Horizon 2020 Euratom Research & Training programme in radioactive waste management

- Information on EU Energy & Climate change policy
- Towards Joint Programming of EU MS RD&D programmes
- Status WP 2014-2015

Christophe Davies
Project Officer
European Commission
DG Research and Innovation
Unit G4 – Fission Energy
## EU Climate & Energy package

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2 emissions</td>
<td>20%</td>
<td>-18%</td>
<td>-24%</td>
<td>-32%</td>
<td>-40%</td>
<td>80-95%</td>
</tr>
<tr>
<td>increase share of <strong>renewable sources</strong></td>
<td>20%</td>
<td>13%</td>
<td>21%</td>
<td>24%</td>
<td>27%</td>
<td>-</td>
</tr>
<tr>
<td>increase <strong>energy efficiency</strong></td>
<td>20%</td>
<td>Directive 2012, transposition by 2014</td>
<td>not measured yet</td>
<td>-</td>
<td>27%</td>
<td>-</td>
</tr>
</tbody>
</table>
Rationale for Joint Programming

- 40 yrs of Euratom R&D in RWM, all areas covered
- FP6/7 & H2020 R&D in GD: on "remaining key issues" & "implementation oriented R&D"
- WMOs & TSOs now coordinated in IGD-TP & SITEX

What next: will there still be a "raison d'être" for Euratom RT programme in RWM after GD licenses granted in the most advanced MS (FI, FR & SE)
Rationale for Joint Programming

But Waste Directive 2011 prompts for longer term action and in MS with less-advanced programmes

- RWM based on SoA S/T
- Development of a disposal facility needs many decades
- Requires RD&D and E&T to obtain, maintain and to further develop necessary expertise and skills
- 10yrs peer reviews of national framework & programme

And 35-40yrs of RD&D needed until applications in FI, FR & SE
And in relation to the above, currently little coordination of longer term science oriented R&D at EU level
And knowledge for disposal in some MS is less developed
Rationale for Joint Programming

Still if knowledge and tools are available: Why each national programme would need to develop its own capacity

- Because each repository is "a first of its kind" cf. EURADWASTE'13
- And because of this, implementation of geological disposal is not possible without specific RD+D and implementation of National RD&D programmes are necessary
Rationale for Joint Programming

**Continued key role of Euratom:**

- to help coordinate MS R&D activities and share information and knowledge
- to save time and effort in all countries
- to establish a European common view on the main issues in RWM & disposal

After 40yrs of Euratom programmes, now probably the time to make further steps in implementing these principles

A joint programme rather ad-hoc projects to enable development and execution of activities of EU added-value around needs & priorities defined directly by the MS programmes themselves and to ensure sustainability of the "raison d'être" of EU R&D in RWM
Euratom funding of European Joint Programming between

Joint Programming of EU added-value

WMOs national programmes

TSOs national programmes

Public R&D programmes

RD&D needs for 2025 vision of countries closest to licensing

Coordinate & manage RD&D activities & KM, E&T, horizontal tasks e.g. guidance for MS prog. & via SoA in RD&D

R&D needs for regulatory competence

Longer-term science-oriented R&D and for competence development

Way forward
The broad spectrum of RD&D is needed for each repository development and in each MS to meet the requirements of the Waste Directive.

There are wide differences in the readiness and status of knowledge for the safety case in the MS.

There are also different types of research activities & focus needed to develop and maintain knowledge for the safety case over the 100+ years of expected repository programmes.

This RD&D is currently often carried out within separate programmes by different actors.

There would be strong benefits in coordinating these programmes at EU level to maximise impact for all MS.

The Euratom R&T programme could be a powerful tool help MS meet the long-term requirements of the Directive in respect of RD&D.
Area solutions for the management of ultimate nuclear waste includes final GD & P&T:

Objective:
- strengthen the research and innovation framework
- coordinate Member States' research efforts

Activities:
- joint and/or coordinated research activities on remaining key aspects of GD of SF and long-lived RW with, as appr., demo. of techn. and safety.
- Those activities are to promote the development of a common Union view on the main issues related to waste management from discharge of fuel to disposal."
- Research activities related to management of other radioactive waste streams for which industrially mature processes currently do not exist.
1st EURATOM WP, 2 years (2014-15) (transition towards Joint Programming)

Call for proposals: Deadline 17 September 2014

3 topics in area Management of ultimate Radioactive Waste: (€ 16.7 M ±20%)

1. EU concerted development of MS research on RWM (CSA, budget € 1.1 million)
    3 proposals (2 eligible)

2. Supporting the licensing of geological repositories (CSA, budget € 1 million)
    1 proposal

3. Supporting the implementation of the first-of-the-kind geological repositories
   (R&D on IGD-TP priority topics & other public R&D programmes),
   (research and innovation actions, budget € 14.6 million)
    6 proposals

Total EU requested grants: € 30.4 million
Project starts: target March 2015
### Euratom Horizon 2020 (2014 - 2018)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>WP 2014-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSA on Joint Programming</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 1</td>
<td>WP 2016</td>
<td>WP 2017-18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 2</td>
<td>WP 2016-17</td>
<td>WP 2018</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td>Joint Programme 2018-2023</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td>Joint Programme 2017-2022</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td>Joint Programme 2019-2024</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
<td>Other projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Options for future WP 2016 to 2018**
THANK YOU FOR YOUR ATTENTION