Overview of current activities and publications in PESS, including costing approaches

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Overview of PESS activities

- **Costs** of existing technology – large power reactors
- Economics of new technologies – **SMRs, microreactors** – new CRP
- **Integration of nuclear and renewables**, operational aspects, non-power applications including H2 (with INPRO and NPTDS)
- **Financing** of new nuclear projects
- **Long Term Operation** – the economic and climate aspects
- **Macro-economic impacts** of nuclear energy
- Cost of Adaptation (to CC events), **resilience**
- **Water-Energy-Land** nexus
- **Energy planning and modelling**, SDG objectives and NDCs, training
- **Projections up to 2050** – RDS1
Assistance to MS: Energy planning and modelling, SDG objectives and NDCs, training

- **EBS** (Energy Balance Studio)
- **MAED** (Model for Analysis of Energy Demand)
- **MESSAGE** (Model for Energy Supply Strategy Alternatives and their General Environmental Impacts)
- **WASP** (Wien Automatic System Planning Package)
- **ESST** (Energy Scenarios Simulation Tool)
- **FINPLAN** (Model for Financial Analysis of Electric Sector Expansion Plans)
- **SIMPACTS** (Simplified Approach for Estimating Impacts of Electricity Generation)
- **CLEW** (Climate, Land, Energy and Water Nexus)
- **SEA** (Strategic Environmental Assessment for Nuclear Power Programmes)
- **EMPOWER** (Macroeconomic Analysis)
Activities carried out in the context of the US PUI funded *Nuclear Cost Basis* project

- **Objective**
  - Address the needs of Member States in terms of approaches for cost analysis of nuclear projects and programmes

- **Deliverables**
  - Sample technical-economic data
  - A tool for propagating uncertainties around nuclear power costs
  - The *Nuclear Cost Basis* Guide to Nuclear Power Costs Analysis (*NE Series Publication*)
Activities carried out in the context of the US PUI funded Nuclear Cost Basis project

- Technical meetings and training workshops are organized in the context of the Nuclear Cost Basis project.
- Costing Approaches for Nuclear Technology Developers (March 2019)
- Estimation and Analysis of Power Generation Costs (October 2019)
- Resource Requirements for Nuclear Infrastructure Development (October 2020)
- Cost Optimization ofCurrently Operating NPPs (2021)
- Costing Approaches for Emerging Reactor Concepts (2021)
Scope

- Cost-Benefit Analysis (CBA) provides a sound basis for acknowledging the social, environmental and broad economic benefits related to investments in power generation systems.

- Conducted, typically, in the context of a Feasibility Study, CBA provides a sound basis for comparing project options and informing decision-making.

Activities

- NE Series Publication under development

- Technical Meeting on CBA of Nuclear Newbuild Projects planned in the UAE in 2021
Coordinated Research Project on the Economics of SMR

- Areas of investigation
  - Market research
  - Analysis of the competitive (non-nuclear) landscape
  - Project planning, cost forecasting and analysis
  - Project structuring, risk allocation and financial valuation
  - Business planning and business case demonstration
  - Economic cost-benefit analysis

- Activities
  - 75+ proposals received so far
  - Review and selection process underway
  - First Meeting of the CRP to take place in Vienna on December 7-11, 2020