


**Current CDR List with
Status of Documents and Drawings
CO₂ CAPTURE FACILITY
KARSTO, NORWAY**

Bechtel Confidential

© Bechtel Power Corporation 2008. All rights reserved. Bechtel Confidential. Contains information that is confidential and proprietary to Bechtel and may not be used, reproduced or disclosed in any format without Bechtel's prior written permission. This document is prepared exclusively for Gassnova in connection with the preparation of the FEED study for the CO₂ Capture Facility at Karsto, Norway, and is not to be relied upon by others or used in connection with any other project.

22	14 Jan 09	Issued for update and correction	BTR	—	—	<i>JM</i>		
21	13 Jan 09	Issued for Final M6 Deliverables	BTR	AJG	BTR	WRE		
15	7 Dec 08	Updated to issue final documents Milestone M5	BTR	DED	BTR	WRE		
9	21 Nov 08	Updated for Delivery of Milestone M4	BTR	AJG	BTR	AJG		
8	14 Nov 08	Updated to issue final documents Milestone M3	BTR	WRE	BTR	WRE		
2	10 Oct 08	Updated for Delivery of Milestone M2	BTR	AG	AG	WRE		
1	22 Sep 08	Updated for Delivery of Milestone M1 and corrected the PKM number	AG	WRE	AG	WRE		
0	16 Sep 08	Issued for Delivery Milestone M1	TK	BR	AJG	BE		
Rev.	Date	Reason for Revision	By	Check	APP	APP	Client	
 Bechtel Power Corporation			Job No.					
			Document No. 25474-001-30R-G01G-00002					Rev. 22
			PAGE 1 of 1					
GASSNOVA			Project No. - Originator - Disc Code - Doc Type - Serial No. 10112936-PB-G-DAL-0001					

Document submittals start with a revision number "0" (zero) which signifies the initial formal issue to Gassnova/ Fichtner. Subsequent submittals will be increased to the next highest number, with Revision 1 for example signifying the first revision to the initial submittal.

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status		
			M1	M2	M3	M4	M5	M6	M7	Document Number	Status	
G1	Administrative documents	Quality Plan	A								10112936-PB-A-QAP-0001	Rev. 0, Issued 10 days after contract award per Ex D, App A2
		Plan for Examination	A								10112936-PB-Q-QAP-0001	Rev. 1, Re-issued to incorporate Owner comments
		Plan for Quality Audits	A								10112936-PB-A-PAM-0001	Rev.0, Issued 10 days after contract award per Ex D
		Risk Management System	A								10112936-PB-Q-PPL-0001	Rev. 1, Re-issued to incorporate Owner comments
		HSE Plan	A								10112936-PB-A-QAR-0001	Rev. 0, Issued 10 days after contract award per Ex D
		Coordination/ Communications Procedure (including Standard Document Numbering)	A								10112936-PB-Q-QARP-0001	Rev. 1, Re-issued to incorporate Owner comments
											10112936-PB-G-DOC-0001 (will become G-DAL-0002 at Rev.1)	Rev.0, Issued 10 days after contract award per Ex D
											10112936-PB-A-GEA-0001	Rev. 1, Re-issued to incorporate Owner comments
											10112936-PB-A-HSE-0001	Rev. 0, Issued 10 days after contract award per Ex D.
											10112936-PB-Z-PPR-0002 (Z-PPR-0001 not issued)	Rev. 1, Re-issued to incorporate Owner comments.
											10112936-PB-Z-PPR-0002 (Z-PPR-0001 not issued)	Rev.0, Issued 10 days after contract award per Ex D

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status	
			M1	M2	M3	M4	M5	M6	M7		
										10112936-PB-A-PPR-0002 (A-PPR-0001 not issued)	Rev. 1, Re-issued to incorporate Owner comments
		Mobilization Plan	I							10112936-PB-A-PPL-0001 10112936-PB-G-PPL-0001	Rev. 0, Issued for Milestone M1 Rev. 1, Re-issued to incorporate Owner comments
G2	General	Current CDR list with status of documents and drawings	I	I	I	I	I	I	I	10112936-PB-G-DAL-0001	Rev. 0, Issued for 10 Day submittals Rev. 1 Issued for Milestone M1 Rev. 2, Issued for Milestone M2 Rev. 8, Issued for Interim submittals prior to Milestone M3 Rev. 9, Issued for Milestone M4 Rev. 15, Issued for final Milestone M5 deliverables Rev. 19 Issued for initial Milestone M6 deliverables Rev. 20 Issued for partial Milestone M6 deliverables
G3	General	General arrangement drawings				A				10112936-PB-G-DRW-0001	Rev. 0, Issued for Milestone M4

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status	
			M1	M2	M3	M4	M5	M6	M7		
G4	General	3D CAD model, general overview pipe/structural steel including elevations/civil/buildings/equipment including perspectives (submitting of extracts of the model in the form of drawings and presentation of the model)				C				10112936-PB-G-DRW-0005 10112936-PB-G-DRW-0006	Rev. 0, Issued for Milestone M4 Rev. 0, Issued for Milestone M4
G5	General	Layout drawings of main equipment				A				10112936-PB-G-DRW-0002 10112936-PB-G-DRW-0003 10112936-PB-G-DRW-0004	Rev. 0, Issued for Milestone M4 Rev. 1, Issued to resolve comment. Rev. 0, Issued for Milestone M4 Rev. 1, Issued to resolve comment. Rev. 0, Issued for Milestone M4 Rev. 1, Issued to resolve comment.
G6	General	Material Take off (MTO) main components					C			10112936-PB-G-DOC-0002	Rev. 0, Issued for Milestone M5
G7	General	Procurement milestones for long lead items							I	10112936-PB-G-PPL-0002	Rev. 0, Issued for Milestone M6
G8	General	Overall time schedule for detail engineering, manufacture, supply, assembly, erection, commissioning and testing broken down for the principal plant components and all construction works, stating dates for completion of any preparatory work from others which may be necessary							A	10112936-PB-G-PPL-0003	Rev. 0, Issued for Milestone M6

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
G9	General	Risk Management document showing potential problems / risks and measures to prevent / mitigate those (risk response) as well as the remaining risks. The assessment shall cover (but not be limited to) all risks related to engineering, manufacture, supply, assembly, erection, commissioning and operation (technical/quality, costs, time schedule etc.). Furthermore, the document shall comprise the risks and risk response measures for subsequent phases of the FEED study itself.							I	10112936-PB-G-DOC-0003 Rev. 0, Issued for Milestone M6
G10	General	Preliminary Vendor / Subcontractor List for main components							I	10112936-PB-G-PAL-0001 Rev. 0, Issued for Milestone M6
G11	General	CAPEX Cost estimate based on delivered and described structure							A	10112936-PB-G-CRE-0001 Rev. 0, Issued for Milestone M6
G12	General	Input for OPEX Cost estimate based on delivered and described structure							A	10112936-PB-G-CRE-0002 Rev. 0, Issued for Milestone M6
G12a	General	Carbon Capture Cost Comparison							I	10112936-PB-G-CRE-0003 Rev. 0, Issued for Milestone M6
G13	General	Guarantees on key parameters, explanation and documentation on how these guarantees are substantiated and verified							A	10112936-PB-G-DOC-0004 Rev. 0, Issued for Milestone M6
G14	General	Table of Content of FEED Study Report	C							10112936-PB-G-DOC-0001 Rev. 0, Issued for Milestone M1. Rev.1, Re-issued to incorporate Owner comments.
G15	General	FEED Study Report							A	10112936-PB-G-DOC-0005 Rev. 0, Issued for Milestone

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
										M6 <u>Rev.1, reissued to incorporate corrections.</u>
G16	General	If applicable, FEED study document update upon mutual agreement / approval during participation in Gassnova's evaluation of FEED study							A	
H1	HSE	Contractor's Occupational Health Design Philosophy on the Basis of Gassnova's HSE requirements		C						10112936-PB-S-HSE-0001 Rev. 0, Issued for Milestone M2
H2	HSE	Occupational Health Area Charts				C				Rev. 0, Issued for Milestone M4 Rev. 1, Issued to respond to Owner Engineer's comment
H3	HSE	Concept Occupational Health Impact Assessment				C				Rev. 0, Issued for Milestone M4
H4	HSE	Noise and vibration assessment (Coarse noise evaluation report)				C				Rev. 0, Issued for Milestone M4 Rev. 1, Issued for comment incorporation
H5	HSE	Contractor's Fire and Explosion Strategy (FES) on the basis of Gassnova's HSE requirements						C		Rev. 0, Issued for Milestone M5
H6	HSE	Contractor's Escape, Evacuation and Rescue Strategy (EERS) on the basis of Gassnova's HSE requirements						C		Rev. 0, Issued for Milestone M5
H7	HSE	HAZID Report (Hazard Identification)			A					Rev. 0, Issued for Milestone M3
H8	HSE	HAZOP (Hazard and Operability) report and							A	<u>Issue permitted to be delayed</u>

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
		HAZOP Close-out report								10112936-PB-S-HSE-0013 until Milestone M5 Rev. 0, Issued for Milestone M5
H9	HSE	Layout safety review report				C				10112936-PB-S-HSE-0009 Rev. 0, Issued for Milestone M4 Rev. 1, Issued to respond to Owner Engineer's comment
H10	HSE	Hazardous Area Classification drawings (based on ATEX, IP15 and on Kårstø drawings, preliminary)					C			10112936-PB-S-HSE-0010 Rev. 0, Issued for Milestone M5
H11	HSE	Escape route drawings (preliminary)					C			10112936-PB-S-HSE-0011 Rev. 0, Issued for Milestone M5 10112936-PB-S-HSE-0016 Rev. 0, Issued for Milestone M5 10112936-PB-S-HSE-0017 Rev. 0, Issued for Milestone M5 10112936-PB-S-HSE-0018 Rev. 0, Issued for Milestone M5 10112936-PB-S-HSE-0019 Rev. 0, Issued for Milestone M5 Issues Rev 1 to incorporate Owner Engineer's comments
H12	HSE	Contribution to Quantitative Risk Analysis (QRA)						C		10112936-PB-S-HSE-0014 Rev. 0, Issued for Milestone M5
H13	HSE	Completed emission and discharge data forms (see Appendix E1.8)				C				10112936-PB-S-HSE-0005 Rev. 0, Issued for Milestone M3
H14	HSE	Material Safety Data Sheets for main chemicals		C						10112936-PB-S-HSE-0002 Rev. 0, Issued for Milestone M2
H15	HSE	Emission dispersion calculations for modified						C		10112936-PB-S-HSE-0005 Rev. 0, Issued for Milestone

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
		CCPP stack								M3
B1	Material technology	Corrosion evaluations for main systems			C					10112936-PB-M-TDO-0001 Rev. 0, Issued for Milestone M4
B2	Material technology	Durability Report (including Material selection and Corrosion protection philosophy)			C					10112936-PB-M-TDO-0002 Rev. 0, Issued for Milestone M4
B3	Process	FEED Contractor technologies & references	C							10112936-PB-P-TED-0001 Rev.0, Issued for Milestone M1. Rev. 1, Issued to incorporate comments
B4	Process	Process description		I	I					10112936-PB-P-TED-0002 Rev. 0, Issued for Milestone M2 Rev. 1, Issued for Milestone M3
B5	Process	Block flow diagram		A						10112936-PB-P-FLD-0001 Rev. 0, Issued for Milestone M2 Rev.1, Issued to incorporate comments P-0021.
B6	Process	General process flow diagrams		A						All Rev. 0, Issued for Milestone M2 Rev. 0 Rev. 0, Rev.1, Issued to incorporate comments P-0025 and 0030 Rev. 0, Rev.1, Issued to incorporate comments P-0026

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
										10112936-PB-P-FLD-0005 Rev. 0, Rev.1, Issued to incorporate comments P-0026
										10112936-PB-P-FLD-0006 Rev. 0, Rev.1, Issued to update
										10112936-PB-P-FLD-0007 Rev. 0, Rev.1, Issued to update
										10112936-PB-P-FLD-0008 Rev. 0 Rev.1, Issued to update
										10112936-PB-P-FLD-0009 Rev. 0, Rev.1, Issued to update
										10112936-PB-P-FLD-0010 Rev. 0, Rev.1, Issued to update
										10112936-PB-P-FLD-0011 Rev. 0, Rev.1, Issued to incorporate comments P-0033
										10112936-PB-P-FLD-0012 Rev.0, Issued at Milestone M3
B7	Process	General process heat & mass balance diagrams		C	C					10112936-PB-P-HMB-0001 Rev. 0, Issued for Milestone M2 Rev. 1, Issued for Milestone M3
B8	Process	Process systems heat & mass balance diagrams		C	C					10112936-PB-P-HMB-0002 Rev. 0, Issued for Milestone M2 Rev. 1, Issued for Milestone M3
B9	Process	General process calculations		I						10112936-PB-P-TDO-0002 Issued for Milestone M2 Rev. 0 10112936-PB-P-TDO-0003 Rev. 0

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
										10112936-PB-P-TDO-0004 Rev.0 10112936-PB-P-TDO-0005 Rev.0 10112936-PB-P-TDO-0006 Rev.0 10112936-PB-P-TDO-0009 Rev.0 Rev.0 Rev.0 Rev.0
B10	Process	Process systems calculations and sizing		I	I					10112936-PB-P-TDO-0001 Rev. 0, Issued for Milestone M2 Rev. 1, Issued for Milestone M3
B11	Process	Line sizing & pressure drop calculations			I			-		10112936-PB-P-TDO-0010 Rev. 0, Issued for Milestone M3
B12	Process	P&ID's including + all instrumentation connected to the control system			A					All Rev. 0, Issued for Milestone M3 10112936-PB-P-PID-0001 Rev.0 10112936-PB-P-PID-0002 Rev.0 10112936-PB-P-PID-0003 Rev.0 10112936-PB-P-PID-0004 Rev.0 10112936-PB-P-PID-0005 Rev.0 10112936-PB-P-PID-0006 Rev.0 10112936-PB-P-PID-0007 Rev.0 10112936-PB-P-PID-0008 Rev.0 10112936-PB-P-PID-0009 Rev.0 10112936-PB-P-PID-0010 Rev.0 10112936-PB-P-PID-0011 Rev.0 10112936-PB-P-PID-0012 Rev.0 10112936-PB-P-PID-0013 Rev.0 10112936-PB-P-PID-0014 Rev.0

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
										10112936-PB-P-PID-0015 Rev.0
										10112936-PB-P-PID-0016 Rev.0
										10112936-PB-P-PID-0017 Rev.0
										10112936-PB-P-PID-0018 Rev.0
										10112936-PB-P-PID-0019 Rev.0
										10112936-PB-P-PID-0020 Rev.0
										10112936-PB-P-PID-0021 Rev.0
										10112936-PB-P-PID-0022 Rev.0
										10112936-PB-P-PID-0023 Rev.0
										10112936-PB-P-PID-0024 Rev.0
										10112936-PB-P-PID-0025 Rev.0
										10112936-PB-P-PID-0026 Rev.0
										10112936-PB-P-PID-0027 Rev.0
										10112936-PB-P-PID-0028 Rev.0
										10112936-PB-P-PID-0029 Rev.0
										10112936-PB-P-PID-0030 Rev.0
										10112936-PB-P-PID-0031 Rev.0
										10112936-PB-P-PID-0032 Rev.0
										10112936-PB-P-PID-0033 Rev.0
										10112936-PB-P-PID-0034 Rev.0
										10112936-PB-P-PID-0035 Rev.0
										10112936-PB-P-PID-0036 Rev.0
										10112936-PB-P-PID-0037 Rev.0
										10112936-PB-P-PID-0038 Rev.0
										10112936-PB-P-PID-0039 Rev.0
										10112936-PB-P-PID-0040 Rev.0
										10112936-PB-P-PID-0041 Rev.0
										10112936-PB-P-PID-0042 Rev.0
										10112936-PB-P-PID-0043 Rev.0

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status	
			M1	M2	M3	M4	M5	M6	M7		
B13	Process	Ducting and Instrumentation Diagrams			A					10112936-PB-P-DGM-0001 10112936-PB-P-DGM-0002	All Rev. 0, Issued for Milestone M3
B14	Process	Line list in accordance with P&ID's and D&ID's			C					10112936-PB-P-LCL-0001	Rev. 0, Issued for Milestone M3
B15	Process	Process data sheets (design and operation parameters)		I						10112936-PB-P-DAS-0001 10112936-PB-P-DAS-0002 10112936-PB-P-DAS-0003 10112936-PB-P-DAS-0004 10112936-PB-P-DAS-0005 10112936-PB-P-DAS-0006 10112936-PB-P-DAS-0007 10112936-PB-P-DAS-0008	All Rev.0 Issued for Milestone M2 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0 Rev. 0
B16	Process	Utility unit descriptions			C					10112936-PB-P-TED-0003	Rev. 0, Issued for Milestone M3
B17	Process	Utility balances with requirements/consumptions			C					10112936-PB-P-LST-0001	Rev. 0, Issued for Milestone M3
B18	Process	Utility flow sheets			C					10112936-PB-P-FLD-0013 10112936-PB-P-FLD-0014	All Rev. 0, Issued for Milestone M3
B19	Process	Utility data sheets					C			10112936-PB-P-DAS-0013	Rev. 0, Issued for Milestone M5
B20	Process	Utility P&IDs				A				10112936-PB-P-PIID-0044	All Rev. 0, Issued for Milestone M4 at M3 Rev.0

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
										10112936-PB-P-PID-0045 Rev.0
										10112936-PB-P-PID-0046 Rev.0
										10112936-PB-P-PID-0047 Rev.0
										10112936-PB-P-PID-0048 Rev.0
										10112936-PB-P-PID-0049 Rev.0
										10112936-PB-P-PID-0050 Rev.0
										10112936-PB-P-PID-0051 Rev.0
										10112936-PB-P-PID-0052 Rev.0
										10112936-PB-P-PID-0053 Rev.0
										10112936-PB-P-PID-0054 Rev.0
										10112936-PB-P-PID-0055 Rev.0
										10112936-PB-P-PID-0056 Rev.0
										10112936-PB-P-PID-0057 Rev.0
										10112936-PB-P-PID-0058 Rev.0
										10112936-PB-P-PID-0059 Rev.0
										10112936-PB-P-PID-0060 Rev.0
B21	Process	Effluent production		C						10112936-PB-P-TDO-0007 Rev. 0, Issued for Milestone M2
B22	Process	Storage units and transfer systems dimensioning			C					10112936-PB-P-LST-0002 Rev. 0, Issued for Milestone M3
B23	Process	CCC Amine Emission abatement study			C					10112936-PB-P-TDO-0011 Rev. 0, Issued for Milestone M3
B24	Process	Hydraulic and mechanical studies on CCC Plant column design (Coolers, absorbers, strippers etc.)			C					10112936-PB-P-TDO-0012 Rev. 0, Issued for Milestone M3
B25	Process	Depressurisation and draining philosophy			C					10112936-PB-P-TDO-0013 Rev. 0, Issued for Milestone M3
B26	Process	RAM (Reliability, Availability, Maintainability) Analysis and redundancy analysis for process key							A	10112936-PB-P-TDO-0015 Rev. 0, Issued for Milestone M6

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
		components								
B27	Process	Energy consumption optimization study			C					10112936-PB-P-TDO-0014 Rev. 0, Issued for Milestone M3
B28	Process	Cooling philosophy study (direct vs. indirect cooling)		A						10112936-PB-P-TDO-0008 Rev. 0, Issued for Milestone M2 Rev. 1, Issued for comment incorporation P-0034
M1	Mechanical	Main equipment and equipment package list				C				10112936-PB-R-PAL-0001 Rev. 0, Issued for Milestone M4 Rev. 1, Revised and updated (see B19)Rev. 0, Issued for Milestone M5
M2	Mechanical	Equipment mechanical data sheets (including materials selection and design codes)					C			10112936-PB-R-DAS-0001 Rev. 0, Issued for Milestone M5 10112936-PB-R-DAS-0002 Rev. 0, Issued for Milestone M5 10112936-PB-R-DAS-0003 Rev. 0, Issued for Milestone M5 10112936-PB-R-DAS-0004 Rev. 0, Issued for Milestone M5 10112936-PB-R-DAS-0005 Rev. 0, Issued for Milestone M5 10112936-PB-R-DAS-0006 Rev. 0, Issued for Milestone M5

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status	
			M1	M2	M3	M4	M5	M6	M7		
M3	Mechanical	Driver selection study (incl. availability and LCC assessment)			C					10112936-PB-R-TDO-0001	Rev. 0, Issued for Milestone M3
M4	Mechanical	Equipment/Vendor references (e.g. for special / large size items)			I					10112936-PB-R-TDO-0002	Rev. 0, Issued for Milestone M3 Rev.1, Issued to revise M4
M5	Mechanical	Equipment outlined dimensions and weights				I				10112936-PB-R-TDO-0003	Rev. 0, Issued for Milestone M4
HV1	HVAC	HVAC design basis, functional requirements and concept (Contractor's comments on Gassnova's design basis)			C					10112936-PB-H-TED-0001	Rev. 0, Issued for Milestone M3
HV2	HVAC	System design and description				C				10112936-PB-H-TED-0002	Rev. 0, Issued for Milestone M4
P1	Piping/Layout	LCC pipe design, Line sizing, materials: selection of the best combination of material, line size and wall thickness in order to obtain the lowest LCC (Life Cycle Cost) of the system					C			10112936-PB-L-TED-0003	Rev. 0, Issued for Milestone M5
P2	Piping/Layout	Pipe Class selection				I				10112936-PB-L-TED-0001	Rev. 0, Issued for Milestone M3
P3	Piping/Layout	Valve selection						A		10112936-PB-L-TED-0002	Rev. 0, Issued for Milestone M5
P4	Piping/Layout	Pipe Arrangement drawings					C			10112936-PB-L-DRW-0001	Rev. 0, Issued for Milestone M4
										10112936-PB-L-DRW-0002	Rev. 0, Issued for Milestone M4
										10112936-PB-L-DRW-0003	Rev. 0, Issued for Milestone M4

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
										10112936-PB-L-DRW-0004 Rev. 0, Issued for Milestone M4
										10112936-PB-L-DRW-0005 Rev. 0, Issued for Milestone M4
										10112936-PB-L-DRW-0006 Rev. 0, Issued for Milestone M4
										10112936-PB-L-DRW-0007 Rev. 0, Issued for Milestone M4
										10112936-PB-L-DRW-0008 Rev. 0, Issued for Milestone M4
E1	Electrical	Electrical power system description with design philosophy (all voltage levels) including features, background to design decisions (both main and emergency), work to be performed during detailed design (Contractor's comments on Gassnova's design philosophy)			A					10112936-PB-E-TED-0001 Rev. 0, Issued for Milestone M3 Rev. 1, Issued to incorporate E-0117 Rev 2 Issued to incorporate Owner comments
E2	Electrical	Design basics of all facilities from the external grid tie-ins at respective substations / interface points (Contractor's comments on Gassnova's design basis)		A						10112936-PB-E-TED-0002 Rev. 0, Issued for Milestone M2
E3	Electrical	Overall electrical single line diagrams for all power infeeds down to and including DC- and UPS-systems		A						10112936-PB-E-DGM-0001 Rev. 0, Issued for Milestone M2 Rev. 1, Issued for E-0020 Rev. 2, Issued to incorporate E-0066 & E-0171 10112936-PB-E-DGM-0002 Rev. 0, Issued for Milestone M2 Rev. 1, Issued for E-0022 Rev. 2, Issued to incorporate

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
E4	Electrical	Electrical motor and consumer list for all voltage levels as required by the CCC process design and the results of main driver optimisation studies, including AC and UPS systems; considering power demand for normal and emergency operation			I	I	I			10112936-PB-E-PAL-0001 E-0067 comments Rev.0, Issued for Milestone M3 Rev. 1, Issued for Milestone M4 Rev. 2, Issued for Milestone M5
E5	Electrical	Electrical load study (all voltage levels)				C				10112936-PB-E-TDO-0005 Rev. 0, Issued for Milestone M4
E6	Electrical	Sizing reports and main design data for all electrical facilities within the CCC plant electrical systems (transformer, cables, UPS, etc.)				C				10112936-PB-E-TED-0005 Rev. 0, Issued for Milestone M4
E7	Electrical	Operating philosophy and sizing of emergency diesel generator				C				10112936-PB-E-TED-0004 Rev. 0, Issued for Milestone M4
E8	Electrical	Basic architecture and specification for integrated switchgear protection and control system with interface to the Automation Systems (Contractor's comments on Gassnova's design basis)			A					10112936-PB-E-TED-0003 Rev.0, Issued for Milestone M3 Rev. 1, Issued to incorporate E-0132
E9	Electrical	Arrangement drawings (preliminary)				C				10112936-PB-E-DRW-0001 Rev. 0, Issued for Milestone M4
E10	Electrical	Substation / switchgear equipment layouts and sections				I				10112936-PB-E-TDO-0006 Rev. 0, Issued for Milestone M4
E11	Electrical	Load flow calculations (EDSA)				C				10112936-PB-E-TDO-0001 Rev. 0, Issued for Milestone M4
E12	Electrical	Short-circuit calculations (EDSA)				C				10112936-PB-E-TDO-0002 Rev. 0, Issued for Milestone M4
E13	Electrical	Transient stability calculations (EDSA)				C				10112936-PB-E-TDO-0003 Rev. 0, Issued for Milestone M4

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
E14	Electrical	Harmonic distortion study				C				10112936-PB-E-TDO-0004 Rev. 0, Issued for Milestone M4
E15	Electrical	Cable main routing scheme				C				10112936-PB-E-TDO-0007 Rev. 0, Issued for Milestone M4 10112936-PB-E-TDO-0008 Rev. 0, Issued for Milestone M4 10112936-PB-E-TDO-0009 Rev. 0, Issued for Milestone M4 10112936-PB-E-TDO-0010 Rev. 0, Issued for Milestone M4
E16	Electrical	Specifications of main electrical equipment					C			10112936-PB-E-TSP-0001 Rev. 0, Issued for Milestone M5
E17	Electrical	Electrical data sheets for equipment (including rating, weight and size)					C			10112936-PB-E-DAS-0001 Rev. 0, Issued for Milestone M5
E18	Electrical	Earthing and lightning protection plans (preliminary)						I		10112936-PB-E-TDO-0011 Rev. 0, Issued for Milestone M5
A1	Automation	Safety and Automation (SAS) operating and control philosophy incl. redundancy concept (Contractor's comments on Gassnova's design philosophy)			A					10112936-PB-I-TDO-0001 Rev.1, Issued to incorporate FIPB-I-TDO 0059 Response
A2	Automation	Narrative of proposed SAS including system architecture drawing (SAS Topology)			C					10112936-PB-I-DRW-0001 Rev.0, Issued for Milestone M3 10112936-PB-I-DRW-0002 Rev.0, Issued for Milestone M3 Rev. 1, Issued to resolve comment.
A3	Automation	Function specification with-brief description of Continuous Gas Monitoring and Metering System			A					10112936-PB-I-DRW-0003 Rev.0, Issued for Milestone M3

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status	
			M1	M2	M3	M4	M5	M6	M7		
										Rev.1, Issued to incorporate comments	
A4	Automation	List of modulating controls with narratives				I				10112936-PB-I-PAL-0001	Rev. 0, Issued for Milestone M5
A5	Automation	List of open loop controls (function groups and drive controls)				I				10112936-PB-I-PAL-0002	Rev. 0, Issued for Milestone M5
A6	Automation	Cause & effect diagram (for all safety related systems)				C				10112936-PB-I-DGM-0001	Rev. 0, Issued for Milestone M4 Rev. 1, Issued to resolve comment.
										10112936-PB-I-DGM-0002	Rev. 0, Issued for Milestone M4 Rev. 1, Issued to resolve comment.
A7	Automation	Description of F&G Monitoring and Alarm System incl. block diagram				C				10112936-PB-I-TED-0001	Rev. 0, Issued for Milestone M4
A8	Automation	Narrative of Information Management System (IMS)								10112936-PB-I-DOC-0001	Rev. 0, Issued for Milestone M5
A9	Automation	Instrument Index								10112936-PB-I-DOC-0002	Rev. 0, Issued for Milestone M5
A10	Automation	IO estimation								10112936-PB-I-DOC-0003	Rev. 0, Issued for Milestone M5
A11	Automation	List of analogue measurements (T, P, F, L, Q)								10112936-PB-I-PAL-0003	Rev. 0, Issued for Milestone M5
A12	Automation	List of control valves								10112936-PB-I-PAL-0004	Rev. 0, Issued for Milestone M5
A13	Automation	List of drives								10112936-PB-I-PAL-0005	Rev. 0, Issued for Milestone M5

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
A14	Automation	Signal exchange list with external systems (CCPP, gas plant, CO ₂ storage)					C			10112936-PB-I-LST-0001 Rev. 0, Issued for Milestone M5
A15	Automation	Earthing Philosophy				C				10112936-PB-I-TDO-0002 Rev. 0, Issued for Milestone M4
A16	Automation	Cable main routing scheme				I				10112936-PB-I-TDO-0003 Rev. 0, Issued for Milestone M4
A17	Automation	Power consumption list (UPS, DC, etc.)						I		10112936-PB-I-LST-0003 Rev. 0, Issued for Milestone M6
A18	Automation	Instrument air consumption list						I		10112936-PB-I-LST-0002 Rev. 0, Issued for Milestone M6
A19	Automation	Central Control Room (CCR) general layout drawing incl. equipment arrangement				C				10112936-PB-I-DRW-0004 Rev. 0, Issued for Milestone M4
A20	Automation	Local Equipment Rooms (LER) general layout drawing				I				10112936-PB-I-DRW-0005 Rev. 0, Issued for Milestone M4
A21	Automation	Local Instrument Rooms (LIR) general layout drawing				I				10112936-PB-I-DRW-0006 Rev. 0, Issued for Milestone M4
A22	Automation	Location plan of gas analyzing and monitoring equipment						C		10112936-PB-I-PLN-0001 Rev. 0, Issued for Milestone M5
A23	Automation	Block diagram for each plant communication system				C				10112936-PB-I-DRW-0007 Rev. 0, Issued for Milestone M4
										10112936-PB-I-DRW-0008 Rev. 0, Issued for Milestone M4
										10112936-PB-I-DRW-0009 Rev. 0, Issued for Milestone M4
C1	Architectural	Definition of architectural design premises (on the basis of Gassnova's design basis)		C	A					10112936-PB-C-TED-0001 Rev. 0, Issued for Milestone M2

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
										Rev. 1, Issued for Milestone M3
C2	Architectural	Architectural descriptions and design reports				C				10112936-PB-C-DOC-0001 Rev. 0, Issued for Milestone M4
C3	Architectural	Relevant architectural analyses				C				10112936-PB-C-DOC-0002 Rev. 0, Issued for Milestone M4
C4	Architectural	Area plan for each defined Main area				C				10112936-PB-C-PLN-0007 Rev. 0, Issued for Milestone M4
C5	Architectural	Landscape plan			C	C	C			10112936-PB-C-PLN-0001 Rev. 0, Issued for Milestone M3. No change for M4. Rev. 1, Issued for Milestone M5
C6	Architectural	Architectural plans, sections and elevations for buildings				A				10112936-PB-C-PLN-0002 Rev. 0, Issued for Milestone M4 10112936-PB-C-PLN-0003 Rev. 0, Issued for Milestone M4 10112936-PB-C-PLN-0004 Rev. 0, Issued for Milestone M4 10112936-PB-C-PLN-0005 Rev. 0, Issued for Milestone M4 Rev. 1 issued to resolve Owner Engineer's comments Rev. 0, Issued for Milestone M4
C7	Structural	Description of design philosophy and acceptance criteria for structural design (on the basis of			A					10112936-PB-N-TED-0001 Rev. 0, Issued for Milestone M3

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
		Gassnova's design philosophy)								Rev. 1, Issued to incorporate N-0146
C8	Structural	Identification and definition of foundation loads				C				10112936-PB-N-TDO-0002 Rev. 0, Issued for Milestone M4
C9	Structural	Typical drawings of outfitting structural steel (ladders, handrails, grating, platforms, connections)				C				10112936-PB-N-DRW-0001 Rev. 0, Issued for Milestone M4 10112936-PB-N-DRW-0002 Rev. 0, Issued for Milestone M4 10112936-PB-N-DRW-0003 Rev. 0, Issued for Milestone M4 10112936-PB-N-DRW-0004 Rev. 0, Issued for Milestone M4
C10	Civil	Description of design philosophy and acceptance criteria for civil works		C	A					10112936-PB-C-TED-0002 Rev. 0, Issued for Milestone M2 Rev.1, Issued for Milestone M3
C11	Civil	Description and drawings of site preparation and leveling requirements			C					10112936-PB-C-TED-0003 Rev.0, Issued for Milestone M3 Rev. 1, Issued to incorporate C-0145
C12	Civil	Description and drawings of structural design requirements for buildings				C				10112936-PB-C-TED-0016 Rev. 0, Issued for Milestone M4
C13	Civil	Descriptions and drawings of drainage and underground pressurized piping					C			10112936-PB-C-TED-0004 Rev. 0, Issued for Milestone M5
C14	Civil	Description and drawings of road, paving and terrain surface requirements and design					C			10112936-PB-C-TED-0005 Rev. 0, Issued for Milestone M5 Rev.1, Issued to incorporate

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status	
			M1	M2	M3	M4	M5	M6	M7	comments	
C15	Civil	Description and drawings of foundation design				C					10112936-PB-C-TED-0006 Rev. 0, Issued for Milestone M4
											10112936-PB-C-TED-0007 Rev. 0, Issued for Milestone M4
											10112936-PB-C-TED-0008 Rev. 0, Issued for Milestone M4
											10112936-PB-C-TED-0009 Rev. 0, Issued for Milestone M4
											10112936-PB-C-TED-0010 Rev. 0, Issued for Milestone M4
											10112936-PB-C-TED-0011 Rev. 0, Issued for Milestone M4
											10112936-PB-C-TED-0012 Rev. 0, Issued for Milestone M4
C16	Civil	Arrangement of underground structural design (caverns and tunnels)				C					10112936-PB-C-TED-0013 Rev. 0, Issued for Milestone M4
											10112936-PB-C-TED-0014 Rev. 0, Issued for Milestone M4
											10112936-PB-C-TED-0015 Rev. 0, Issued for Milestone M4
C17	Civil	Description of required infrastructure improvements outside plant battery limits (access roads, area drainage, power supply, water supply, sewer, harbors, etc.)							I		10112936-PB-C-TED-0017 Rev. 0, Issued for Milestone M5
C18	Civil	Plant area drawing including surrounding infrastructure and security fencing							C		10112936-PB-C-DRW-0001 Rev. 0, Issued for Milestone M5
C19	Civil	Site preparation and leveling drawings (including							C		10112936-PB-C-DRW-0002 Rev. 0, Issued for Milestone M5

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
		deposit handling)								M5
C20	Civil	Layout drawings for construction areas (including infrastructure)					C			10112936-PB-C-DRW-0003 Rev. 0, Issued for Milestone M5
C21	Civil	Preliminary list of equipment and piping (weights, dimensions of main components)					C			10112936-PB-C-PAL-0001 Rev. 0, Issued for Milestone M5
S1	Construction	Erection concept and access requirements for operation and maintenance						A		10112936-PB-O-TDO-0001 Rev. 0, Issued for Milestone M6
S2	Construction	Material storage and preservation philosophy					C			10112936-PB-O-DOC-0002 Rev. 0, Issued for Milestone M4
S3	Construction	Constructability report				C				10112936-PB-O-DOC-0001 Rev.0, Issued for Milestone M3
S4	Mechanical Completion	Mechanical testing and completion schedule						A		10112936-PB-O-DOC-0005 Rev. 0, Issued for Milestone M5
B29	Commissioning	Cold commissioning schedule (including training session)						A		10112936-PB-O-DOC-0006 Rev. 0, Issued for Milestone M5
B30	Commissioning	Hot commissioning schedule						A		10112936-PB-O-DOC-0007 Rev. 0, Issued for Milestone M5
B31	Guarantee tests	Performance Guarantee Test procedure						A		10112936-PB-O-DOC-0008 Rev. 0, Issued for Milestone M5
B32	Operations and maintenance	Operation and Maintenance philosophy					C			10112936-PB-O-DOC-0003 Rev. 0, Issued for Milestone M4 Rev. 1 Issued to respond to Owner's engineer Comments
B33	Operations and maintenance	Operating staff concept						C		10112936-PB-O-DOC-0004 Rev. 0, Issued for Milestone M5 at M4

Item No.	Discipline	Type of Document	Delivery Milestones							Document number and status
			M1	M2	M3	M4	M5	M6	M7	
										Rev. 1 Issued to respond to Owner's engineer Comments
B34	Operations and maintenance	List of consumables					C			10112936-PB-O-DOC-0001 M5
B35	Multidiscipline	Recommended Spare and wear Parts					C			10112936-PB-O-DOC-0009 M5
B36	Multidiscipline	Interface Register and Interface Tie-in Drawing			I		I			10112936-FI-Z-LST-0004 Rev. 1, Added per Exhibit E17, Section 2.5. M3 for process interfaces and M5 for all others. Rev.2, Issued for Milestone M3 Rev. 3, Issued for Milestone M5 by e-mail to S. Plasa on 7 Dec 2008 (PKM document number FI prevents uploading as a PB document) Rev. 4, Final at M6 Rev.0, Issued for Information
										----- 10112936-G-DRW-0007