

BACKGROUND

The production of nuclear energy entails macro-economic impacts, as well as both positive and negative social-environmental and micro-economic impacts. On the one hand, the NEA has not recently addressed the macroeconomic impacts of nuclear power, i.e., contributions to GDP/value added and contributions to employment. On the other hand, while there are many organizations developing macroeconomic models of the nuclear power sector or estimating employment in the nuclear power sector, all models use different definitions of direct employment in the nuclear power sector or different assumptions regarding interactions between the nuclear power sector and other sectors of the macro-economy.

Macroeconomic impacts are commonly estimated with Input-Output (I-O) models, for example, as maintained by the OECD for Member Countries. Given the use of I-O models in projecting the economic impacts of nuclear power, it is essential to verify and validate parameters and assumptions regarding employment data for the nuclear power industry in I-O models. Once this foundation has been laid, we can investigate employment levels and requirements in the nuclear power industries of Member Countries, and compare these with other electricity generating industries.

OBJECTIVES AND SCOPE

More specifically, the program of work seeks to complete the following tasks (we hope to address the first two tasks in the first workshop and the last two tasks in a follow-up workshop):

Sub-Task 4.1.1: Verify Parameters and Assumptions regarding the Nuclear Power Industry Expenditures in current Input-Output models: Regarding representations of the nuclear power sector, because I-O parameters are assumed to be fixed, it is essential to verify that they correspond to a country's actual nuclear power sector. At the request of colleagues at the IAEA who are creating I-O models of IAEA Member States' economies, the NDD has been working with the OCED Statistical Department to verify current NEA Member Country I-O representations of their economies. This process will lead to guidelines for representing the nuclear power industry in I-O models.

Sub-Task 4.1.2: Verify Assumptions regarding the Nuclear Power Industry Employment in current Input-Output models: The second subtask is to verify whether independent assessments of levels of employment in the nuclear industry (which then use I-O multipliers to determine induced nuclear sector employment) are compatible with the expenditures on labour in the I-O models that are used to calculate induced nuclear sector employment. This process will lead to guidelines for estimating employment in nuclear power industries with I-O models.

Sub-Task 4.1.3: Determine aggregate education/training implied by employment levels in I-O models of the nuclear power sector: Building on NEA (2012), we will estimate the education/training requirements implied by employment levels in I-O models. This estimate would be done to determine the "quality" of employment in the nuclear power sector. While we have estimates of the education/training required at operating nuclear power plants, there are fewer studies of the education/training requirements in the construction, fuelling, decommissioning, and waste management sectors of the nuclear power sector. Therefore, we must rely on previous studies of these aspects of the nuclear power sector. This process will lead to an estimate of education/training requirements by nuclear power sector in I-O models. See NEA,

(2012), *Nuclear Education and Training: From Concern to Capability*, OECD, Paris. <http://www.oecd-nea.org/ndd/reports/2012/nuclear-edu-training-ex.pdf>

Sub-Task 4.1.4: Compare employment and education/training requirements in the nuclear power sector with estimates of employment and requirements in other electricity generating industries: Employment levels have been estimated for other electricity generating industries. To the extent that these studies have also estimated education/training requirements, we can also compare employment quality between (among) electricity generating sectors.