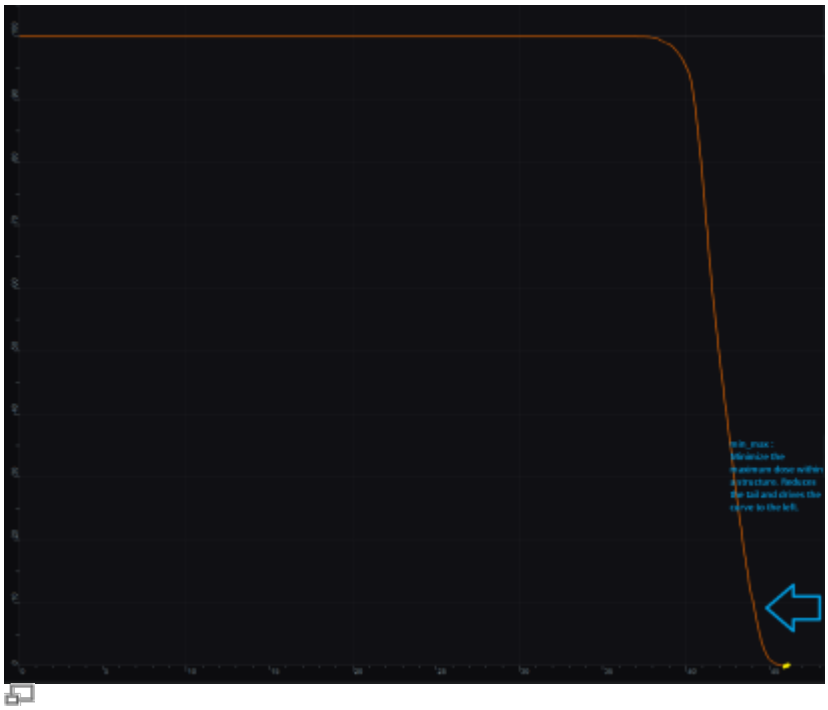
Optimization Objectives

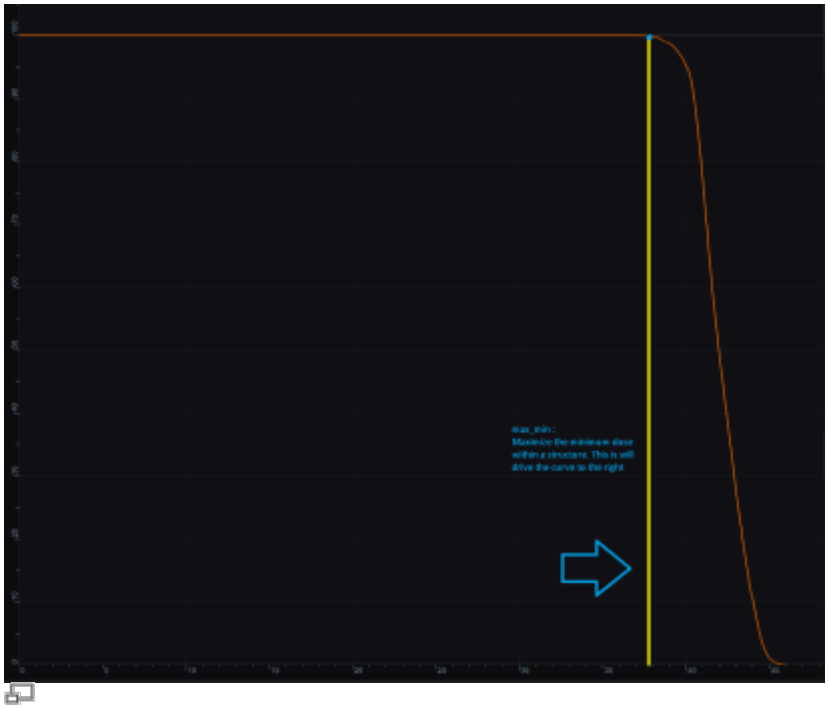
Objectives communicate to the optimizer the goals that are important to strive for in your plan. *Objectives* are set at the *Plan* level under *Plan Constraints/Objectives* and they apply to the total, combined dose from all beams. *Objectives* are not given any relative importance at this point (i.e. their order within the list is not meaningful). The *Objectives* drive the solution of the Multi Criteria Optimization (MCO) and for each *Objective*, a corresponding *Navigation Slider* will be presented to allow for exploration of trade-offs in the case of competing objectives (for more information about the MCO process and how objective importance/weighting is handled in Astroid refer to this article).

The following objective selections are available in Astroid:

- **min_max**: Minimize the maximum dose within a structure (drive dose down)
- **max_min**: Maximize the minimum dose within a structure (drive dose up)

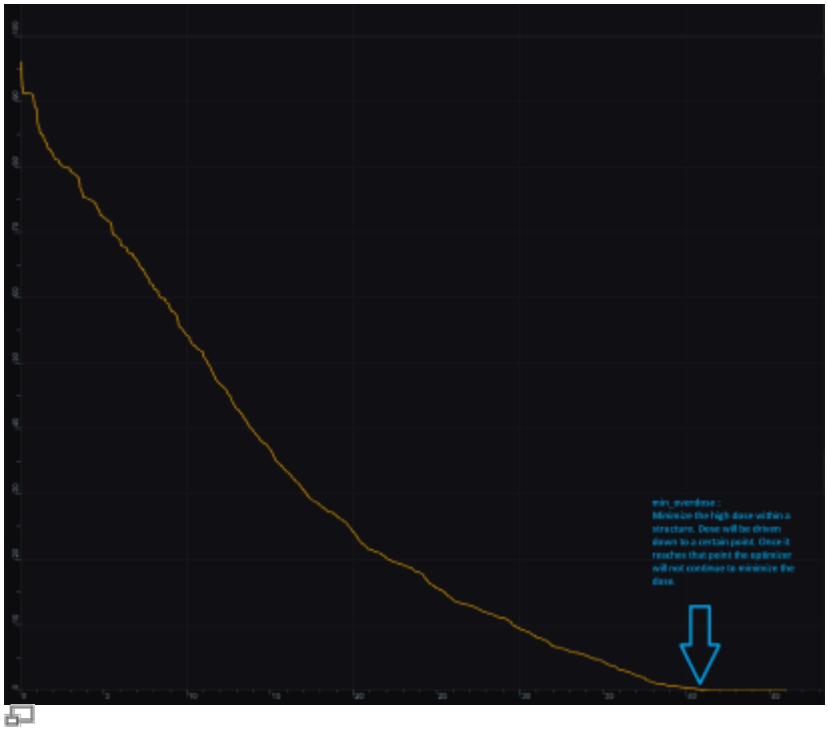


min_max: Minimize the Max Dose

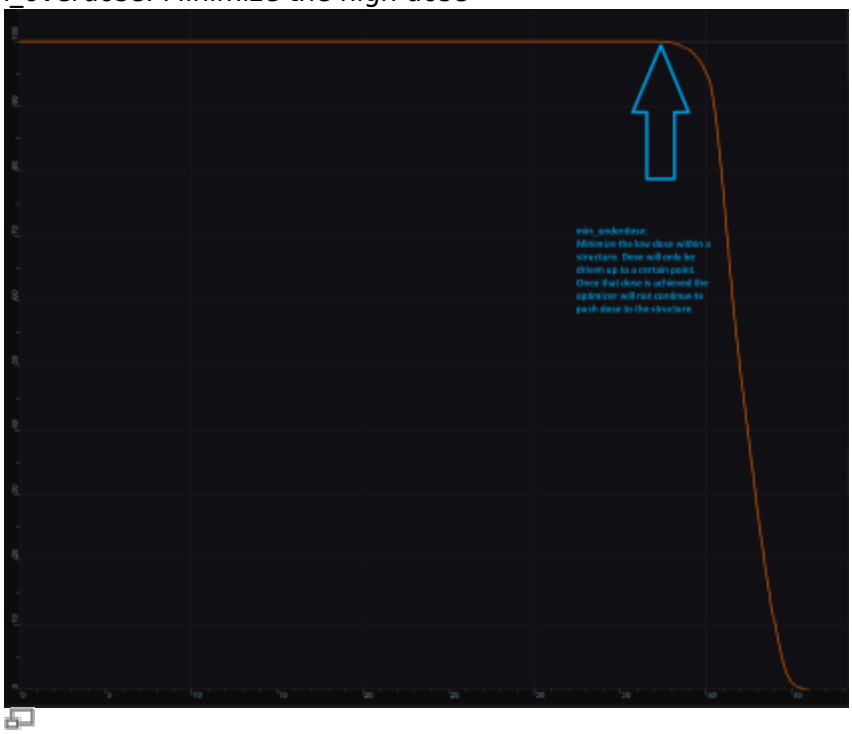


max_min: Maximize the Min Dose

- **min_mean**: Minimize the mean dose within a structure (drive dose down)
- **max_mean**: Maximize the mean dose across the structure (drive dose up)
- **min_overdose**: Minimize the high dose within a structure
  - Dose will be driven down only until the specified limit is reached (this is often more relevant that min_max, since it may not be beneficial to continue minimizing beyond a certain dose level)
- **min_underdose**: Minimize the low dose within a structure
  - Dose will be driven up only until the specified limit is reached (this is often more relevant that max_min, since it may not be beneficial to continue maximizing beyond a certain dose level)



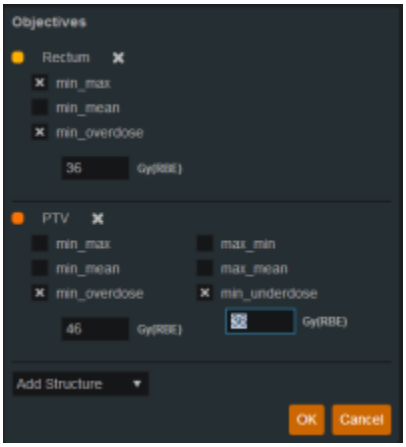
min_overdose: Minimize the high dose



min_underdose: Minimize the low dose

Working with Objectives

1. Open the *Objectives* sub-block contained in the *Plan Constraints/Objectives* block
2. Choose a structure to which you wish to apply objectives
3. Check the boxes to activate the desired objectives for the structure and then set the dose level if applicable



Once all the *Objectives* have been set, the user is ready to run the MCO solver, which is performed in the *Navigation* block.