Annex B. Requirements, activities and products of the development planning phases

Requirements	Activities	Products
B.I. Feasibility phase (DG 0 – DG 1)		
The main purpose of the feasibility phase is to establish and document whether a business opportunity or a hydrocarbon find is technically feasible and has an economic potential in accordance with the corporate business plan to justify further development. *The feasibility phase is initiated at DG 0 with a project agreement that defines the task, goal, framework and budget.* *The feasibility phase leads to decision gate DG 1, "Decision to start concept development" (BoK).*	***Project management*** *• A project responsible shall be appointed and an organization (dedicated or matrix) established with documented responsibility and tasks (ref. chap. 7.6)* *• The project agreement shall be updated* *• Goals for the concept phase shall be established* *• A benchmarking of key parameters (ref. chap 7.21) against comparable projects shall be carried out* *• A self-assessment shall be carried out to measure project status against DG 1 (BoK) requirements.* ***Project framing*** *• The idea or resource basis for the business opportunity shall be reviewed, evaluated and documented. For upstream projects, reference is made to AR01: "Exploration and reservoir exploitation requirements".* *• For a production facility, a product description shall be established, including an evaluation of potential markets* ***Project control*** *•A cost estimate corresponding to estimate class B (+ / - 40%) shall be established.* *• A complete review of the project's uncertainty shall be made. The review should cover resource basis, market, technical solutions, HSE, project execution, vendor market, cost estimate and profitability (as relevant). An mitigation plan to reduce the uncertainties shall be established (risks and opportunities)*	*The products from the feasibility phase constitute the documented decision basis for passing DG 1 (BoK) and form the basis for the concept phase.* ***Decision gate 1 (DG 1), "Decision to start concept development" (BoK)*** *The DG 1 approval is an authorization by the operator and the partners to continue developing the project through the concept phase towards DG 2 (BoV) in accordance with the approved project plans and budgets.* ***Timing*** *DG 1 (BoK) may be passed when the business concept has been developed to a level where it is likely that it is profitable, technically feasible and in accordance with the corporate business plans (ref. documentation requirements in appendix A).*

Requirements	*Activities*	*Products*
	Feasibility phase (DG 0 – DG 1) Continued	
	Project control (continues) *• A work program, plan, budget, organization and reporting system for the concept phase activities after DG 1 (BoK) shall be established/updated.* ***HSE*** *• HSE challenges, hazards and relevant authorities' requirements shall be identified, risks shall be evaluated and risk reducing measures shall be identified* ***Technical*** *• The preliminary design basis document shall be reviewed and updated.* *• A feasible facility concept (reference case) shall be outlined, and other possible viable concepts and potential upsides by application of new technology shall be identified on the basis of a coarse assessment. The project can only proceed into the concept phase if at least one solution that is technically feasible has been documented. In the downstream area it may be necessary to carry out a screening of possible technologies and to recommend a preferred technology supplier.* *• A coarse assessment of local technical and operational requirements shall be made* *• A technology assessment shall be performed* *• A technology qualification program shall be developed (if relevant).* *• For upstream facilities, special attention shall be given to requirements for drilling activities.* *• A regularity management program (RMP) shall be established*	***Documentation*** *The DG 1 decision basis is a memorandum / document that reviews the business opportunity and the development of the project up to DG 1, refers to the project documentation and concludes that the DG 1 requirements are met. Any deviations from governing documents shall be described. For modification projects, a recommendation on whether to use this procedure as the basis for further development of the project shall be included.* *Projects overseas* *For projects overseas, the DG 1 documentation shall describe uncertainty relating to:* *• geographical location, community, social and cultural conditions* *• political, trade financial and tax conditions* *• authority requirements and approval practice* *• industrial conditions and infrastructure* *• international reputation* *• security related to personnel, activities and facility* *• personnel / industry* *• QC process* *The documented results of the project external quality control process required at DG 1 shall be part of the DG 1 documentation.*

Requirements	*Activities*	*Products*
	Feasibility phase (DG 0 – DG 1) Continued	
	Commercial / economy *• The profitability of the business opportunity shall be evaluated, documented and reviewed in relation to corporate requirements* *• Requirements for commercial agreements or arrangements shall be evaluated in relation to each of the possible technical solutions* *• Agreements with partners required for the feasibility phase shall be established. A list of agreements required for further development of the project shall be established.*	***Recommendation and approval*** *The DG 1 proposal shall be evaluated and recommended by the exploration arena (when relevant) and the project development arena.* *The DG 1 approval process shall be in accordance with the delegation of authority within the responsible business area.* *The partners / co-owners shall also approve DG 1 (BoK).*

Requirements	Activities	Products
B.II. Concept phase (DG 1 – DG 2)		
The purpose of the concept phase is to provide a firm definition of the design (resource and product) basis and to identify all relevant and feasible technical and commercial concepts. *Further to evaluate and define the selected alternative (preferably one) and confirm that the profitability and feasibility of the business opportunity will be in accordance with the corporate requirements and business plans. The concept phase leads to the selection of the concept(s) (AP1) to be further developed up to decision gate DG 2, "Provisional project sanction" (BoV).*	***Project management*** *• A documented management system shall be established, adjusted to suit the project scope and size.* *• The project organization shall be continued from the previous phase, but adjusted to suit the concept phase* *• Goals and targets for the project which include profitability, regularity, project execution, HSE and quality shall be established.* *• The project agreement shall be updated* *• The project execution strategy shall be developed and documented by the core team / project management team.* *• Based on the project agreement, the project execution strategy and the overall procurement strategy, a project execution plan (PEP), which describes the project and the management system, shall be produced. The PEP shall be developed and updated continuously during the project planning period.* *• To serve as a basis for the development of strategies, a stakeholder analysis shall be carried out, appropriate to the project's scope, complexity and other requirement.* *• Based on the project execution strategy, strategies shall be developed for* *- commercial agreements* *- information technology* *- operation and maintenance* *A summary of these shall be included in the PEP (including references to the actual documents)* *• With reference to an established basis, a change control system shall be established* *• Goals for the pre-engineering phase shall be established* *•Benchmarking shall be carried out to measure the project against comparable projects* *•A self-assessment shall be carried out to measure project status against DG 2 (BoV) requirements.*	*The products from the concept phase constitute the documented decision basis for passing DG 2 (BoV) and form the basis for the pre-engineering phase. These products are listed in the table in appendix A.* ***Approval point 1 (AP 1), "Concept selection"*** *The approval point "concept selection", AP1, marks that one (or, where necessary, a limited number of) concept(s) or licensed process(es) has(have) been chosen for further detailing towards DG 2 (BoV).* *AP1 shall be the result of a screening process including all relevant and feasible alternative concepts identified for a further development of the business opportunity. Circumstances may dictate that more than one concept is selected for further development at AP1 or that a concept is selected at another point in time in the planning period. The relevant process owners shall recommend the selected concept(s).* *• The selection of the base case concept(s) shall be supported by documentation describing the concept screening process, focusing on:* *• design basis* *• concept alternatives and variants* *• screening parameters and weighting* *• description of and justification for both the selected concept(s) and the rejected option(s).* *• technology qualification program (final, when relevant)*

Requirements	*Activities*	*Products*
Concept phase (DG 1 – DG 2) Continued		
	Project Management (Continued) *• Project framing* *• The idea or resource basis for the project shall be reviewed, updated, evaluated and described for use in the concept development.* *•The product description and market analysis shall be updated and further developed Project control* *• A planning system shall be established with a main plan showing the main project activities, main milestones, important activities with regard to authorities and partners, and main supervision activities* *• Cost estimates shall be developed to an accuracy corresponding to estimate class C (+ / - 30 %)* *• A comprehensive uncertainty analysis shall be carried out covering all relevant technical and commercial aspects (resource basis, market, technical solutions, HSE, project execution, supplier market, cost estimate and profitability). A mitigation plan for reduction of uncertainties shall be established (risks and opportunities)* *•A proposal for a plan, budget and organization for the pre-engineering phase after DG 2 (BoV) shall be established HSE* *• Challenges and hazards with regard to health, working environment, safety, security and environment shall be identified, risks shall be assessed and risk-reducing measures identified. The requirements of relevant authorities shall be identified.* *•A plan shall be established for the preparation of the environmental impact assessment (EIA), which ensures that the EIA process can be completed within the framework of the project main schedule* *•A total risk analysis shall be performed* *• HSE program and plan shall be established*	***Decision gate 2 (DG 2), "Provisional project sanction" (BoV)*** *The DG 2 approval is an authorization by Statoil and the partners to continue developing the project through the pre-engineering phase towards DG 3 (BoG) in accordance with the approved project plans and budgets.* *The approval includes a decision to develop the necessary applications to the authorities. (For projects within the jurisdiction of the Norwegian Petroleum Act, this concerns PDO / PIO (PUD / PAD), including the EIA (KU)).* ***Timing*** *DG 2 (BoV) may be passed when the business concept has been developed to a level where it has been documented that it is profitable, technically feasible and in accordance with the corporate business plans (ref. documentation requirements in appendix A).* ***Documentation*** *The DG 2 decision basis is a memorandum / document that reviews the business opportunity and the development of the project up to DG 2, refers to the project documentation (ref. App. A) and concludes that the DG 2 requirements are met. Any deviations from governing documents shall be described.*

Requirements	*Activities*	*Products*
	Concept phase (DG 1 – DG 2) Continued	
	Technical *• The design basis document shall be reviewed and updated. Where relevant, infrastructure evaluations shall be included.* *• Reports from reviews and verifications shall be assessed* *• For upstream field developments, special attention shall be given to requirements for drilling activities and –equipment* *•For upstream field development, a production strategy for the field shall be developed* *• The regularity management program (RMP) shall be updated and the required activities carried out (ref. NORSOK Z-016)* *• A regularity analysis shall be carried out for the total production / value chain* *• For concepts that require ship transportation, a shipping simulation study shall be carried out* *• An operation verification of design shall be carried out* *• All relevant concept alternatives and concept variants shall be identified and evaluated* *• The best concept solution(s) shall be proposed and selected* *• Value improving activities (ref. app. D) shall be performed* *• The selected concept(s) shall be defined as per requirements to cost estimate class C* *• A technology qualification program shall be established (if relevant).* *• The project technical and operational requirements and guidelines shall be established (preliminary)* *• A system for handling of technical information shall be selected*	***Projects overseas*** *For projects overseas, the DG 2 documentation shall describe uncertainty relating to:* *• geographical location, community, social and cultural conditions* *• political, trade, financial and tax conditions* *• authority requirements and approval practice* *• industrial conditions and infrastructure* *• international reputation* *• security related to personnel, activities and facility* *• personnel / industry* *The DG 2 documentation shall include an evaluation of the availability of qualified personnel resources in Statoil and of the capacity in the relevant supplier industry.* ***QC process*** *The documented results of the project external quality control process required at DG 2 shall be part of the DG 2 documentation.*

Requirements	*Activities*	*Products*
	Concept phase (DG 1 – DG 2) Continued	
	Procurement *• Strategy shall be developed and contracts awarded for the concept phase* *• The overall procurement strategy shall be developed based on guidelines from, in parallel with and in interaction with the project execution strategy process. The strategy shall include descriptions of supplier market, contract packages, purchasing strategy, identification of long lead items and use of Statoil's frame agreements / contracts.* *• Specific strategy shall be developed and invitation to tender for pre-engineering contracts shall be prepared* ***Commercial / economy*** *• Profitability analyses shall be carried out to demonstrate that the business opportunity meets corporate requirements for profitability. The analyses shall include portfolio and value chain analyses through to the end customer* *•All financial and commercial agreements and arrangements that are relevant to the project development process shall be identified and described. A strategy and a plan for entering into agreements shall be established*	***Recommendation and approval*** *The DG 2 proposal shall be evaluated and recommended by the project development arena. The DG 2 approval process shall be in accordance with the delegation of authority within the responsible business area. Unless otherwise stated by the business area delegation of authority, final Statoil approval shall be by the corporate management (KL).* *The partners / co-owners shall also approve DG 2 (BoV).*

Requirements	Activities	Products
B.III. Pre-engineering phase (DG 2 – DG 3)		
The purpose of the pre-engineering phase is to further develop and document the business opportunity based on the selected concept(s) to such a level that a final project sanction can be made, application to authorities can be sent and contracts can be entered into. The preengineering phase leads to approval point 2 (AP2), "Application to the authorities", and to decision gate 3 (DG 3) " Project sanction" (BoG).	***Project management*** *• The project organization shall be continued from the previous phase, but adjusted to suit the pre-engineering phase. The documented management system shall be adjusted accordingly* *• The project goals (profitability, regularity, project execution, HSE and quality) shall be updated* *• The project agreement shall be updated and approved* *• The project execution strategy shall be updated as necessary* *• The following strategies shall be updated or developed (as relevant)* *- commercial agreements* *- information technology* *- commissioning strategy that shall be used as input to contracts, engineering and* *construction planning* *• The project execution plan (PEP) shall be updated* *• The change control system for the execution period shall be implemented* *• The stakeholder analysis for the project shall be confirmed or, updated* *• Necessary applications to the authorities shall be prepared* *• Benchmarking shall be carried out to measure the project against comparable projects* *• A self-assessment shall be carried out to measure project status against DG 3 (BoG) requirements* ***Project framing*** *• The business idea or resource basis and the market analyses for the project shall be reviewed and confirmed or, as necessary, updated*	*The products from the pre-engineering phase constitute the documented decision basis for passing DG 3 (BoG) and form the basis for the project execution period.* ***Approval point 2 (AP 2), "Application to the authorities"*** *The project shall compile and prepare for submittal of the necessary application(s) for approval of the facility development in accordance with the relevant laws and regulations. It is particularly important to have undertaken an analysis to determine which requirements apply.* *For projects within the jurisdiction of the Norwegian Petroleum Act, a "Plan for development and operation" (PDO) (Norwegian: PUD) or a "Plan for installation and operation" (PIO) (Norwegian: PAD) is required. The PDO / PIO shall be prepared in accordance with the document "Guidelines for PDO and PIO", issued by the Norwegian Petroleum Directorate.*

Requirements	*Activities*	*Products*
	Pre-enginnering phase (DG 2 – DG 3) Continued	
	Project control *• The planning system for the project with a main plan that shows the project's main activities, main milestones, important products, activities towards the authorities and partners and main inspection activities shall be further developed and a main plan established.* *• A resource / manpower plan for the execution period shall be developed* *• A supervision plan shall be established* *• Cost estimates at estimate class D (+ / - 20%) level and corresponding budget proposals shall be established.* *• A project control basis shall be established* *• The uncertainty analysis that covers the resource basis, market, technical solution, HSE, project execution, supplier market, cost estimate and profitability, shall be further developed and updated. The mitigation plan shall be updated accordingly* ***HSE*** *• The environmental impact assessment (EIA) program shall be established, approved and the necessary study work carried out* *• The total risk analysis shall be updated as necessary* *• The HSE program for the execution period shall be completed* ***Technical*** *• The design basis document shall be reviewed, confirmed, updated as necessary and "frozen"* *• Reports from reviews and verifications shall be assessed* *• Concept optimization shall be performed for the selected concept option(s)* *• The facility concept(s) shall be defined as per requirements to support a class D estimate* *• The technology qualification program shall be updated (if required)* *• Project technical and operational requirements and guidelines shall be completed and approved.*	*The PDO / PIO shall be approved by the responsible business unit, corporate management (KL), the board and the partners, before it is submitted. When the partnership submits a PDO/ PIO to the authorities, this represents a commitment by the partnership to carry out the project development. For projects in this category, completion of the PDO / PIO and DG 3 (BoG) should occur at the same time.* ***Decision gate 3 (DG 3), "Project sanction" (BoG) DG 3 (BoG)*** *The DG 3 approval is an authorization by Statoil and the partners to continue developing the project through the execution period in accordance with the approved project plans and budgets* ***Timing*** *DG 3 (BoG) may be passed when the business concept has been developed to a level where it has been documented that it meets the established requirements with regard to profitability, HSE, technical definition, cost estimate accuracy and project execution uncertainty*

Requirements	*Activities*	*Products*
	Pre-enginnering phase (DG 2 – DG 3) Continued	
	• For downstream facilities, the responsible business unit shall enter into license agreements for the selected technology and processes (licensed technology) *• For upstream facilities, drilling plans and drilling equipment requirements shall be completed (ref. AR03, "Drilling, well & production activities")* *• For upstream facilities the production strategy for the field shall be updated* *• The regularity management program (RMP) shall be updated and the required activities carried out (ref. NORSOK Z-016)* *• The regularity study for the total production / value chain shall be updated* *• For concepts that require ship transportation, the shipping simulation study shall be updated* *• An operation verification of design shall be carried out* *• The operation and maintenance strategy for the facility shall be further developed* *• Statoil's frame agreement suppliers shall be involved in accordance with overall procurement strategy* ***Procurement*** *• Pre-engineering contract(s) shall be awarded* *• The overall procurement strategy shall be updated as necessary* *• Purchase orders for long lead items shall be placed as required by the contract plan* *• Specific procurement strategies for the execution phase shall be developed* *• Invitation to tender documents shall be prepared as required* *• Contract plan and basis for entering into contracts and purchase orders shall be developed* *• Contracts and purchase orders shall be entered into in accordance with the approved* *contract plan* *Commercial / economy*	***Documentation*** *The DG 3 decision basis is a memorandum / document that reviews the business opportunity and the development of the project up to DG 3, refers to the project documentation (ref. App. A) and concludes that the DG 3 requirements are met. Any deviations from governing documents shall be described.* ***Projects outside Norway*** *For projects outside Norway, the DG 3 documentation shall describe uncertainty relating to:* *• geographical location, community, social and cultural conditions* *• political, trade financial and conditions* *• authority requirements and approval practice* *• industrial conditions and infrastructure* *• international reputation* *• security related to personnel, activities and facility* ***Personnel / industry*** *The DG 3 documentation shall include an evaluation of the availability of qualified personnel resources in Statoil and of the capacity in the relevant supplier industry.*

Requirements	*Activities*	*Products*
	Pre-enginnering phase (DG 2 – DG 3) Continued	
	• Economic analyses and profitability calculations which demonstrate that the concept meets Statoil's requirements for profitability shall be confirmed or updated as necessary (ref. WR0324, "Investeringshåndbok") *• The strategy and plan for entering into all financial and commercial agreements and arrangements shall be reviewed and updated as necessary. All necessary agreements shall be established and approved before DG 3.* *A more detailed description of the pre-engineering phase and deliverables is given in the document WD0977, "Prosjektering". The use of standards and company specific requirements is described in WR0096.*	***QC proces*** *The documented results of the project external quality control process required at DG 3 shall be part of the DG 3 documentation.* ***Recommendation and approval*** *The DG 3 proposal shall be evaluated and recommended by the project development arena. The DG 3 approval process shall be in accordance with the delegation of authority within the responsible business area. Final Statoil approval shall be by the corporate management (KL) and the Board.* *The partners / co-owners shall also approve DG 3 (BoG).* ***Experience transfer*** *After DG 3 (BoG), the core team- / project manager is responsible for arranging a core team experience transfer workshop, focusing on the planning period. If needed, experience transfer workshops can also be arranged at sub-project levels. TEK PE PL is responsible for publishing the results on the intranet and may also facilitate the workshop.*