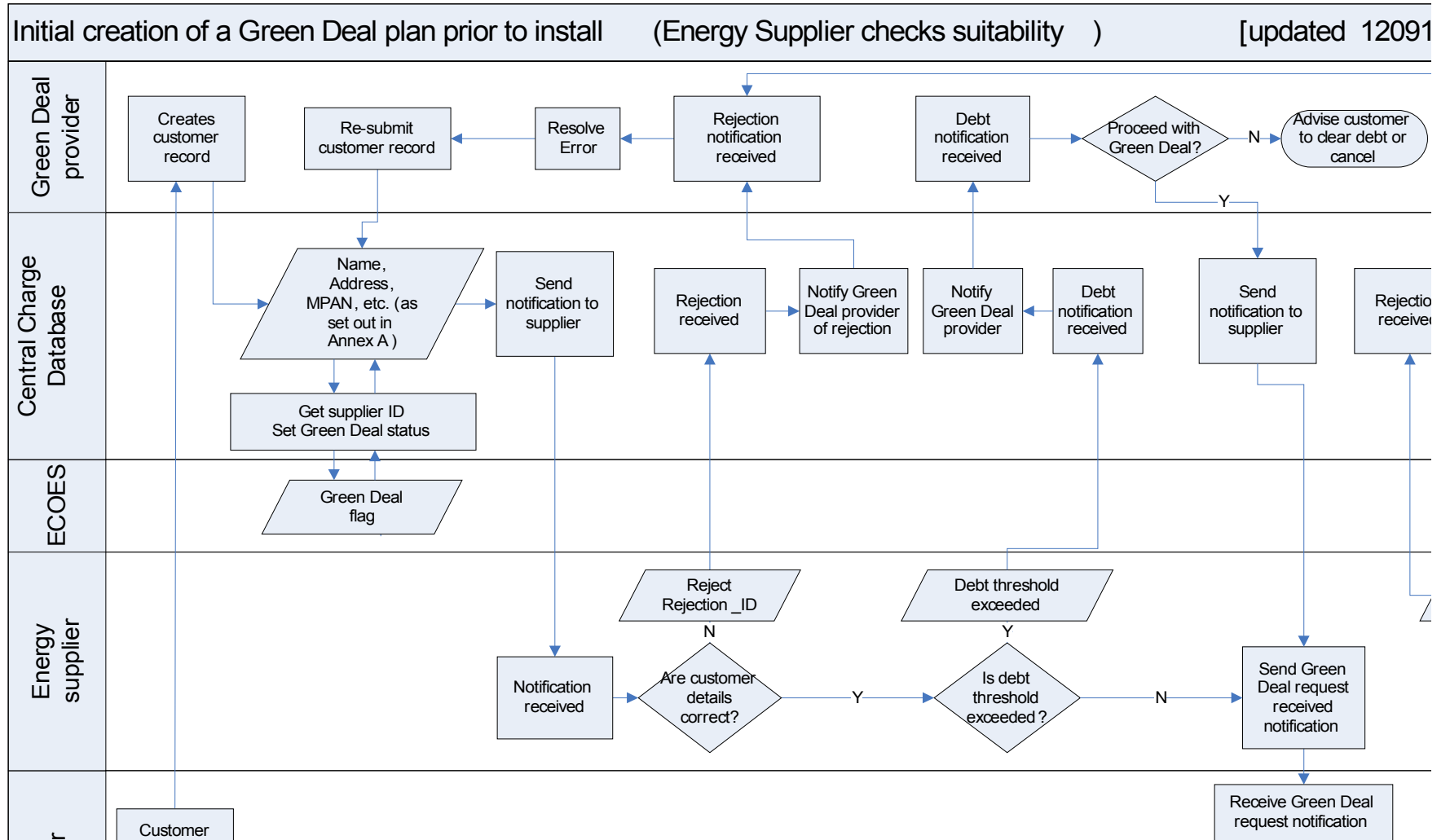
ID	Administration Fee Invoice Data
1	MPAN
2	Green Deal Plan ID
3	Bill payer ID
4	Provider or Financier ID
5	Tax point date
6	Administration Charge Period Start Date
7	Administration Charge Period End Date
8	Administration Fee Charge for period
9	Standard-rate VAT applicable at tax point
10	Total Administration Fee due (inc. VAT)

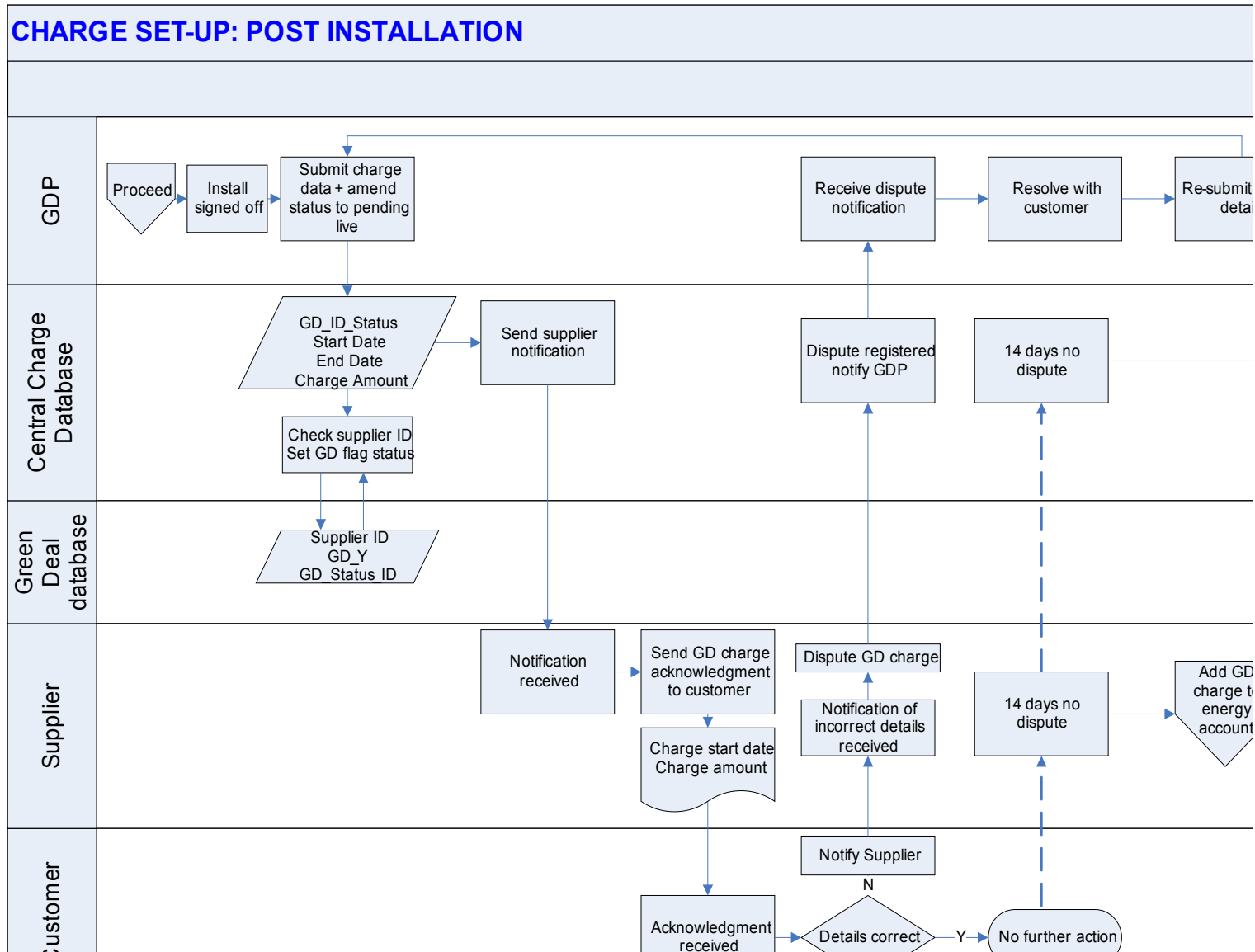
4 DEFINITIONS AND ABBREVIATIONS

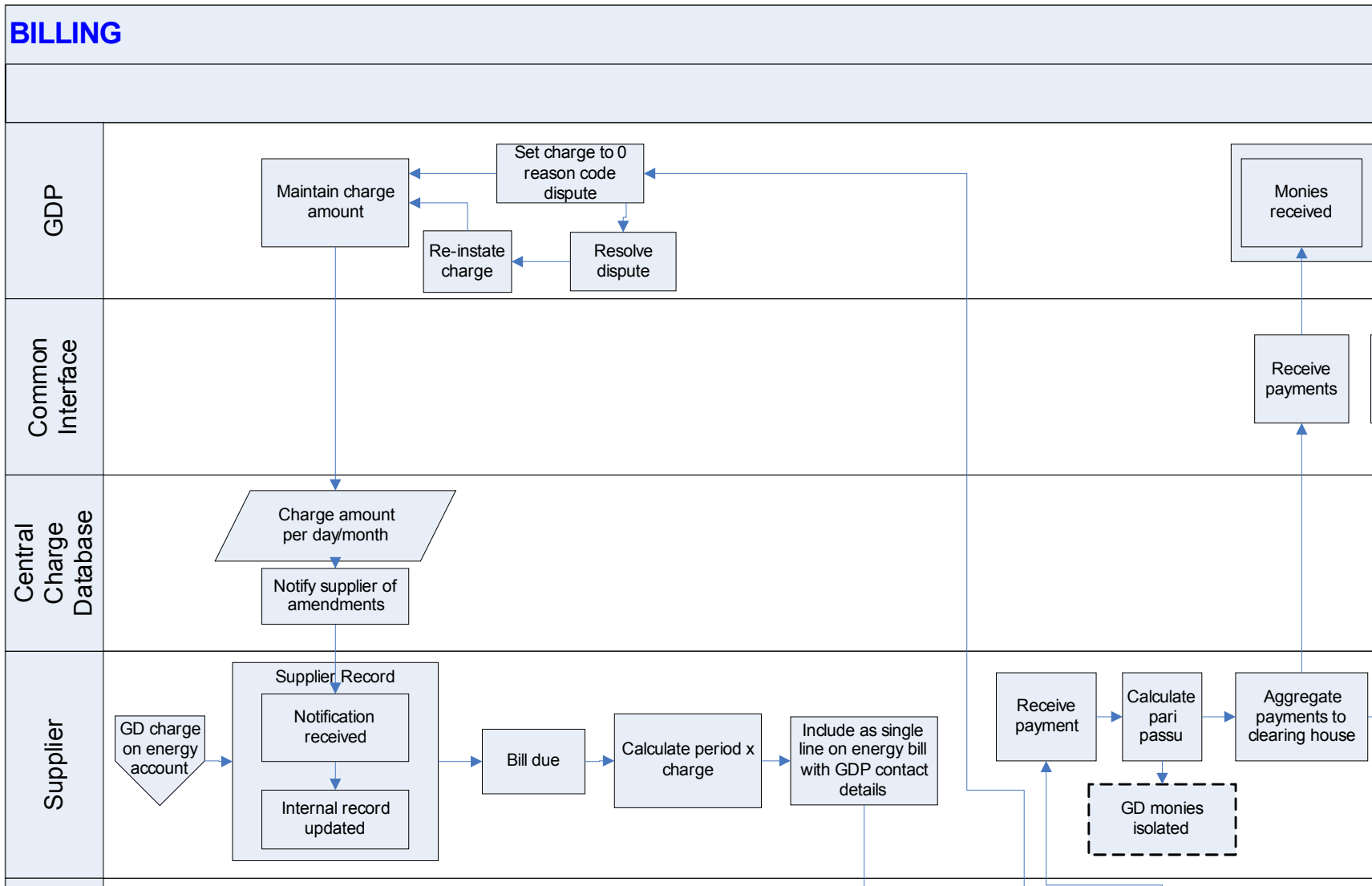
The following table provides definitions of terms and abbreviations to assist interpretation of this document.

Term	Definition
BAU	Business as Usual
CCA	Consumer Credit Act
COS	Change of Supplier
COT (COO)	Change of Tenant (Occupier)
DECC	Department of Energy and Climate Change
ECO	Energy Company Obligation (replaces CERT & CESP from 2013)
ECOES	Electricity Central Online Enquiry System
EPC	Energy Performance Certificate
ERA	Energy Retail Association
GD CC db	Green Deal Central Charge Database
GDA	Green Deal Arrangement Agreement [A multi-party agreement between GD Providers and Energy Suppliers]
MDD	Monthly Direct Debit
MPAN	Meter Point Administration Number
MPAS	Meter Point Administration System
MRA	Master Registration Agreement
MRASCO	Master Registration Agreement Service Company
NEED	National Energy Efficiency Database
POD	Payment on Demand (e.g. quarterly) billing
PPM	Prepayment Meter
SLA	Service Level Agreement

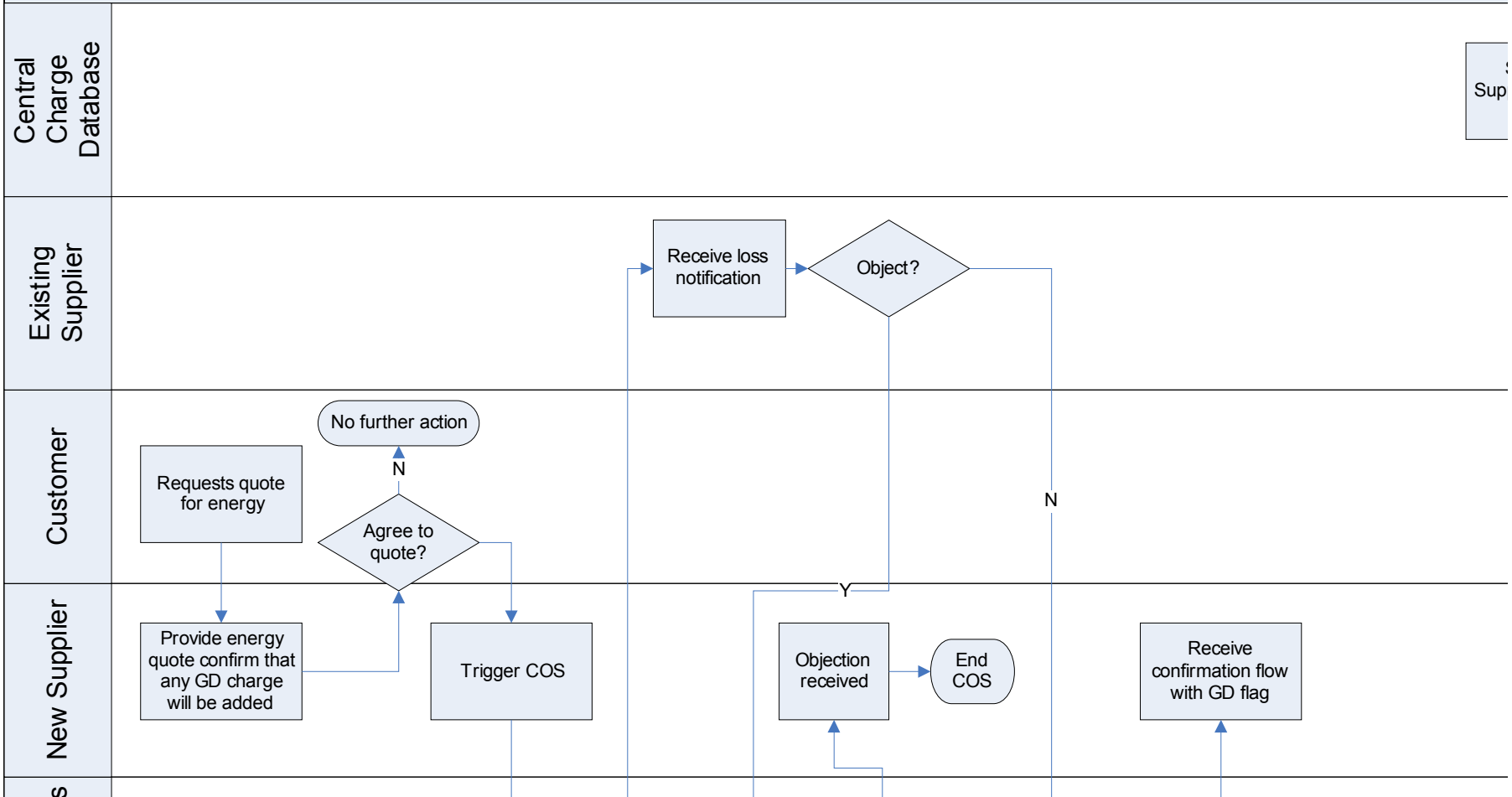
5 ERA PROCESS FLOWCHARTS (13TH JUNE 2011, EXCEPT WHERE STATED)







CHANGE OF SUPPLIER



ENERGY SUPPLIER – GDP INTERFACES

