Energy Awareness Category #1

Researcher 1	Researcher 2	Researcher 3
EA3. An energy aware tactic which performs only a warning (i.e. signal red color, speak, alarm) when the energy levels fall below a threshold. **EA4.** An energy aware tactic which passively monitors the state of the battery but no action or warnings are made.	**GA_1.** A tactic that is energy aware, notifying a third party to leave the response to them.	
	GA_1_1. A tactic that is energy aware, notifying a human to leave the response to them.	**ENERGY_WARNING.** Raise a warning if the battery level needs attention (e.g., if it is below a certain threshold).
	GA_1_2. A tactic that is energy aware, notifying a system to leave the response to it.	**DEDICATED_TOPIC_FOR_BATTERY.** Each robot exposes a dedicated topic for providing information about the status of its own battery. **BATTERY_INFO_IN_GENERIC_TOPIC.** Battery information is included as a data point within a generic diagnostics topic. **OFFLINE_ENERGY_PROFILER.** Builds an energy profiler from previous executions, which can then be used during the next executions of the robot. **ABSTRACT_ENERGY_INFO.** A dedicated node subscribes to topics providing low-level energy info and publishes more abstract/aggregated information.

Energy Awareness Category #2

R1	R2	R3
EA2. An energy aware tactic which aborts activities/entire system when the energy levels fall below a threshold.	**GA_2.** A tactic that is energy aware, taking action by aborting all activities for some criteria.	**ABORT_MISSION**. Abort the whole mission when the battery level of the robot is too low.
	GA_2_1. A tactic that is energy aware, taking action by aborting all activities for some criteria, moving / returning to a specific point.	**CHECK_THRESHOLD.** Do some action once the battery level of the robot goes below a certain threshold.
	GA_2_2. A tactic that is energy aware, taking action by aborting all activities for some criteria, stopping somewhere random along its motion path.	

Energy Awareness Category #3

R1	R2	R3
EA1. An energy aware tactic which performs an action (i.e. send to charge station, home, land, prevent takeoff) if the energy levels fall below a threshold. Activities can also be resumed when the energy levels increase.	**GA_3.** A tactic that is energy aware, performing some action for some criteria, which will allow continuation of operation at a later point in time.	
	GA_3_1. A tactic that is energy aware, returning to a recharge point (base station) for some criteria, which will allow continuation of operation at a later point in time.	**STOP_TASK_AND_RECHARGE.** If the battery of the robot is getting too low, interrupt the current task and come back to a charging station; after the recharge, resume the task that was executed
	GA_3_2. A tactic that is energy aware, recharging in the field for some criteria, which will allow continuation of operation at a later point in time.	

Energy Efficiency Category #1

R1	R2	R3
EE3. An energy efficiency tactic which performs an action (i.e. prevents ROS entities to run, use, send unnecessary resources, switch to a different power mode).	**GE_1.** A tactic which improves efficiency, by limiting the use of unnecessary resources.	**ENERGY_SAVING_MODE**. Abstract modality of the system where energy must be saved (for any reason).
	GE_1_1. A tactic which improves efficiency, by shutting down resources that are not necessary at that point in time.	**NO_ACTION_IF_ENERGY_SAVING.** If the robot enters a status in which energy must be saved, then it does not perform (a subset of) actions.
	GE_1_2. A tactic which improves efficiency, by lowering the use of any resources for which availability is not (constantly) necessary at that point in time.	**BRINGUP_ONLY_WHEN_NEEDED**. Bring up nodes only when their functionalities are needed (e.g., nodes producing point clouds running only when point cloud data is used within the system). **DISABLE_HW_INSTEAD_OF_PHANTOM _VALUES.** If the system contains hardware devices which can be shutdown, prefer to shut them down when they are not needed, instead of either not interacting with them or sending phantom values (e.g., all zeros). **ENERGY_SAVING_SAMPLING.** If the hardware devices can be sampled at fixed rates (e.g., accelerometer), the node sampling their data does it at configurable rates. In this way, "the chip goes to sleep and only wakes up to sample". --> energy saving

Energy Efficiency Category #2

R1	R2	R3
EE1. An energy efficiency tactic which saves energy by using different libraries, algorithms or refine existing ones.	**GE_2.** A tactic which improves efficiency, by improving the efficiency of the software algorithm.	
	GE_2_1. A tactic which improves efficiency, by reducing inefficiencies of a certain piece of software.	
	GE_2_2. A tactic which improves efficiency, by preventing inefficient use of energy using software.	

Energy Efficiency Category #3

R1	R2	R3
EE2. An energy efficiency tactic which saves energy by upgrading or using different hardware.	**GE_3.** A tactic which improves efficiency, by improving the efficiency of the hardware components.	**EFF_HARDWARE.** When possible, use hardware with objective evidence about its energy efficiency.