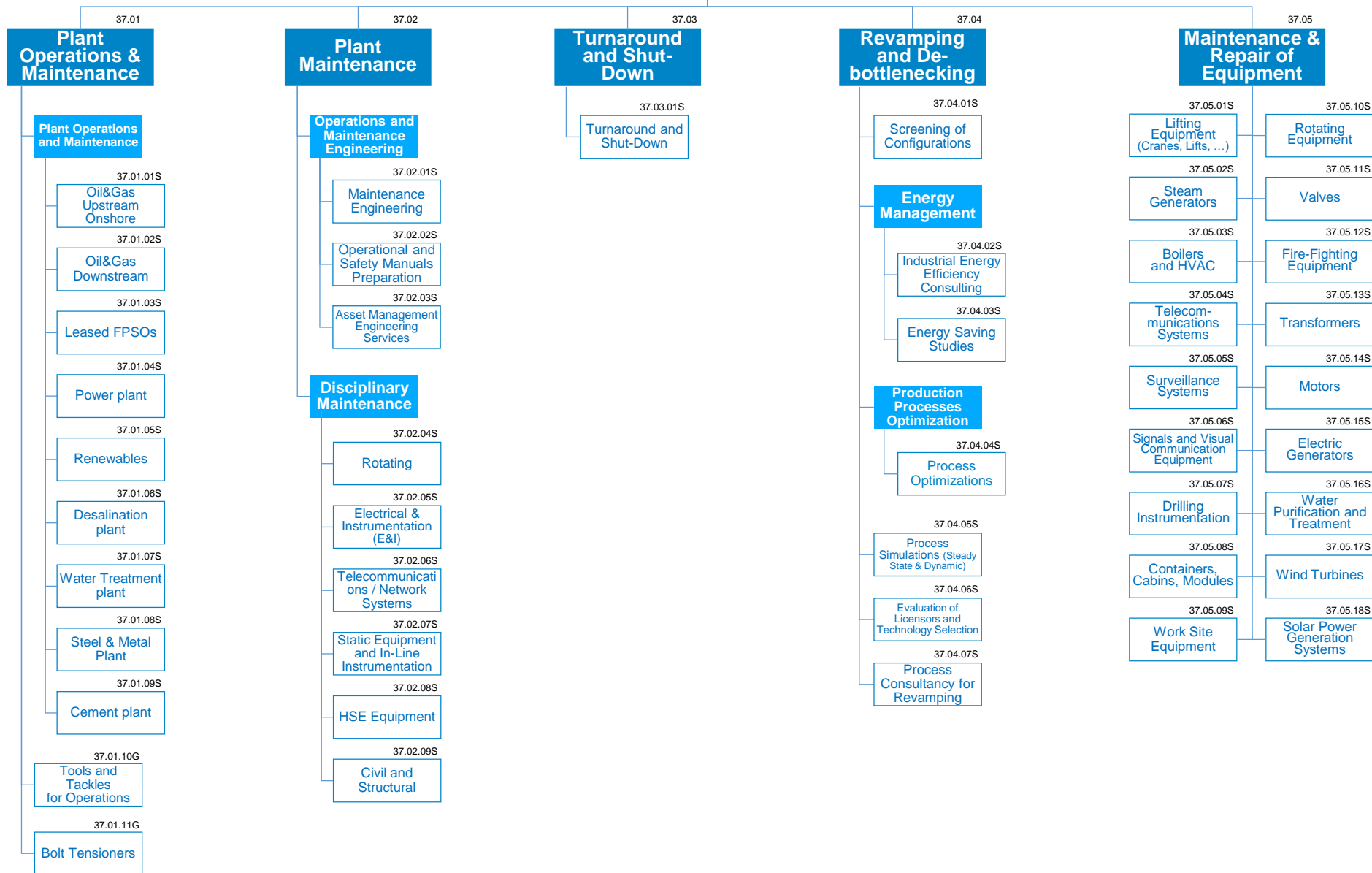
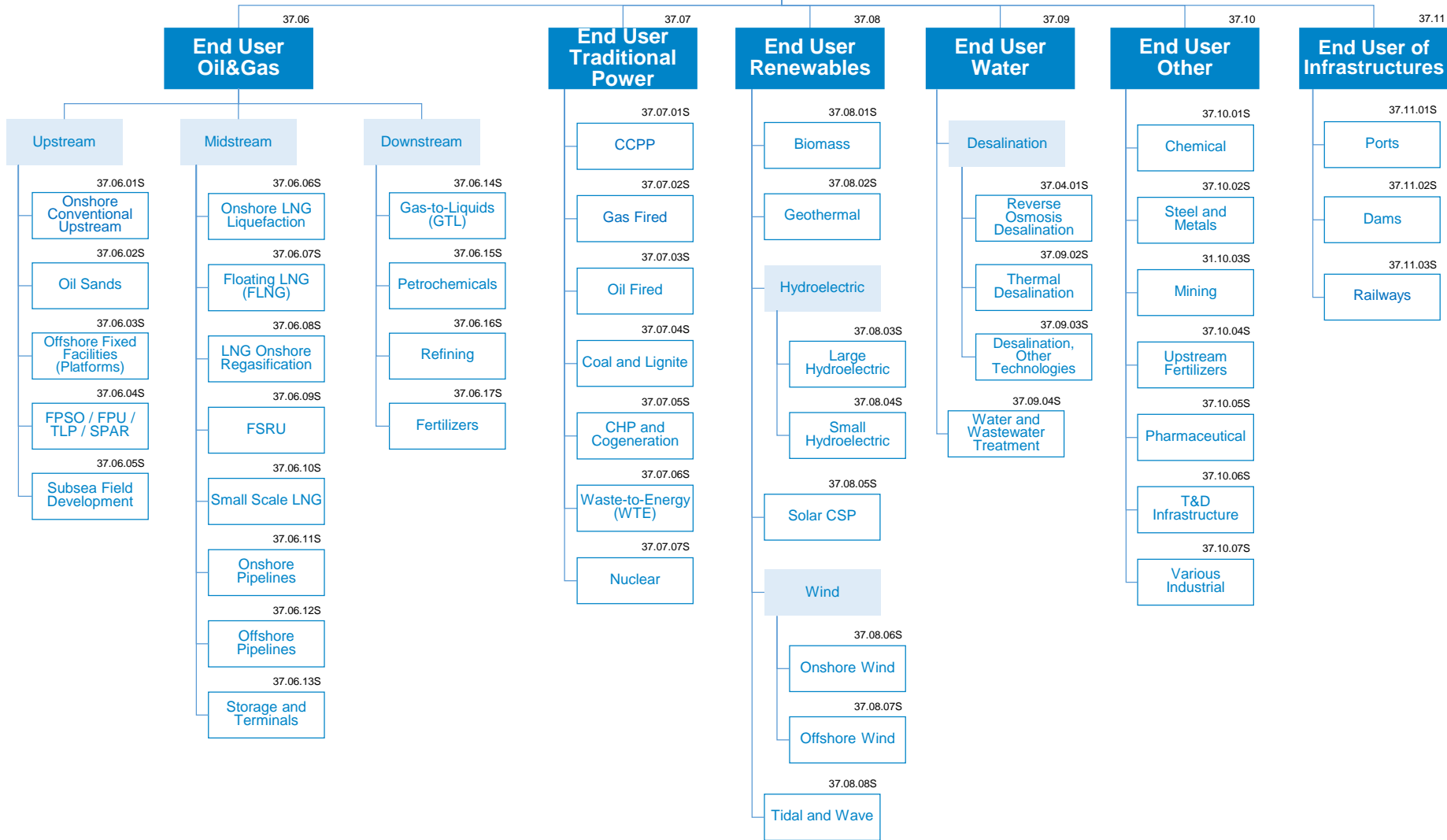


Operations and Maintenance (1/2)



Operations and Maintenance (2/2)



Operations and Maintenance

This Group refers to the planning and management of the Operation and Maintenance of plants in order to ensure that safe operational performance is optimized, that availability is maximized and that cost is minimized. Operation and Maintenance activities are typically internalized, however end-users are increasingly outsourcing O&M activities to specialist companies and/or to contractors.

MAIN RATIONALES BEHIND THE STANDARD CATEGORIZATION

Plant Operations & Maintenance

- Integrated Operations & Maintenance services are delivered by consistently achieving the following objectives:
 - Operating plants in a safe, compliant and efficient manner;
 - Developing and implementing formal procedural, maintenance, environmental and safety management programs;
 - Maintaining overall care and control of the plant and site;
 - Advising and recommending tooling and inventory requirements;
 - Recommending procedural changes, when necessary, to improve operation;
 - Responding and adjusting to changing operating conditions.
- Expertise and competition changes based on the type of Plant and related operations

Operations and Maintenance Engineering

- This family is part of Engineering Services as it refers to the design of the Maintenance Engineering (the drawing of Safety Manuals, Asset Management and Trainings for Plant Operations). The actual operations of performing the maintenance of a plant post-construction do not fall under this category – for maintenance activities see Professional Services 43S
- Maintenance Engineering defines the standard cycles and the asset modelling philosophy in line with the defined strategy and model. Performs planning and management of activities and materials
- Routine planned maintenance based on preventive maintenance program, in accordance with the design,
- Routine corrective maintenance, based on needs registered by plant operations
- GSA: The contractor is responsible for all the long term maintenance (both periodic and turnaround maintenance) of the plant and for facility management activities
- The pricing model is a mix of fixed price (e.g. planned maintenance), cost-plus (e.g. shutdowns) and incentive schemes based on performance (e.g. plant availability)

Revamping and De-bottlenecking

- All the activities necessary for the Revamping and Debottlenecking of a plant fall under this category
- Though revamping and debottlenecking are two different activities the decision was made to put them together as they are performed by the same companies

Turnaround and Shut-Down

- Deeper interventions, that stop of the production of a part or of the full plant through "small projects" that are strongly schedule-driven (usually run H24) in order to maximize the work in the limited time frame available. It often include equipment substitution, small modifications and maintenance that is "under the shadow" of the critical equipment maintenance.

Maintenance & Repair of Equipment

- Maintenance, Repair and Operations (MRO) involves fixing any sort of mechanical, plumbing, or electrical device should it become out of order or broken (known as repair, unscheduled, casualty or corrective maintenance).