European Parliament
2019-2024

Committee on Industry, Research and Energy

26.10.2023 2023/2109(INI)

DRAFT COMPROMISE AMENDMENT 1

on the ITRE Committee report on Small modular reactors.

If adopted, all AMs (1-303) fall

Supported by: EPP, S&D, RE, ECR, ID

New or amended text is highlighted in ***bold italics***; deletions are indicated by ~~strikethrough~~

Rapporteur: Franc Bogovič

Small modular reactors

Own-initiative Procedure (INI)

ITRE/9/12112 2023/2109(INI)

MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION

Small modular reactors
(2023/2109(INI))

The European Parliament,

– having regard to the Treaty on the Functioning of the European Union (TFEU), and in particular to Article 194 thereof,

– having regard to the Treaty establishing the European Atomic Energy Community,

– having regard to the agreement adopted at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change in Paris on 12 December 2015 (the Paris Agreement),

– having regard to the Commission proposal of 16 March 2023 for a regulation of the European Parliament and of the Council establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020 (COM(2023)0160),

– having regard to the Commission proposal of 16 March 2023 for a regulation of the European Parliament and of the Council on establishing a framework of measures for strengthening Europe's net-zero technology products manufacturing ecosystem (Net Zero Industry Act) (COM(2023)0161),

– having regard to Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU[1], which is currently being revised,

– having regard to Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity[2], which is currently being revised,

– having regard to Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy[3], which is currently being revised,

– having regard to Regulation (EU) 2019/941 of the European Parliament and of the Council of 5 June 2019 on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC[4],

[1] OJ L 158, 14.6.2019, p. 125.
[2] OJ L 158 14.6.2019, p. 54
[3] OJ L 327, 22.12.2000, p. 1.
[4] OJ L 158, 14.6.2019, p. 1.

– having regard to Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088[5] (EU Taxonomy Regulation),

– having regard to Commission Delegated Regulation (EU) 2019/856 of 26 February 2019 supplementing Directive 2003/87/EC of the European Parliament and of the Council with regard to the operation of the Innovation Fund[6],

– having regard to Commission Delegated Regulation (EU) 2022/1214 of 9 March 2022 amending Delegated Regulation (EU) 2021/2139 as regards economic activities in certain energy sectors and Delegated Regulation (EU) 2021/2178 as regards specific public disclosures for those economic activities[7] (Complementary Climate Delegated Act),

– having regard to Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations[8], as amended by Council Directive 2014/87/Euratom of 8 July 2014[9],

– having regard to Council Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste[10],

– having regard to Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom[11],

– having regard to the Commission communication of 1 February 2023 entitled 'A Green Deal Industrial Plan for the Net-Zero Age' (COM(2023)0062),

– having regard to the Commission communication of 18 May 2022 entitled 'REPowerEU Plan' (COM(2022)0230),

– having regard to the Commission communication of 10 March 2020 entitled 'A New Industrial Strategy for Europe' (COM(2020)0102),

– ***having regard to the Commission communication of 12 May 2017 entitled 'Nuclear Illustrative Programme presented under Article 40 of the Euratom Treaty - Final'[12] as well as its accompanying staff working document,***

[5] OJ L 198, 22.6.2020, p. 13.
[6] OJ L 140, 28.5.2019, p. 6.
[7] OJ L 188, 15.7.2022, p. 1
[8] OJ L 172, 2.7.2009, p. 18.
[9] OJ L 219, 25.7.2014, p. 42.
[10] OJ L 199, 2.8.2011, p. 48.
[11] OJ L 13 17.1.2014, p. 1.
[12] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017DC0237.

– having regard to its resolution of 19 May 2021 on a European strategy for energy system integration[13],

– having regard to its resolution of 10 July 2020 on a comprehensive European approach to energy storage[14],

– having regard to its resolution of 14 March 2019 on climate change – a European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy in accordance with the Paris Agreement[15],

– having regard to the Commission communication of 11 December 2019 on the European Green Deal (COM(2019)0640),

– having regard to its resolution of 15 January 2020 on the European Green Deal[16],

– having regard to its resolution of 15 December 2015 on Towards a European Energy Union[17],

– ***having regard to the conclusions of the European Nuclear Energy Forum in 2022,***

– ***having regard to the Nuclear Alliance's joint statement of 16 May 2023,***

– having regard to the proposal for a European small modular rector partnership, resulting from the first EU workshop on small modular reactors, organised by the Commission on 29 June 2021,

– having regard to the Commission's high-level nuclear roundtable held on 15 March 2022,

– having regard to the Commission declaration of 4 April 2023 entitled 'EU Small Modular Reactors (SMRs) 2030: Research & Innovation, Education & Training',

– ***having regard to the European Commission's DG ENERGY report of 9 October 2019 entitled 'Benchmarking of nuclear technical requirements against WENRA safety reference levels, EU regulatory framework and IAEA standards[18]***

– having regard to the Euratom Work Programme 2023-2025 for nuclear research and training,

– having regard to Rule 54 of its Rules of Procedure,

– having regard to the report of the Committee on Industry, Research and Energy (A9-0000/2023),

[13] OJ C 15, 12.1.2022, p. 45.
[14] OJ C 371, 15.9.2021, p. 58.
[15] OJ C 23, 21.1.2021, p. 116.
[16] OJ C 270, 7.7.2021, p. 2.
[17] OJ C 399, 24.11.2017, p. 21.
[18] https://data.europa.eu/doi/10.2833/972513.

A. whereas the EU is a party to the Paris Agreement and has committed to reducing ***net*** greenhouse gas emissions by at least 55 % by 2030 compared to 1990 levels and to achieving climate neutrality by 2050 ***by the latest***;

Aa. whereas global energy demand is expected to increase by 30% by 2040, according to the International Energy Agency's New Policies Scenario; whereas demand for electricity might double by 2060 according to the World Energy Council's 'World Energy Scenarios;

Ab. whereas the EU will face increasing demand for electricity;

Ac. whereas, according to the European Commission, the EU needs to double its electricity production in order to electrify sectors such as heating, cooling, and transportation in light of the green transition;

B. whereas the EU must mitigate its own risks of external dependence in terms of energy supplies, ***including the supply of fuel for nuclear power plants;***

Ba. whereas the EU must develop its strategic autonomy, enhance its supply chain resilience and reach a degree of self-sufficiency, especially since Russia's war of aggression against Ukraine has shown Europe's vulnerabilities in these spheres;

Bb. whereas the EU energy mix and future electricity market shall ensure constant, reliable renewables and carbon-free power to EU industries and citizens;

Bc. whereas nuclear energy is a zero emissions technology that does not lead to air pollution and therefore SMRs have the potential to contribute in meeting the EU's climate and environmental goals;

Bd. whereas nuclear energy can contribute to improving energy security in Europe and particularly in Member States that choose to use it, given its relatively low fuel and operating costs, and proven ability to provide a stable and reliable baseload of electricity supply;

Be. whereas the EU should further explore the relationship between the land use intensity of electricity and lifecycle GHG emissions in its energy system modeling and its impact on land use;

C. whereas ~~the~~ innovative developments in ~~nuclear power technology, particularly~~ small modular reactors (SMRs) ***and advanced modular reactors (AMRs)***, ~~represent a promising~~ ***could offer a potential*** pathway towards achieving the Union's energy and climate objectives, ~~and offer considerable opportunities~~ ***while the possibilities offered by SMRs*** in terms of electricity production ***and grid stability***, ***heat for*** industrial ***processes,,*** ~~heat, hydrogen generation~~ district heating ***and cooling, hydrogen generation, and water desalination is to be further explored***;

Ca. whereas SMRs can be defined as nuclear reactors in a range of power typically between 10 and 300 MW, designed to be built in factories in a standardised modular form;

Cb. ***whereas many of the benefits of SMRs are inherently linked to the nature of their design (small and modular): integral designs, inherent safety, lower core inventories, improved modularisation and manufacturability, enhanced flexibility; whereas SMRs can offer savings in cost and construction time, and can be deployed incrementally to match increasing energy demand;***

Cc. ***whereas specific climate and energy dialogues on SMRs could promote best practices and solutions, bring new business and collaboration opportunities and help Member States identify and reflect on possible gaps to implementation; whereas such dialogues can contribute to building the SMR business model further and present solutions to decarbonise industry;***

Cd. ***whereas further EU efforts should be made to evaluate the future contributions of SMRs to the EU's security of electricity supply, given their flexible base load capacities;***

D. whereas SMRs ***could potentially*** offer a lower initial capital investment, greater scalability and siting flexibility for locations unable to accommodate more traditional larger reactors, and now have the potential for enhanced safety and security ~~compared to earlier designs~~ ***features, feedback from existing large power reactors, more sustainable waste management and the potential benefits of using novel cooling systems and fuels***;

E. whereas the deployment of SMRs can help drive economic growth, create jobs and contribute to the EU's global competitiveness in this rapidly developing sphere of technology***, making Europe an attractive continent for investments in this sector***;

Ea. ***whereas EU competitors and trade partners are massively investing domestically and abroad to gain leadership in next generation SMRs; whereas further investment in research and development of SMRs could be decisive for the European nuclear industry to regain global leadership and requires advance planning;***

Eb. ***whereas there is a growing interest for deploying SMRs in the EU, the full involvement of fuel cycle actors should be considered since the early stages of potential projects;***

F. whereas the Commission, in its declaration ***of 4 April 2023*** on EU SMRs 2030, welcomed the collaborative efforts of the European nuclear industry and scientific community to achieve the common goal of a modern, resource-efficient and competitive economy and recognised that nuclear, and particularly SMRs, can play an important role even beyond electricity production, ***especially if the funds committed to research, development and innovation on SMRs lead to the development of successful design solutions***;

Fa. ***whereas, according to the Nuclear Alliance's joint statement of 16 May 2023, nuclear power could provide up to 150 GW of installed capacity by 2050 to the EU, thereby potentially contributing, directly and indirectly, to 450,000 jobs in the EU over the next 30 years, including 200,000 highly skilled workers;***

G. whereas the Commission has emphasised that nuclear and radiation protection expertise is needed across the Member States to ensure the safety, security and safeguarding of existing and future nuclear power plants, including SMRs, industrial and medical applications and space exploration initiatives;

1. Welcomes the Commission declaration on EU SMRs 2030, which emphasises the role of research, innovation, education and training in the safety of SMRs in the EU and the need for all sectors to contribute to the transformation of the EU's economy to achieve climate neutrality, energy security and strategic autonomy;

1a. Acknowledges that the climate crisis needs to be solved; believes that the EU should focus on the full range of net zero emissions solutions, in order to amplify its chances to reach climate neutrality by 2050, as well as diversify its energy production capacity to enhance security of supply;

2. Underlines the ***need to explore the*** potential of ~~nuclear power and~~ SMRs ~~in contributing the EU's clean energy goals~~***in providing the EU with a reliable, affordable and on-demand supply of electricity, with the potential capacity to provide a firm baseload of clean electricity, heat and steam for industry and households, including possibly retrofitting coal fired power stations; highlights the need for continued research and development in SMRs to ensure the safety, efficiency, and cost-effectiveness of these technologies***;

3. Calls for the development of a comprehensive strategy for the deployment of SMRs in the EU, taking into account the specific needs and circumstances of different regions, ***including remote and sparsely populated areas***, and ***different economic*** sectors; ***believes that such a strategy should pave the way to establishing clear guidelines for planning, permitting and timelines, regulation and safety;***

4. Acknowledges the socio-economic impacts arising from the deployment of SMRs in terms of highly qualified jobs and high added-value companies created in the EU;

4a. Encourages the Commission and Member States to raise public awareness and understanding of the potential benefits of SMRs, and to ensure transparent and inclusive decision-making processes in this area;

The EU as a significant potential market for SMRs

~~5. Acknowledges that SMRs have the potential to play a significant role in replacing fossil fuels[19];~~

5. Acknowledges the European nuclear fuel supply chain as a strategic asset and recognises the important role it will play in supporting the evolution of the next generation of reactor technology;

6. ***Explore the potential*** ~~Encourages the~~ use of SMRs for low-carbon hydrogen production***, both for its direct use in industry as well as for the production of***

[19] https://ec.europa.eu/eusurvey/runner/EuropeanSMRPrePartnership.

sustainable synthetic fuels;-reminds that vast amounts of new electricity capacity is needed to ensure the expected scale of hydrogen production required to decarbonize European industry, considering the predicted global expansion of hydrogen demand;

7. Recognises the ***potential*** role of SMRs for ~~industrial~~ heat ***and steam*** production ***for industrial processes, in particular in hard-to-abate industries;***

8. ~~Acknowledges~~ ***Explore*** the potential of SMRs for district heating ***and cooling where other clean energy sources are not available***; ***reminds that heating and cooling constitute approximately half of all EU energy consumption, and a majority of this is currently covered by fossil fuels; acknowledges that SMRs could provide zero emission, low temperature heat to the district heating systems; notes that SMRs can be designed to produce only heat and therefore operated at lower temperature and pressure;***

8a. Acknowledges the potential use of SMRs for competitive and sustainable water desalination;

8b. Recognises the potential value of SMRs for increasing electrical production and improving grid stability;

Global race for leadership in the future SMR market

9. Emphasises that so far, ~~no SMRs have been commercially operated in the world~~ ***SMRs are operational only in Russia and China***, ~~however there are~~ ***but that*** more than 80 SMR designs ***are currently at different stages of*** ~~under~~ development and deployment ~~at different stages~~ in 18 countries; ***stresses that*** the EU should ~~therefore not get left behind in the global race for~~ ***maintain its technological*** leadership in the future SMR market; ***underlines that competition around SMRs is intense with many initatives already launched;***

10. Emphasises that ~~the European~~ nuclear ~~sector is a strong asset and recognises that the EU already has a high degree of expertise and experience in nuclear technologies that can be applied to the development and deployment of SMRs, with a supply chain that could generate most of the added value within Europe~~ ***energy, in those countries that use it, has a role to play in balancing the overall energy system, limiting dependencies on third countries and achieving energy security and stable energy prices;***

10a. Recognises that the EU already has a high degree of expertise and experience in nuclear technologies that can be applied to the development and deployment of SMRs; notes that the fuel cycle will require further adaptation, with the ultimate aim of developing a supply chain for SMR production that could generate most of the added value within Europe;

10b. Maintains that SMRs could create additional industrial opportunities beyond the traditional nuclear sector and could open perspectives for new players to enter the nuclear supply chain and thereby strengthen EU competitiveness in a range of economic sectors;

10c. Recognizes that the extent of SMRs' contribution to European energy independence relies greatly on the localization of their value chain within European territory; underlines that an EU-based value chain will also strengthen the skills and know-how around this technology; calls therefore for a European preference in future public procurements related to SMRs;

Partnership on SMRs

11. Recognises that a growing number of Member States are considering nuclear for their energy mix***, hence the need to coordinate efforts, and the opportunity for such Member States to jointly develop a European SMR***;

~~12. Recognises that as electrification is a key element in all transition scenarios, nuclear energy, as a low-carbon source of energy with a strong domestic industry, will be a necessary part of the solution;~~

13. Welcomes the creation of the so-called 'European SMR partnership' in the form of a collaboration scheme involving industrial stakeholders, research and technological organisations, interested customers, European regulators and the Commission;

13a. Notes that the Nuclear Alliance asked the European Commission to actively support the pre-partnership on SMR and bring it to a full partnership;

Adapted policy and regulatory framework: technology neutrality

14. Recognises that a basic condition for SMRs to develop in the EU is to ensure that a conducive ***and technology-neutral*** policy ~~and~~ ***as well as a stable long-term*** regulatory framework is in place ***that considers different clean energy technologies and addresses questions of nuclear safety; highlights the need for a predictable legal framework that provides investor certainty throughout the lifetime of SMRs;***

14a. Notes that there is currently no unified market for SMRs, given the national sensitivities around nuclear energy technology and the desire of many countries to champion their own industries; recognises that for SMRs to benefit from possible economy of scale, a standardised licensing framework would need to be put in place;

15. Recognises that the implementation of appropriate contractual and financial mechanisms ***such as bilateral long-term contracts and contracts for difference (CFD),*** is needed to provide long-term predictability ***of energy markets and to foster future investments in SMRs***;

16. Calls on the Commission to launch a specific ***EU*** industrial strategy for SMRs, ***which includes a focus on efficient permitting procedures and access to finance and stable supply chains, with a view to enabling the deployment of domestic SMR technologies and raising awareness of SMRs***;

16a. Recognizes the necessity to protect the vulnerability of IT systems needed for the functioning of SMRs given the risk of cyber-attacks; emphasizes that cybersecurity need to be considered as a fundamental part of overall nuclear security;

Market integration and deployment

17. Emphasises ~~that~~ ***the importance of proactive anticipation,*** innovation and adaptation ~~will be key~~ to ***effectively*** meet SMR designers' expectations in terms of fuel cycle and waste management, ***including preparatory work to ensure the operational readiness of specific front-end fuel cycle requirements prior to the deployment of SMRs;***

17a. Emphasises that decisions on front-end as well as back-end issues should be taken early in the development phase, with the active involvement of the fuel cycle industry to optimise and validate new concepts, with a view on life-cycle operating costs and long-term security of supply as well as spent fuel and radioactive waste management programs. This early involvement of fuel cycle players is key to enabling an easier and faster commercial deployment of SMRs;

18. Emphasises that clear support from public authorities to guarantee the competitiveness of the SMR supply chain will be ***essential in enabling service providers to take*** ~~key to provide~~ a long-term ~~visibility to service providers~~ view and accelerate their projects to meet the market window of opportunity; ***emphasises the need for fast permitting procedures when SMRs are market ready, encourages the Commission to consider ways to speed up the permit processes for the rollout of SMRs;***

Harmonisation of SMR licensing regimes

19. ~~Recognises~~ ***Emphasises*** that the ~~business model of SMR producers will rely on the series effect of building a large number of similar SMRs in different countries; notes that design standardisation is key to unlocking the competitive advantages of mass~~ ***key success factor of SMRs is serial*** production***, which would allow manufacturers to improve their processes and reduce costs and production time***;

20. ~~Emphasises the need to identify the elements for establishing a European~~ ***Calls for the acceleration of the cooperation of national nuclear safety regulators, in order to harmonise a*** pre-licensing process ***and standardisation of SMR designs*** based on commonly accepted safety assessments ~~in the licensing of the same SMR design~~; ***acknowledges that standard designs of SMR models are a pre-requisite to their successful deployment on a commercial scale and must overcome the existence of different regulatory approaches across EU Member States;***

20a. Welcomes international initiatives to develop specific SMRs designs; maintains that joint SMR design reviews can accelerate the licensing process without compromising nuclear safety and security;

20b. Calls on the Commission to take a proactive role in establishing and supporting 'regulatory alliances' among Member States, where necessary in cooperation with international organisations; among the objectives would be to ensure a greater degree of equivalence in SMR licensing procedures;

21. ~~Emphasises that~~ ***Encourages*** regulatory bodies ***and national authorities*** ~~should create~~ ***to continue creating the*** conditions to ~~ease~~ ***streamline and harmonise*** the licensing process of SMRs ***across the Union***; ***believes it is in the EU's strategic interest to***

encourage national regulators to adopt technology-inclusive, performance-based, and risk-informed licensing processes that can streamline safety assessments, reduce regulatory burdens, enhance safety, lower costs, and facilitate innovation;

Financial support for the domestic production of SMRs

22. Recognises the need to sufficiently explore and identify ~~all~~ possible options for financing European SMR ***production and scale-up and support the related supply chain***; ***calls on the Commission and the Member States to assess available funding sources for the deployment of SMRs and, if deemed necessary, outline a plan for addressing funding shortfalls;***

22a. Emphasises that the domestic production of SMRs has high capital costs that could be facilitated by numerous levers such as private investments, national subsidies, European funds, and European Investment Bank (EIB) loans; notes this would require the EIB to align its energy lending policy with the EU taxonomy in order to fully support investment in SMR production;

22b. Calls on the Commission to explore the possibility for Member States to use any eligible fund or the Just Transition Fund to finance research and development of SMRs;

23. ***Recognizes the need for the inclusion of nuclear fission and fusion energy technologies, including nuclear fuel cycle technologies, in the list of net-zero technologies under*** ~~Expresses the need to place SMRs among the technologies recognised by~~ the Net Zero Industry Act, ***as currently eligible for support under the Strategic Technologies for Europe Platform (STEP), and potentially eligible under similar instruments in future;***

24. Welcomes ***the fact*** that the Euratom research and training programme already funds research projects related to the safety and licensing of SMR ***and AMR*** technologies; emphasises~~, however,~~ that more coordinated ***and focused*** funding is ***urgently*** needed ***if the EU wants to remain competitive in developing the SMR industry, including improvements in waste management and recycling fuel capacities***;

24a. Recommends to consider the inclusive access of SMRs to EU funding beyond the Euratom funding schemes;

25. Calls for the establishment of a ***dedicated European structure for SMRs, such as a*** new joint undertaking ***or an Industrial Alliance*** for SMRs, ***or the creation of an ICPEI specifically for SMRs, which could aim to develop an Advanced Reactor Demonstration Programme***;

25a. Considers that European financial support is needed to launch feasibility studies for SMRs; believes that developing a nascent SMR industry in the EU could be beneficial to its employment objectives, by potentially fostering the creation of high-quality jobs and traineeships and facilitating the reskilling or upskilling of workers;

25b. Expresses concerns about the overall budget for SMRs compared to the generous subsidies given by economic partners and competitors, in particular China, Russia and the USA;

Supply chain and fuel cycle adaptation

26. Emphasises that a robust, capable and reliable ***EU-based*** supply chain is critical for the success of ***producing*** SMRs; ***recalls that the EU remains dependent on imported uranium, which poses inherent risks for its strategic sovereignty and security of supply;***

26a. Calls on the European Commission to carry out an assessment to ensure that the development of SMRs is not hampered by potential shortfalls in the supply chain and adapt accordingly;

27. Recognises the importance of identifying the main challenges in adapting the value chain to the specific characteristics of SMRs compared with ~~high-power~~ ***large*** reactors and the need for consultations ***with all the key public and private actors in the energy market;*** ~~both with vendors, and a large number of supply chain suppliers~~;

27a. Acknowledges both the adaptations needed in the fuel cycle to supply SMR, and the investment needs for additional facilities;

27b. Encourages the efforts of European industry to secure the supply of new types of fuels that could become necessary for some SMRs;

27c. Emphasises that the opportunity of including standardised equipment and high quality industrial commercial grade components within SMR designs can greatly contribute to supply chain optimisation, thereby accelerating approval times;

Innovation, research and development

28. Recognises the need to define a comprehensive research and development (R&D) roadmap that meets both market expectations and safety requirements and, furthermore, ~~the need~~ to identify the experimental infrastructure required to implement this roadmap, alongside the necessary training and education programmes;

28a. Welcomes that in collaboration with the Joint Research Centre (JRC), the Euratom community is opening-up EU research infrastructures and supporting access to unique nuclear research infrastructures in Europe;

28b. Argues that to maintain the highest safety and radiation protection standards, it is crucial to keep the need for experimenting, testing and qualifying novel fuels, materials and technologies for the whole lifecycle of advanced SMRs, training and human capacity-building, disseminating knowledge and bridging the gap between research and industry;

28c. Welcomes Horizon Europe and Digital Europe Programme initiatives that bring new benefits in additive manufacturing, digital technologies, robotics and artificial

intelligence and emphasises that such synergies between the Euratom Programme and other EU Programmes should be fully realised;

29. ~~Emphasises~~ ***Underlines*** that ~~the focus should not only be~~ ***R&D should not only focus on*** the needs of the first generation of SMR light water reactors, expected ***to be connected to the electricity grid*** by the beginning of the 2030s, but ***should*** also further ~~R&D in~~ support ~~of~~ fourth-generation types of reactors, the so-called 'advanced modular reactors'***(AMRs);***

30. ~~Recognises~~ ***Stresses*** that increased ***EU*** resources for R&D in ~~state-of-the-art nuclear power~~ SMRs are needed, ***which can lead to positive socio-economic impacts for the EU***;

Skills

31. ~~Recognises~~ ***Acknowledges the need to refine existing*** ~~the need to develop~~ training in key nuclear construction skills ***all along the value chain, and matching these with the particular requirements of SMRs, while ensuring the prevention of skill shortages across the broader nuclear industry, particularly in skills under high demand***;

31a. Underlines the importance of strategic workforce planning, which should be forward-looking and adaptable, taking into account the potential shifts in skill requirements for the deployment of SMRs in the broader supply chain;

Decommissioning and Waste management

32. Recognises the ~~need to provide uniform~~ ***already well established*** rules regarding the responsibility of ~~SMR~~ ***nuclear power plant*** owners ***and license holders*** for the ***safe*** handling, ~~and~~ storage ***and disposal*** of radioactive waste, as well as for the ~~recycling~~ ***management*** of spent nuclear fuel;

32a. Welcomes the potential for waste minimisation in new SMR technologies, in particular through the reduction of both volume and radiotoxicity of waste; supports the latest R&D efforts in the field of nuclear waste management, recycling and reuse; underlines the major importance of reuse for the stability of supply;

32b. Calls for the establishment of a specific strategy on closing the nuclear fuel cycle based on innovative technologies developers' support;

32c. Notes that according to the European Commission's Joint Research Centre, for high-level radioactive waste and spent fuel there is a broad consensus amongst the scientific, technological and regulatory communities that final disposal in deep geological repositories is the most effective and safest feasible solution, which can ensure that no significant harm is caused to human life and the environment for the required timespan; acknowledges that some Member States are in an advanced stage of implementation of their national deep geological disposal facilities, which are expected to start operation within the present decade;

Accountability and reporting

33. Stresses the need for an annual report by the Commission assessing progress in the development of SMRs; ***asks that this report evaluate the geographical breakdown of funding, the number of jobs created, changes in supply and demand, assess the changing costs of SMRs deployment, the development of dedicated SMR infrastructures as well as transational collaboration in this field; the report should additionally evaluate the technical feasibility, licensing, siting, financing, supply chain, safety measures, engagement, and fuel progress from different SMR reactors; finally, the report should examine regulatory barriers to the uptake of SMR technologies and recommend measures to potentially mitigate these challenges;***

33a. Calls on the Commission to eagerly engage with the development of SMR projects and in particular prepare a legal framework regarding this technological choice, by revisiting and harmonising licensing frameworks, and other legal aspects;

34. Calls on ~~the Council to be firmly committed to contribute~~ ***Member States with a strong interest in nuclear and SMRs to demonstrate financial and regulatory commitment to contributing*** to the successful development of SMRs in the EU, ***in close collaboration with the European Commission which should seek to advance developments in this field***;

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35. Instructs its President to forward this resolution to ~~all EU institutions~~ ***the Council, the Commission, the European Economic and Social Committee, the European Committee of the Regions*** and the Member States.