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Mercury Emission Estimates with the iPOG

Mercury Emission from Coal / Minamata Online / Season 2

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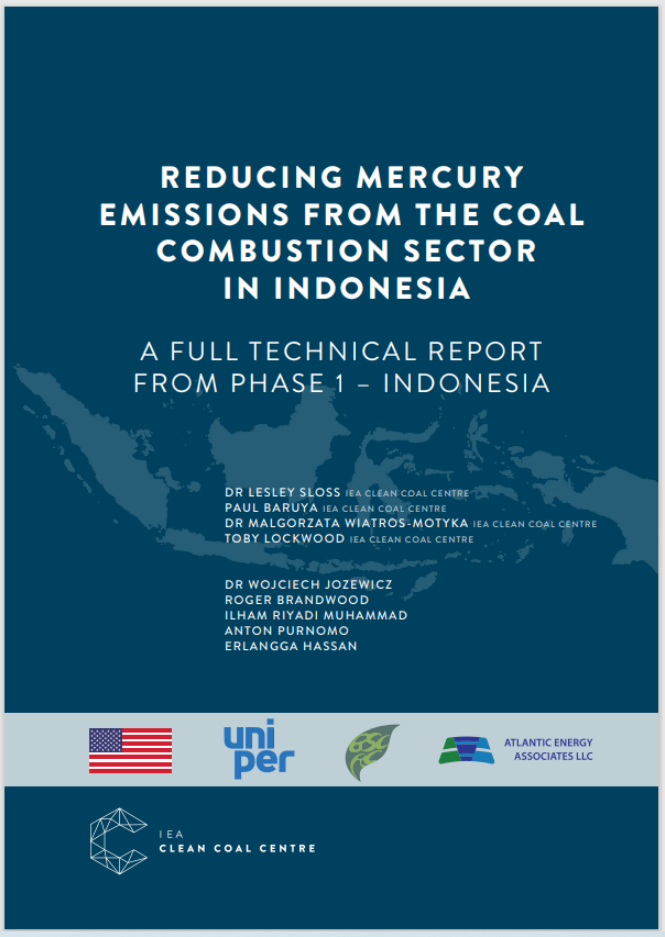
Outline

- Existing plants challenge
- Mercury emission on plant-by-plant basis
- Introduction to UNEP tools
- Overview of iPOG approach
- Example of iPOG analysis

An Example of Country-wide Analysis



- Plants nearing the end of life, but likely to upgrade soon
- Plants with SWFGD, to investigate means to reduce potential for increased Hg deposition
- Inefficient plants due for imminent refurbishment

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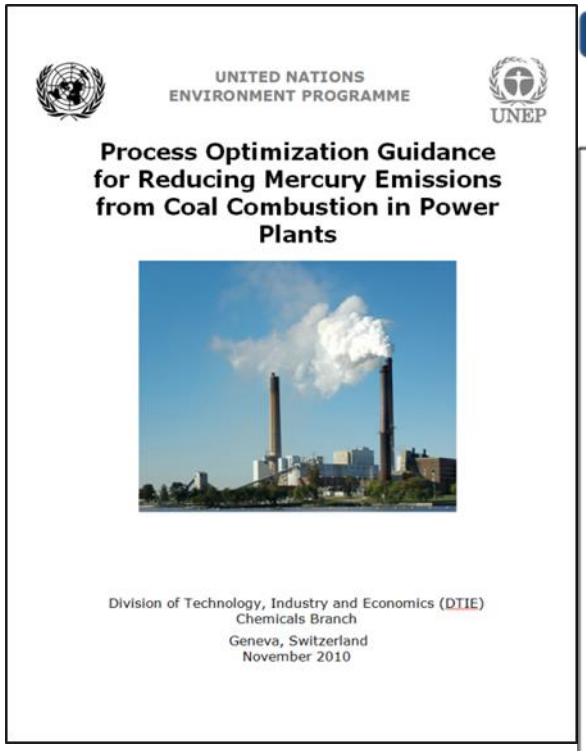
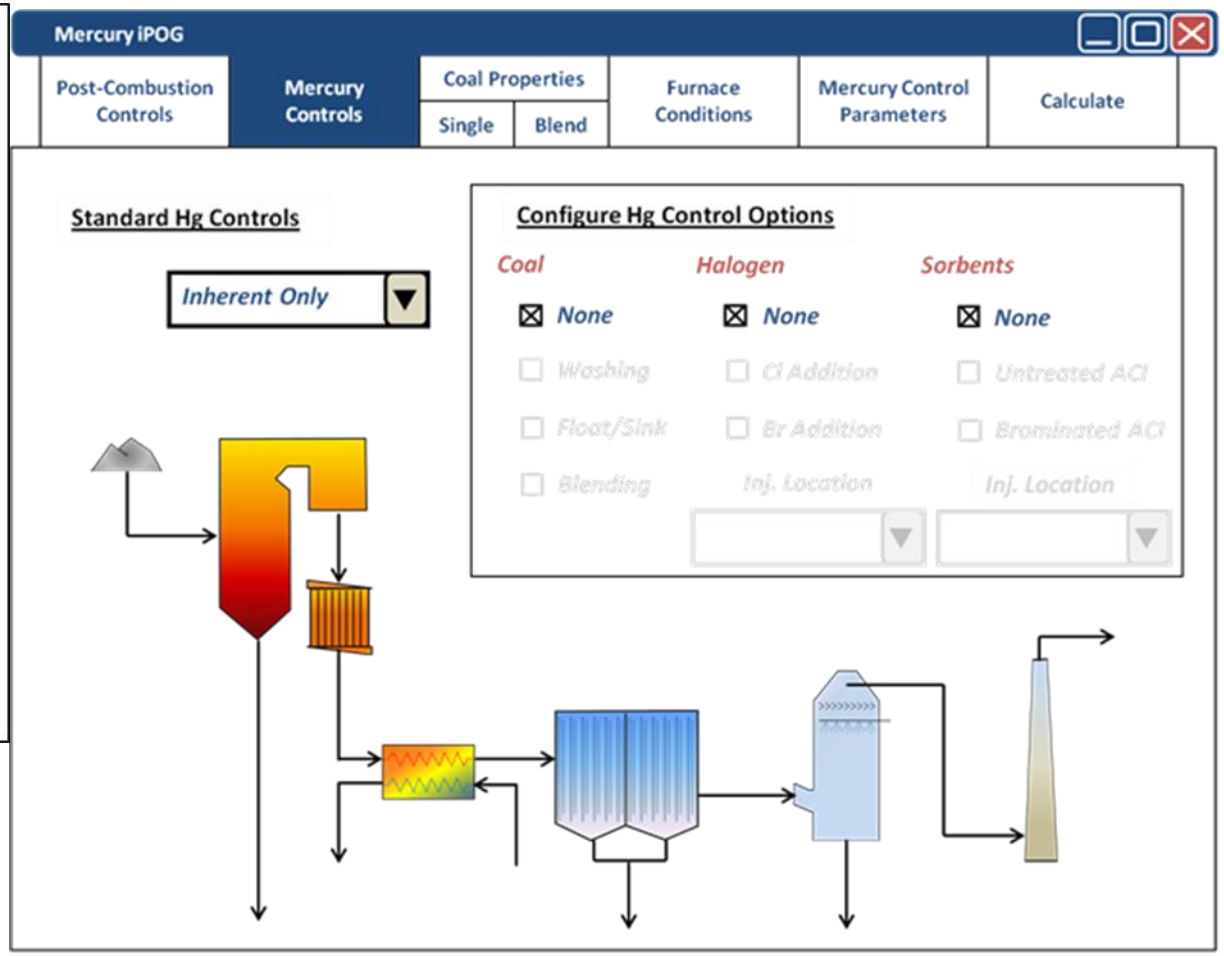
UNEP Tools for Plant-by-plant Analysis





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POG Overwiev

- Addressed Hg control options from coal-fired boilers
- Produced for UNEP with technological status quo in 2010
- Utilized global Hg control experience
- Significant utilization of results from USDOE Hg research program
- Has emphasized co-benefit approaches
- Was used as a platform for UNEP BAT/BEP development

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iPOG Overwiev

- Developed by in cooperation with the Coal Partnership
- Has been coded according to POG
- Utilizes proprietary calculations (Niksa Associates)
- Intuitive interface over complex set of equilibrium calculations
- Free download from UNEP's website at:

https://www.unep.org/resources/report/interactive-process-optimization-guidance-ipogtm?__cf_chl_managed_tk__=pmd_7AOq4pJhAAkd7aNOf2LatYiP1OivbzpqGaVHKNd7feU-1631718181-0-gqNtZGzNAzujcnBszQiR

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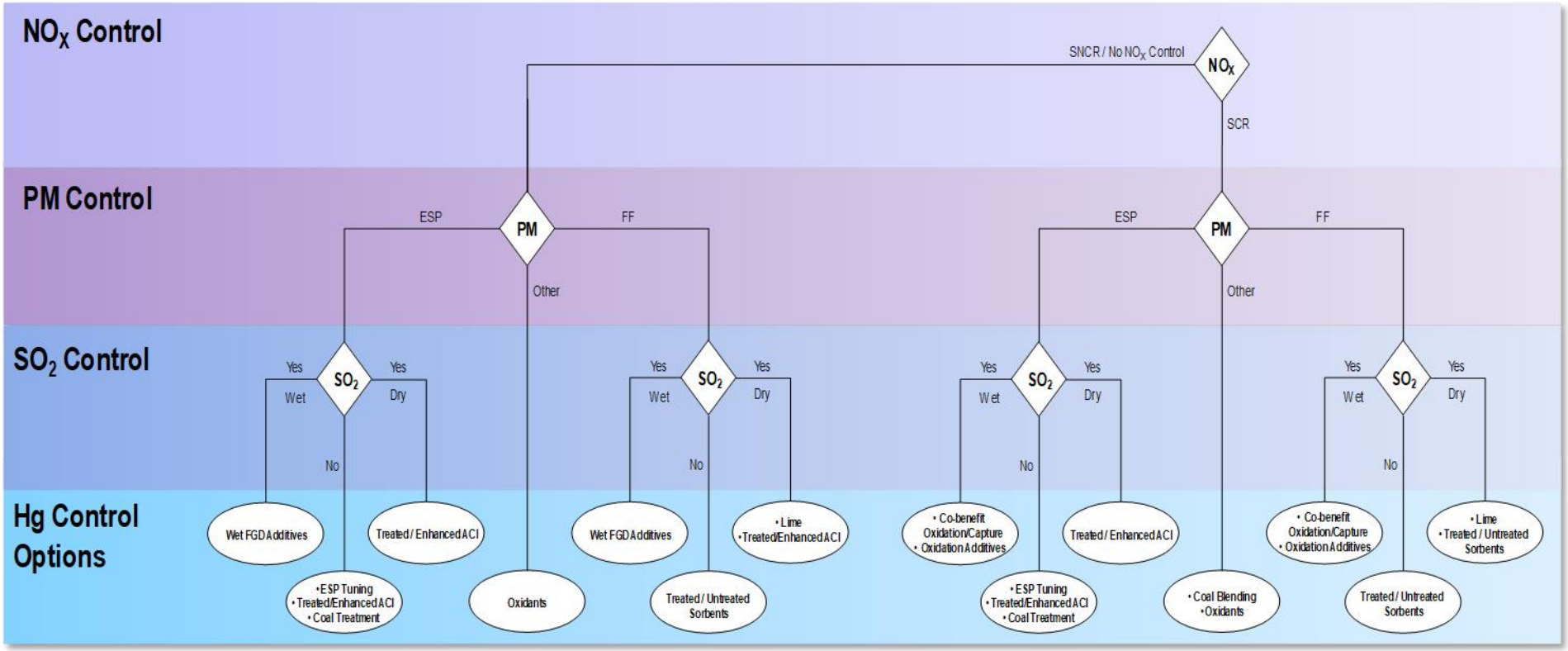
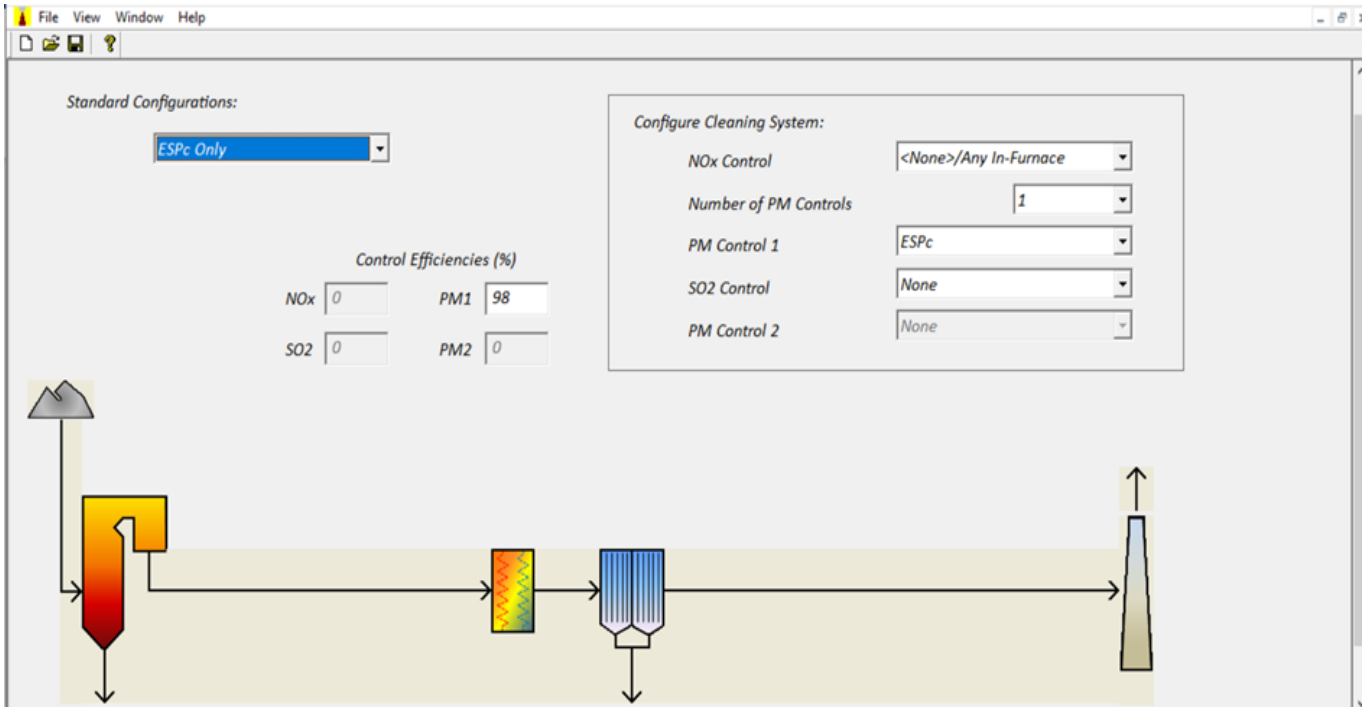
iPOG Flow



Example of iPOG Input - Configuration



- Example configuration: ESP only, no SO_2 control, no post-combustion NOx control systems

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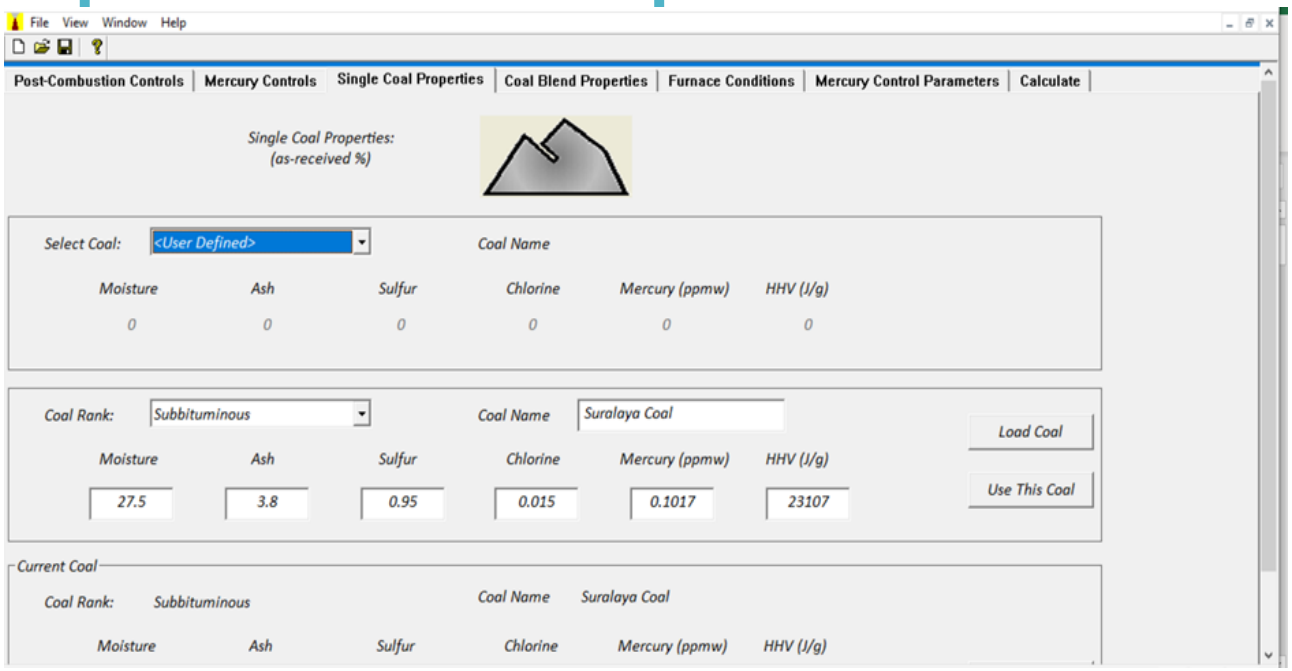
Example of iPOG Input - Coal



- Coal blends may be used and may be user-defined
- Data may be entered for coal S and Cl content; these can significantly affect Hg behavior
- Data may be entered for Hg content in coal; affects Hg release from plant

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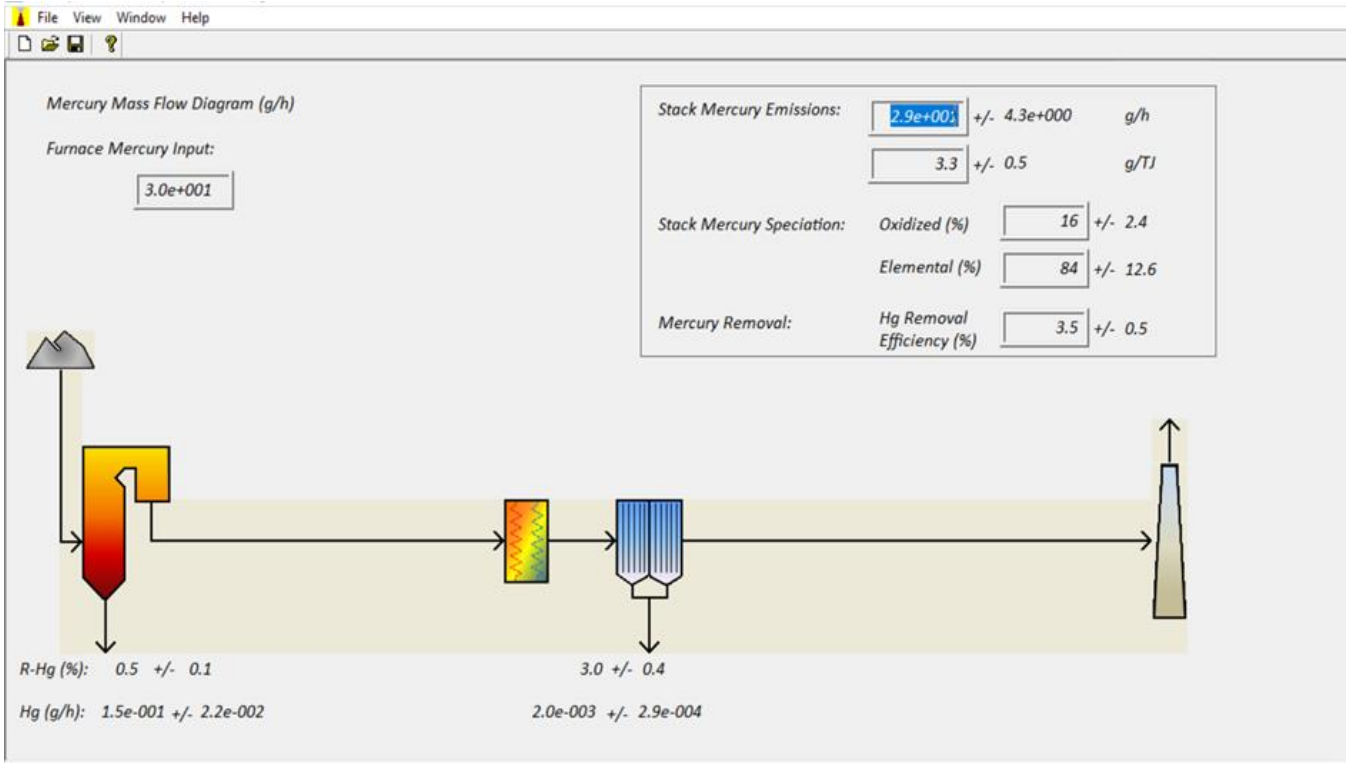
Example of iPOG Calculations - Results



- Estimates of elemental and oxidized stack emissions
- Estimates of Hg outflows from furnace (bottom ash) and ESP (flyash)

Summary

- Hg emissions from coal-fired units may be estimated with iPOG on a plant-by-plant basis
- iPOG analyses may be helpful to determine upgrade priorities for plants
- iPOG analyses were used during numerous projects funded by UNEP and USDOS
- The iPOG tool is available as a free download from the UNEP website

Thank you for listening