Demand Driven Deployment Capabilities in Cyclus, a Fuel Cycle Simulator

Highlights

- We developed the capability in Cyclus, a nuclear fuel cycle simulator, to automatically deploy fuel cycle facilities to create a supply chain to meet user-defined power demand.
- This new capability , d3ploy, successfully deployed fuel cycle facilities in multiple transition scenarios from the current light water reactor fleet to a closed fuel cycle with continuous recycling in fast and thermal reactors.
- We conclude that using d3ploy to set up transition scenarios is more efficient than previous efforts that required a user to manually calculate and use trial and error to set up the deployment scheme for the supporting fuel cycle facilities. By automating this process, when the user varies input parameters in the simulation, d3ploy automatically adjusts the deployment scheme to meet the new constraints.