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## Evolution of material balance evaluation at gas centrifuge enrichment plants

As the economic and logistical landscape of the uranium enrichment industry has dramatically changed since the start of the decade due to various concurring events, this has brought additional challenges to safeguarding these types of facilities, in particular to performing material balance evaluation (MBE).

Gas centrifuge facilities have had to adjust their operations models to the market conditions by adapting new production and material flow regimes, as well as different material inventory management schemes, in an overall effort to mitigate the effects of the uranium enrichment industry's changes on the plants' efficiencies. This paper reviews the impact that these changes have had on the IAEA's MBE activities. It then describes how the IAEA has evolved the MBE analysis to maintain the confidence level in its MBE conclusions. In order to reach this goal, the IAEA has developed analytical approaches and indicators for finer sensitivity to weak signals and changes in the plants' operations, and has increased its understanding and characterization of all material flows.

The paper concludes by presenting an overview of expected future challenges and how the IAEA is planning to approach these.

### Which "Key Question" does your Abstract address?

CHA1.1

### Which alternative "Key Question" does your Abstract address? (if any)

CHA1.1

### Topics

NEW3

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