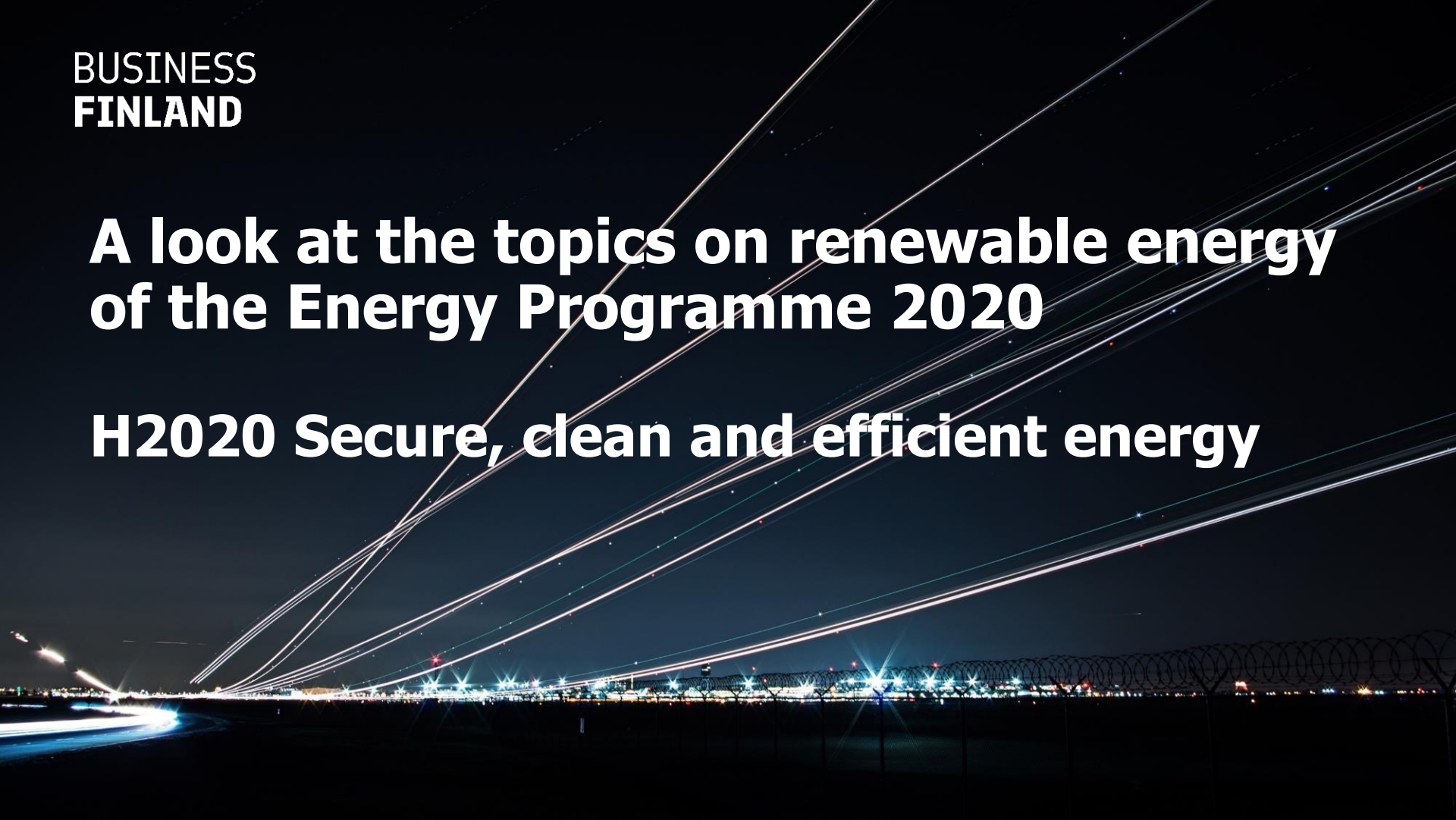


BUSINESS
FINLAND

A look at the topics on renewable energy of the Energy Programme 2020

H2020 Secure, clean and efficient energy

AGENDA - 30.9.2019 at 10:00

1. Welcome
2. Presentation of the Energy part of H2020
3. The 18 topics on renewable energy
4. Horizon Europe, situation of the planning for 2021-2027

Presenters:

- Tom Warras, Business Finland, National Contact Point
- Reijo Munther, Business Finland, National Contact Point

NOTE: The topic text presented below are free quotes,
always refer to the original EU text when preparing your proposal.

BUSINESS
FINLAND

A look at the topics on renewable energy of the Energy Programme 2020

H2020 Secure, clean and efficient energy

Webinar on 30.9.2019

Tom Warras and Reijo Munther, National Contact Point for Finland

Why international R&D&I ?

Never join only to get money……but instead seek for:

- Cooperation in European networks
- Implementation of risky innovations
- Best competence in Europe to help you
- Influence to the sector technologies, practices and standards

Please take into account:

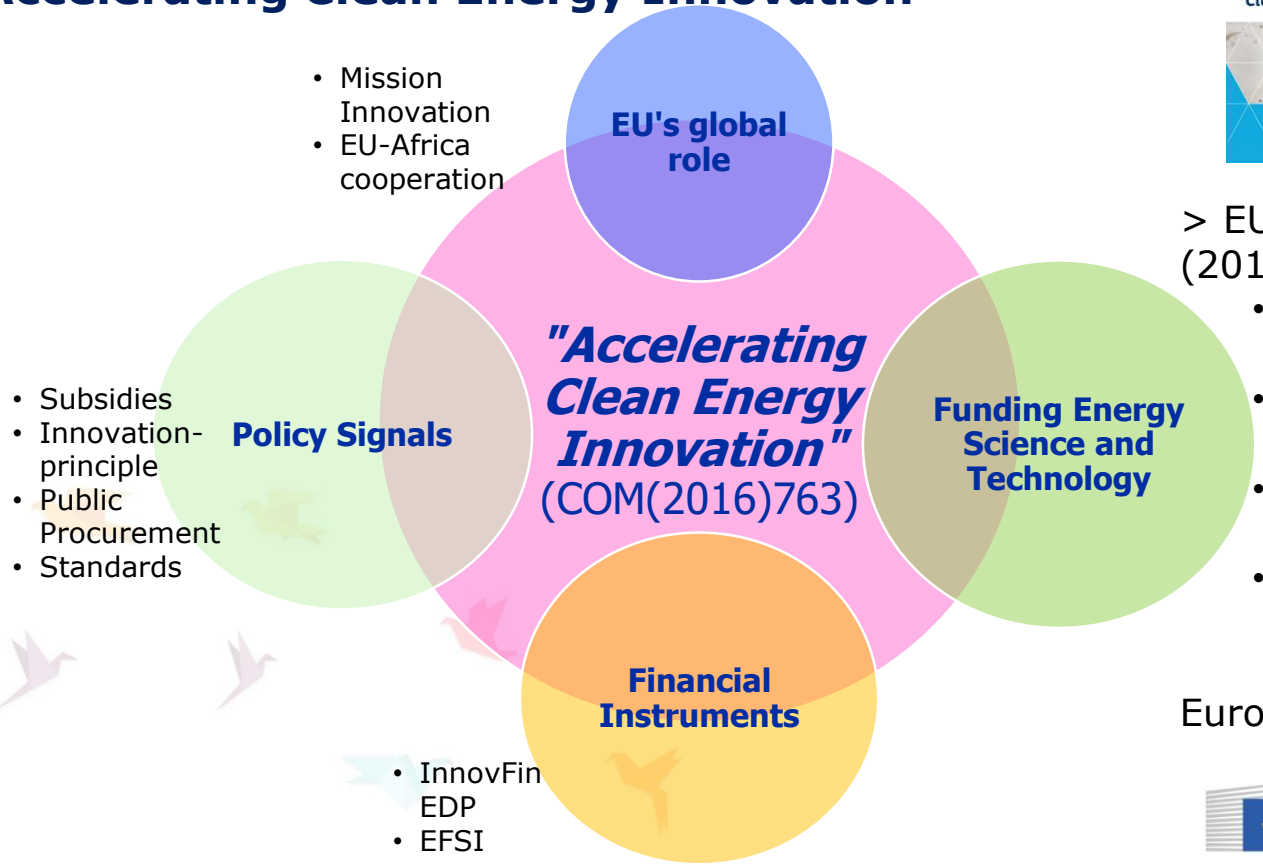
- Immaterial property questions
- Timeline for application, negociation and contract
- ”Bureaucracy” along the project

ENERGY AS A PART OF H2020

HORISONTTI 2020
EU:n tutkimus- ja innovaatio-ohjelmat

Policy Framework

Accelerating Clean Energy Innovation



> EUR 2.2 billion in H2020 (2018-2020) on:

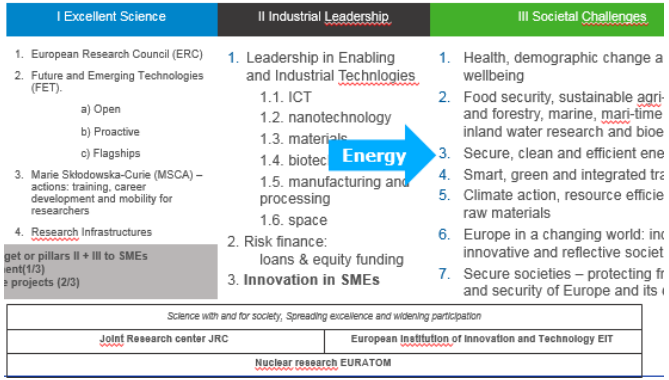
- Decarbonising EU building stock by 2050
- Strengthening EU leadership in renewables
- Affordable and Integrated energy storage
- E-mobility and more integrated urban transport systems

European Innovation Council

European Commission

EU's framework programmes

Horizon 2020
77 mrd.€



Horizon Europe
100 mrd.€

2019 2020 2021 2022 2023 2024 2025 2026 2027

BUSINESS FINLAND

Horizon 2020 – Structure and themes

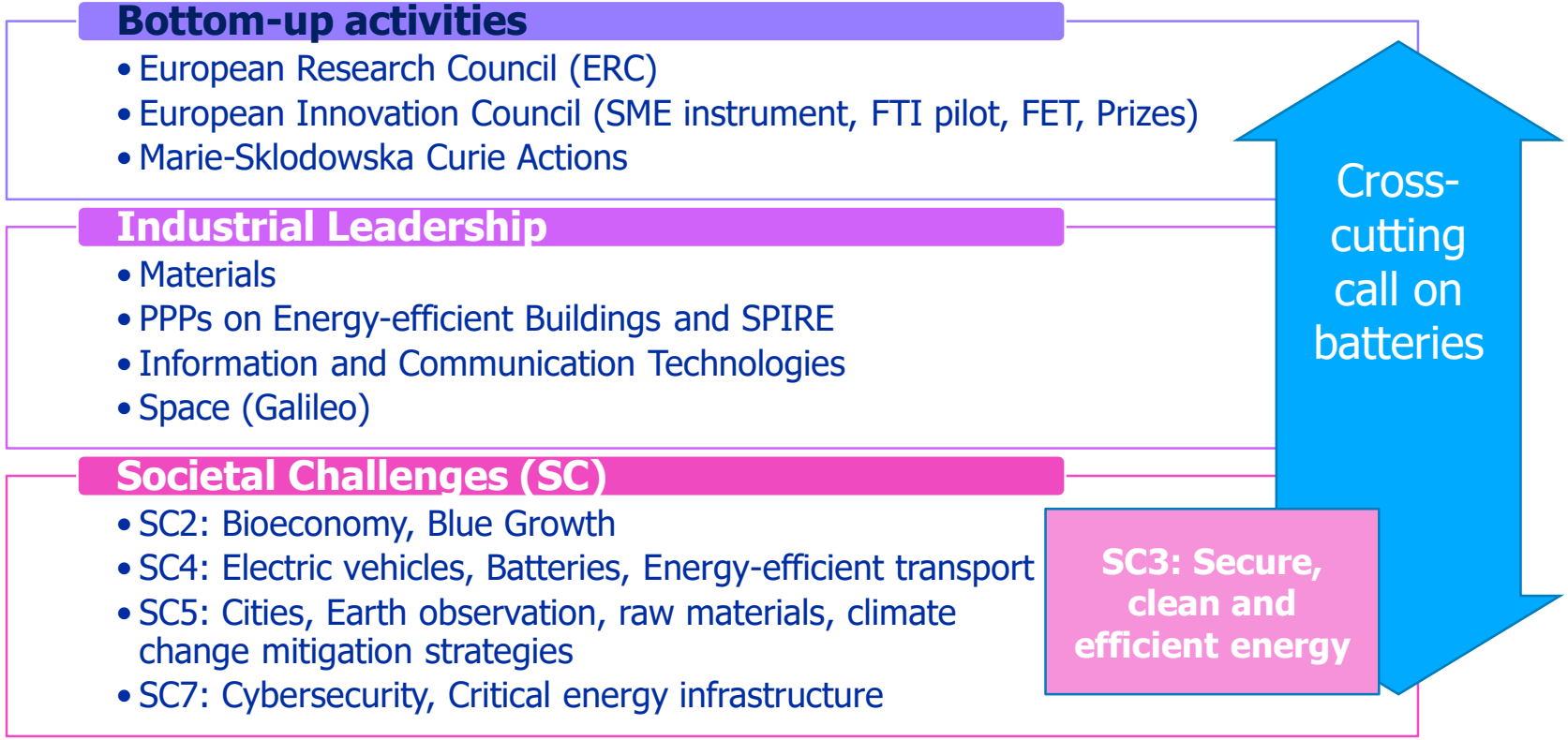
I Excellent Science	II Industrial Leadership	III Societal Challenges
1. European Research Council (ERC) 2. Future and Emerging Technologies (FET). a) Open b) Proactive c) Flagships 3. Marie Skłodowska-Curie (MSCA) – actions: training, career development and mobility for researchers 4. Research Infrastructures	1. Leadership in Enabling and Industrial Technlogies 1.1. ICT 1.2. nanotechnology 1.3. materials 1.4. biotec 1.5. manufacturing and processing 1.6. space 2. Risk finance: loans & equity funding 3. **Innovation in SMEs**	1. Health, demographic change and wellbeing 2. Food security, sustainable agri-culture and forestry, marine, mari-time and inland water research and bioeconomy 3. Secure, clean and efficient energy 4. Smart, green and integrated transport 5. Climate action, resource efficiency and raw materials 6. Europe in a changing world: inclusive, innovative and reflective societies 7. Secure societies – protecting freedom and security of Europe and its citizens

Energy

20% of the budget or pillars II + III to SMEs
- **SME Instrument(1/3)**
- **Collaborative projects (2/3)**

Science with and for society, Spreading excellence and widening participation
Joint Research center JRC | **European Institution of Innovation and Technology EIT**
Nuclear research EURATOM

Energy topics across Horizon 2020



BUSINESS FINLAND

Remember also calls of other H2020 parts than SC3!

CALL TYPES IN A NUTSHELL

HORISONTTI 2020
EU:n tutkimus- ja innovaatio-ohjelmat

BUSINESS
FINLAND

Technology Readiness Levels [Academic + Applied Research]

TRL 1 – Basic principles observed

TRL 2 – Technology concept formulated

TRL 3 – Experimental proof of concept

<!-- Companies' R&D starts from here -->

TRL 4 – Technology validated in lab

TRL 5 – Technology validated in relevant environment

BUSINESS
FINLAND

Technology Readiness Levels [Applied + Industrial R&D&I]

TRL 6 – Technology demonstrated in relevant environment (**~"MVP")**

TRL 7 – System prototype demonstration in operational environment **(~"Pilot")**

TRL 8 – System complete and qualified

<!-- Companies' R&D ends here -->

TRL 9 – Actual system proven in operational environment

BUSINESS FINLAND

Call Types CSA – RIA – IA

Coordination and Support Action CSA

- 100% grant
- Accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking

Research and Innovation Action RIA (~AoF+VTT)

- Commercial time horizon ~5-8 yr, TRL ~4-6, 100% grant for profit and non-profit organisations
- Activities aiming to establish new knowledge / to explore the feasibility of a new or improved technology, product, process, service or solution

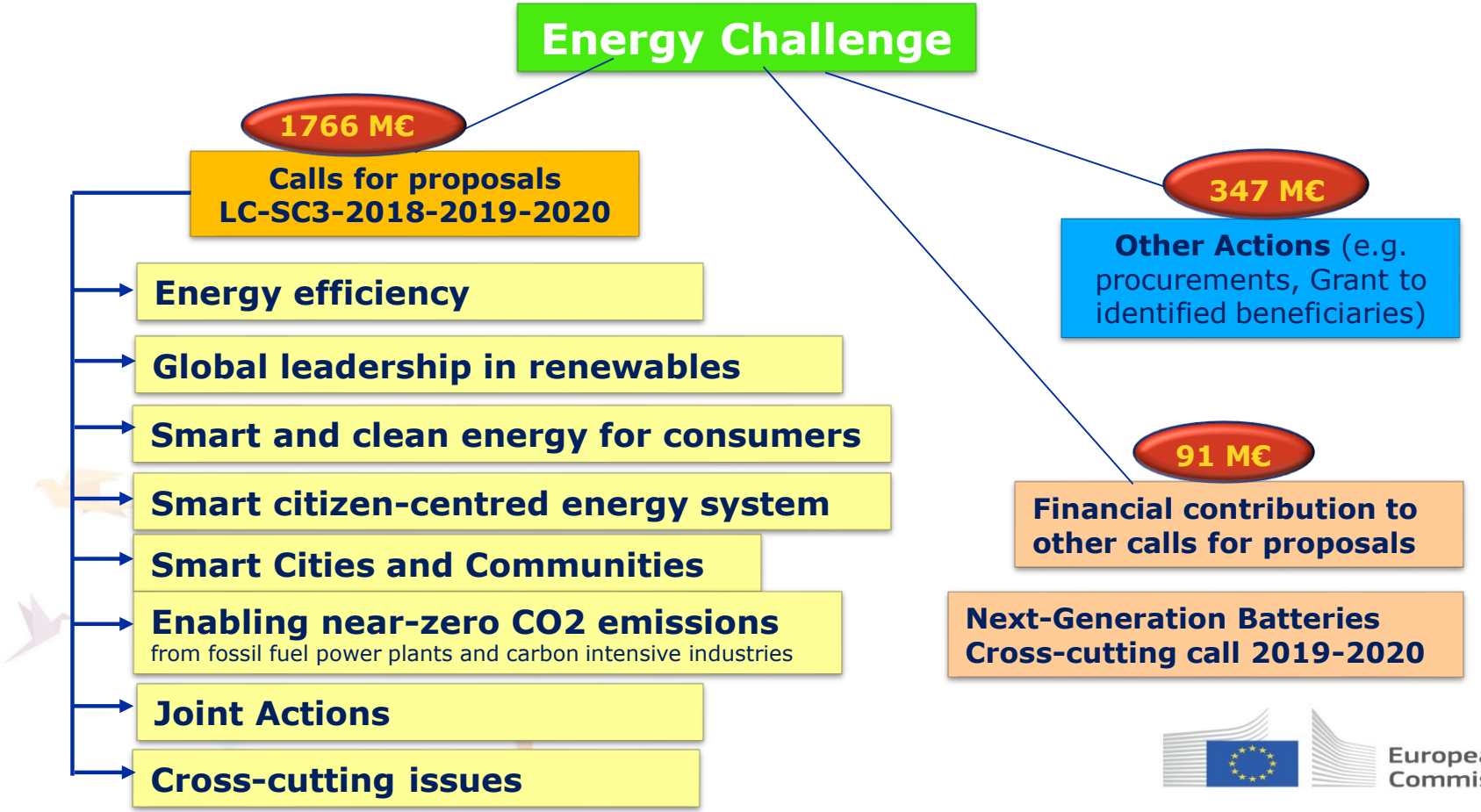
Innovation Action IA – (~BF Co-Innovation)

- Commercial Time Horizon ~3-5 yr, TRL ~6-8, 70% grant for profit organis.(100% for non-profit)
- Activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services.
- May include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.

CALL THEMES ON ENERGY

HORISONTTI 2020
EU:n tutkimus- ja innovaatio-ohjelmat

Overview of Energy Challenge activities



European Commission

Calls for proposals for 2020

Energy efficiency B4E	Global leadership in renewables RES	Energy for consumers EC	Smart citizen-centred energy system ES	Smart Cities & Communities SCC	Enabling near-zero CO2 emiss. NZE	Smart airports SA Joint Actions JA	Cross-cutting issues CC
84 M€	248 M€	47 M€	108 M€	60 M€	29 M€	27 M€	59 M€

Budgets for 2020 summing up to 662 M€

Global leadership in renewables (RES)

Aurinkoenergia	Tuulienergia	Ocean	**Bio-polttoaineet Alt.fuels**
Heating Cooling CHP	Geothermal	Hydro Energy	Virtual power plant

248 M€ (2020)

Calls Global leadership in renewables

	M€
RES-1-2019-2020: Developing the next generation of renewable energy technologies	45
RES-3-2020: International Cooperation with USA and/or China on alternative renewable fuels from sunlight for energy, transport and chemical storage	10
RES-9-2020: Next generation of thin-film photovoltaic technologies	20
RES-10-2020: Pre-Commercial Procurement for a 100% Renewable Energy Supply	15
RES-31-2020: Offshore wind basic science and balance of plant	8
RES-32-2020: New test rig devices for accelerating ocean energy technology development	8
RES-18-2020: Advanced drilling and well completion techniques for cost reduction in geothermal energy	8
RES-19-2020: Demonstration of innovative technologies for floating wind farms	25
RES-20-2020: Efficient combination of Concentrated Solar Power and desalination (with particular focus on the Gulf Cooperation Council (GCC) region)	10

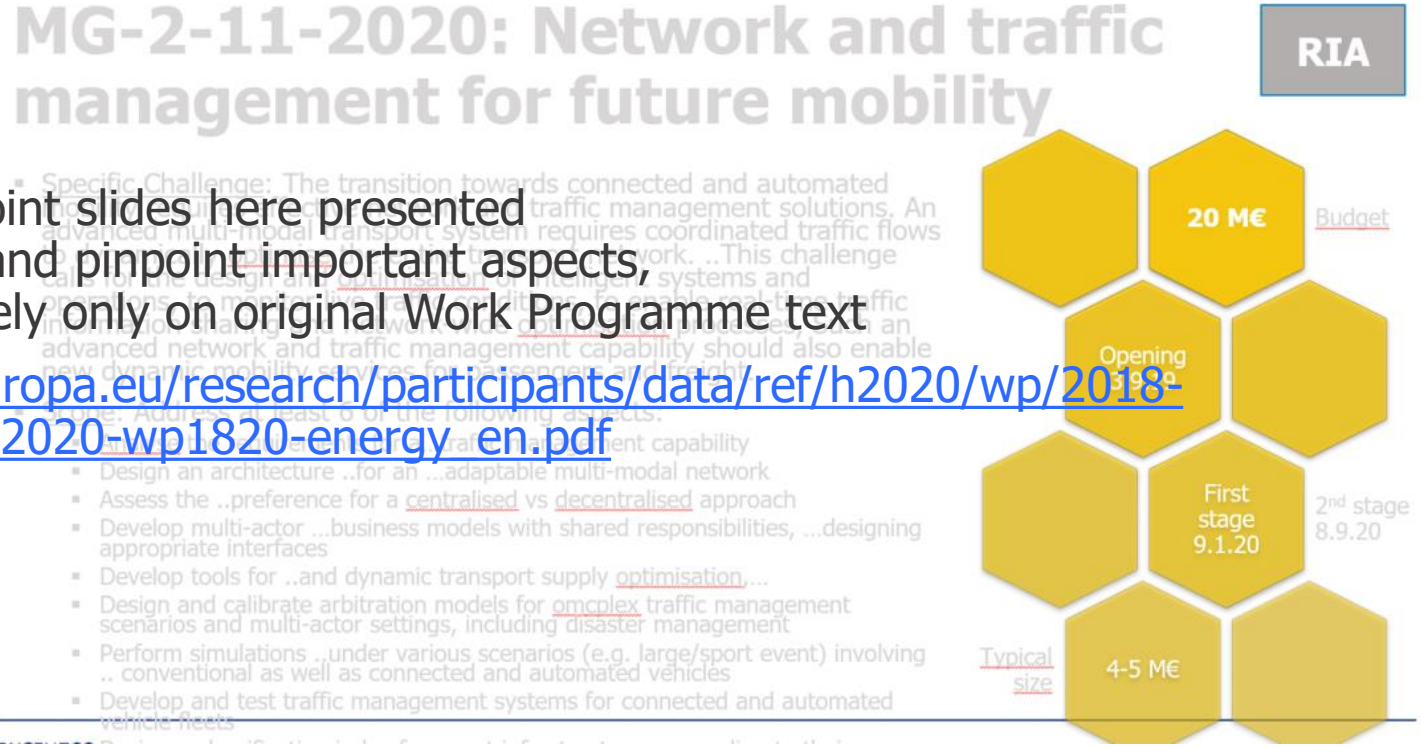
	M€
RES-33-2020: Increase performance and reliability of photovoltaic plants	20
RES-34-2020: Demonstration of innovative and sustainable hydropower solutions targeting unexplored small-scale hydropower potential in Central Asia	10
RES-35-2020: Reduce the cost and increase performance & reliability of CSP plants	10
RES-25-2020: International cooperation for Research and Innovation on advanced biofuels and alternative renewable fuels	5
RES-26-2020: Development of next generation renewable fuel technologies from CO2 and renewable energy (Power and Energy to Renewable Fuels)	8
RES-36-2020: International cooper. with Canada on advanced biofuels & bioenergy	5
RES-27-2020: Demonstr of advanced biofuels production from aquatic biomass	10
RES-37-2020: Combined clean biofuel production and phytoremediation solutions from contaminated lands worldwide	6
RES-28-2018-2019-2020: Market Uptake support	25

Calls Global leadership in renewables

- RES-1-2019-2020: Developing the next generation of renewable energy technologies
- RES-3-2020: International Cooperation with USA and/or China on alternative renewable fuels from sunlight for energy, transport and chemical storage
- RES-9-2020: Next generation of thin-film photovoltaic technologies
- RES-10-2020: Pre-Commercial Procurement for a 100% Renewable Energy Supply
- RES-31-2020: Offshore wind basic science and balance of plant
- RES-32-2020: New test rig devices for accelerating ocean energy technology development
- RES-18-2020: Advanced drilling and well completion techniques for cost reduction in geothermal energy
- RES-19-2020: Demonstration of innovative technologies for floating wind farms
- RES-20-2020: Efficient combination of Concentrated Solar Power and desalination (with particular focus on the Gulf Cooperation Council (GCC) region)
- RES-33-2020: Increase performance and reliability of photovoltaic plants
- RES-34-2020: Demonstration of innovative and sustainable hydropower solutions targeting unexplored small-scale hydropower potential in Central Asia
- RES-35-2020: Reduce the cost and increase performance & reliability of CSP plants
- RES-25-2020: International cooperation for Research and Innovation on advanced biofuels and alternative renewable fuels
- RES-26-2020: Development of next generation renewable fuel technologies from CO2 and renewable energy (Power and Energy to Renewable Fuels)
- RES-36-2020: International cooper. with Canada on advanced biofuels & bioenergy
- RES-27-2020: Demonstr of advanced biofuels production from aquatic biomass
- RES-37-2020: Combined clean biofuel production and phytoremediation solutions from contaminated lands worldwide
- RES-28-2018-2019-2020: Market Uptake support

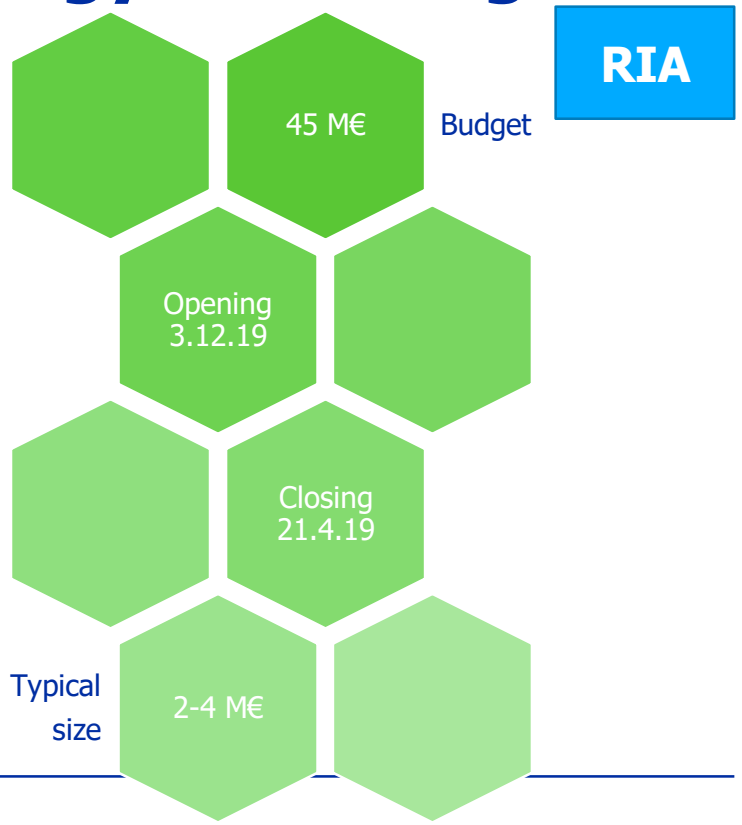
For original wordings, always quote original Work Programme text

- The powerpoint slides here presented just extract and pinpoint important aspects, but always rely only on original Work Programme text
- https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-energy_en.pdf



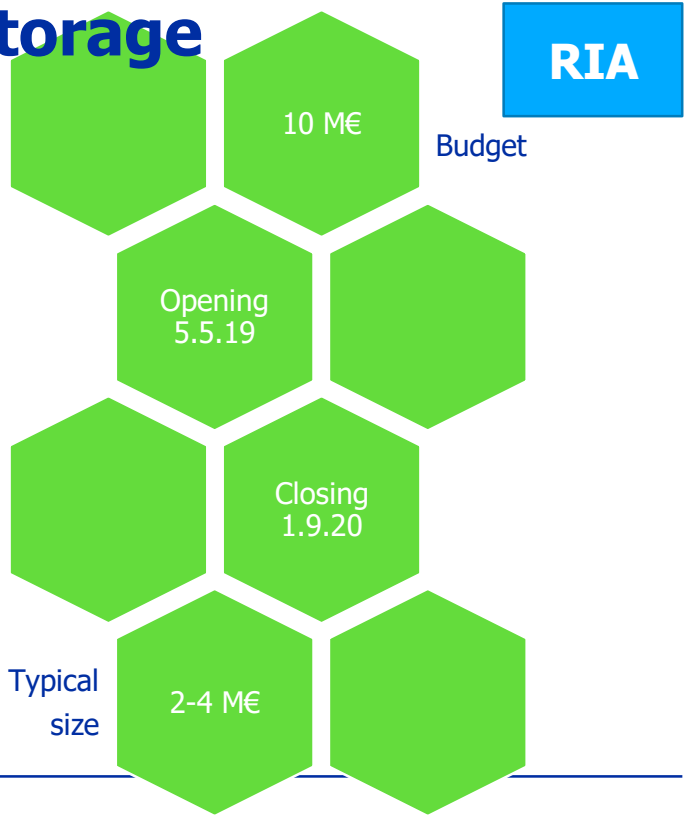
LC-SC3-RES-1-2019-2020: Developing the next generation of renewable energy technologies

- Specific Challenge: ..Bringing ..new energy conversions, new renewable energy concepts and innovative renewable energy uses faster to commercialisation is challenging. The proposed solution is expected to contribute to… strengthening EU leadership on renewables laid out in the Communication for Accelerating Clean Energy Innovation.
- Emphasis is put on including international cooperation opportunities whenever relevant, in particular in the context of the Mission Innovation Challenges.
- Scope: Support will be given to activities which focus on converting renewable energy sources into an energy vector, or the direct application of renewable energy sources. This topic calls for bottom-up proposals addressing any renewable technology currently in the early phases of research. Activities also might include energy materials, catalysts, enzymes, microorganisms, models, tools and equipment, as long as those are strictly connected to the energy conversion process.
- Proposals shall -…bring to TRL 3/4 renewable energy technologies that will answer the challenge described. Beside the development of the technology, the proposal will have to clearly address the following related aspects: lower environmental impact, better resource efficiency than current commercial renewable technologies, issues related to social acceptance or resistance to new energy technologies, related socioeconomic and livelihood issues.



LC-SC3-RES-3-2020: International Cooperation with USA /China on alt.renewable fuels from sunlight for energy, transport and chemical storage

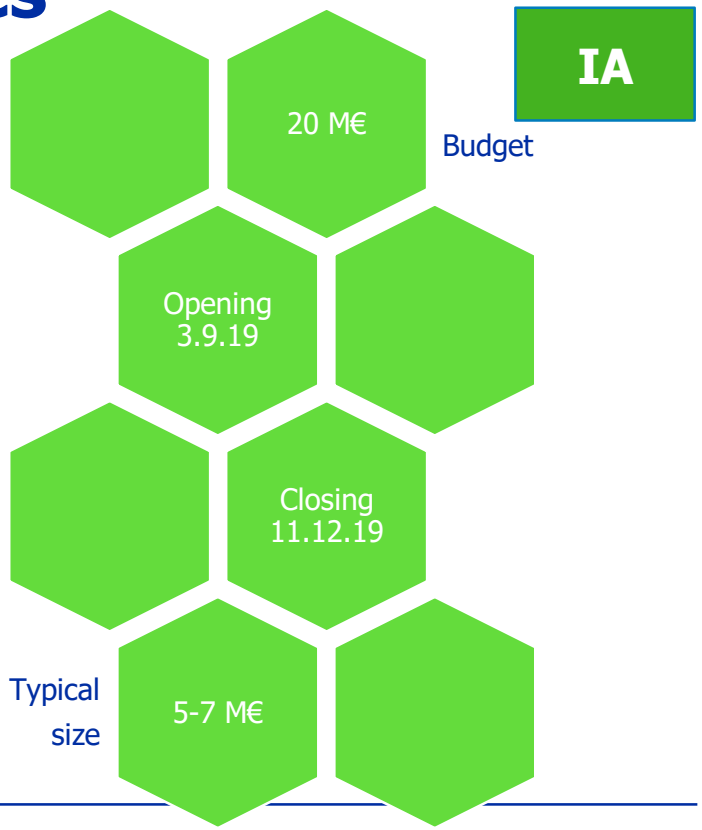
- Specific Challenge: Decarbonisation ..requires the ultimate replacement of fossil fuels ..and flexibility to store sustainable energy ..in new kind of energy storage compounds. To achieve this goal, the production of clean forms of storable chemical energy carriers from ..sunlight
- Scope: Proposals will aim at ..cooperation with USA and/or China on targeted research.. for obtaining advanced biofuels and alternative renewable fuels for energy and transport through photochemical/ photobiological or electrochemical reaction. The ranking of the successful proposals will ensure that a balanced portfolio of activities is covering both cooperation with USA and China. Proposals will develop break-through artificial photosynthesis technologies in terms of sunlight conversion efficiency for the production of energy carriers (other than electricity) with either de-novo synthetic biological and artificial/biochemical hybrid systems or novel photo-catalysis or photo-electro catalysis coupled with CO_2 reduction.
- At least one of the following has to be addressed:
  - Improved light-harvesting and efficient charge separation
  - Photoelectrochemical cells – PECs and catalyst development
  - Improved light harvesting with improved CO2 reduction efficiency in synthetic biological systems



BUSINESS FINLAND

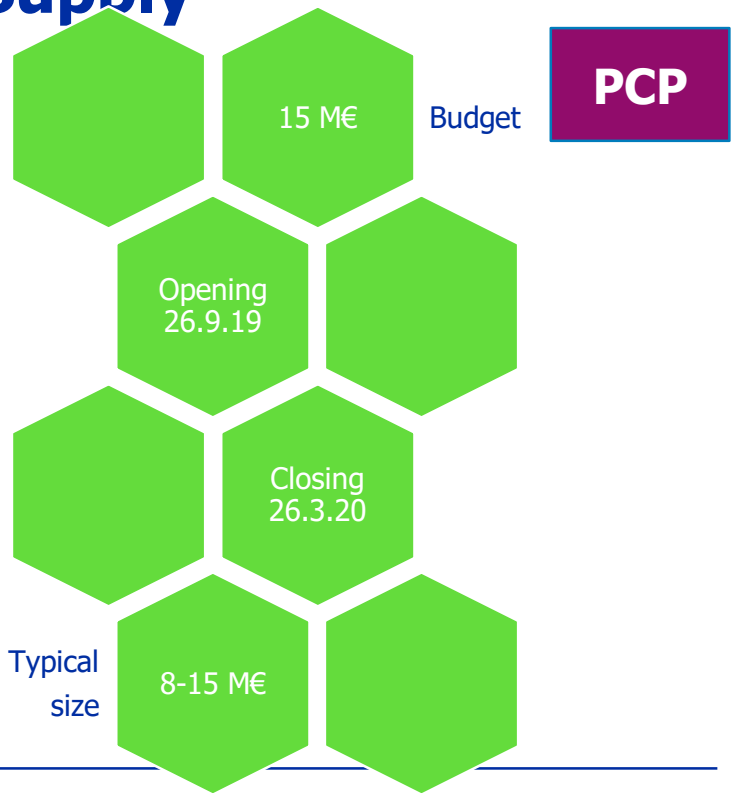
LC-SC3-RES-9-2020: Next generation of thin-film photovoltaic technologies

- Specific Challenge: ---The development of alternative thin-film technologies based on earth-abundant elements has become a priority.
- Scope: Proposals will demonstrate alternative thin-film (including multilayer) technologies that can yield high-efficiency devices with expanded lifetime, through simple fabrication processes and the use of earth-abundant, low-cost materials complying with the RoHS guidelines.
- Proposals are expected to bring the technologies from TRL 4-5 to TRL 6-7.
- Article 30.3 of the Horizon 2020 model grant agreement on IPR protection in EU – "EU right to object to transfer or licencing" is compulsory for successful proposals.
- The topic is particularly suitable for SMEs.
- Proposals submitted under this topic should include a business case and exploitation strategy, as outlined in the Introduction to the LEIT part of this Work Programme



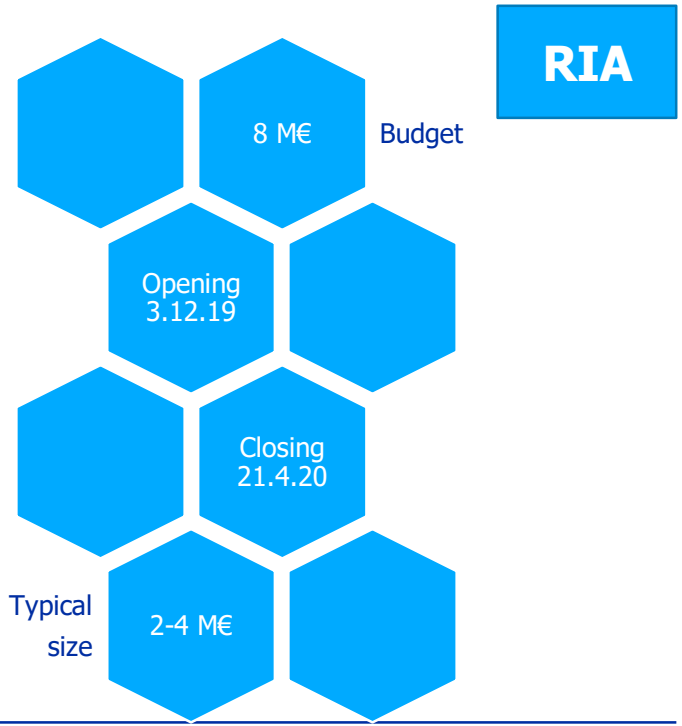
LC-SC3-RES-10-2020: Pre-Commercial Procurement for a 100% Renewable Energy Supply

- Specific Challenge: To achieve a 100% share of renewable energy in existing public buildings requires innovative approaches …The buildings should be in line with the requirements of the Energy Performance of Buildings Directive, including national definitions of Nearly Zero-Energy Buildings (NZEBs).
- This specific challenge targets consortia of procurers..
- Scope: The objective is to bring radical improvements to the quality and energy performance of existing public buildings by encouraging the development and validation of breakthrough solutions through Pre-Commercial Procurement.
- Support will be given for developing novel components and configurations to generate in an existing public building energy from renewable sources so that 100% of the energy consumption of the building (electricity, heat and cooling) is fulfilled by means of renewable energy and the yearly energy demand is followed to the largest extent possible.



LC-SC3-RES-31-2020: Offshore wind basic science and balance of plant

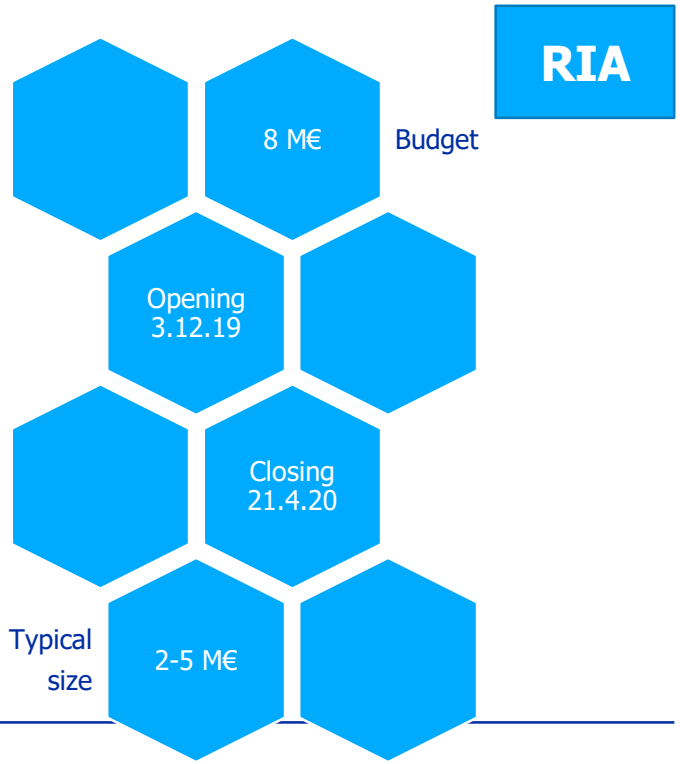
- Specific Challenge: The contribution of offshore wind power to the energy mix is expected to increase significantly by 2030. Better knowledge of basic wind energy science and related areas contributes to the cost reductions required to achieve that goal.
- Scope: Proposals are expected to address one or more of the following research areas for offshore wind which have been identified in the SET-Plan Implementation Plan:
  - Atmospheric multi-scale flow modelling (from meso-scale to wind farm flows);
  - Understanding and modelling key uncertainties and physical phenomena of offshore wind energy design and operation (e.g. fluid-structure, soil-structure and electro-mechanical interaction, large motion prediction, turbulence, wave modelling, mooring line behaviour);
  - High performance computing and digitalisation (e.g. data processing, machine learning and data analytics methods for implementation in data-driven design, digital twins and control and monitoring for O&M);
  - Development and validation of models of structural damage and degradation for offshore wind turbines and/or for their components as functions of loads and environment;
  - Numerical and test methods for accurate assessment of system and component reliability when introducing new materials and technologies;
  - Other offshore balance of plant aspects related to the manufacturing, construction, installation and/or decommissioning of large-scale wind turbines.
- While offshore wind must be the cornerstone of the proposal addressing any bullet point above, onshore wind may also be covered when synergies may be exploited from including both. This is just a possibility and not a requirement.
- 'Materials science', which is also mentioned in the SET-Plan Implementation Plan, is outside the scope of this topic, but is addressed under topic LC-NMBP-31-2020.
- The proposals are expected to bring new technologies/models/methods to TRL 4-5



BUSINESS
FINLAND

LC-SC3-RES-32-2020: New test rig devices for accelerating ocean energy technology dev't

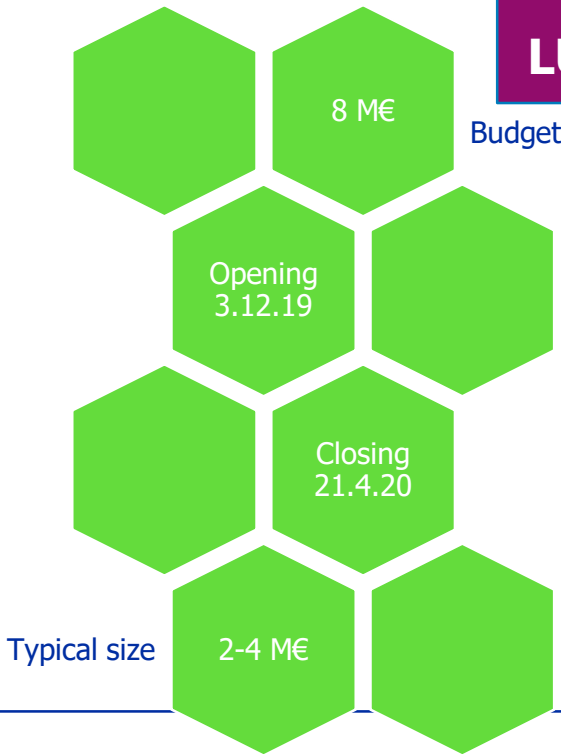
- Specific Challenge: By 2050 ocean energy can contribute significantly to the renewable energy mix in Europe. As stated in the SET-Plan Ocean Energy Implementation Plan ocean energy costs must be reduced through, but not only, increased performance and reliability in order to meet its full potential. Researchers and industries are presenting innovative solutions, but to accelerate the development pathway to the market, new testing methodologies will help industries to take more quickly go/no-go decisions. For this a better understanding of basic ocean energy sciences is required to develop the research competences and the underpinning scientific knowledge for the testing methodologies.
- Scope: The actions should generate one or more new test rig prototype devices including novel test procedures that should be used by multiple ocean energy technology developers, and facilitate design convergence. This will support improved testing of low TRL wave or tidal device components or sub-systems – e.g. facilities, tools and procedures - and make accelerated life testing possible, considering for instance efficiency, reliability, survivability and/or environmental impact.
- Proposals are expected to connect and integrate the various capacities and resources of the beneficiaries and other ongoing European and national projects in the proposed research areas.
- Proposals are expected to clearly indicate how the science is contributing to accelerated cost reductions in ocean energy.



LC-SC3-RES-18-2020: Advanced drilling and well completion techniques for cost reduction in geothermal energy

- Specific Challenge: To achieve or maintain global leadership in geothermal energy technology …Advanced drilling technologies …should ..be developed and optimized. / SET-Plan Deep Geothermal Energy Implementation Plan.
- Scope: Proposals will address novel non-mechanical drilling technologies required for applications on all types of geological formations and with the ability to reach cost-effectively greater depths and higher temperatures (i.e. beyond 5 km and 250°C) or develop new mechanical-drilling operation technologies making use of digitisation, automation, machine learning, and innovative instrumentation.
- Risk assessment and lifetime analysis …Appropriate technology transfer from the oil and gas sector on horizontal well drilling is encouraged…
- Proposals are expected to bring technologies from TRL 3-4 to TRL 4-5

RIA
LUMPSUM



LC-SC3-RES-19-2020: Demonstration of innovative technologies for floating wind farms

IA

- Specific Challenge: The first commercial-scale floating wind farm has recently come into operation and other floating wind farms initiatives are ongoing. Floating wind farms have significant potential but further efforts are needed to drive the costs down and to fully commercialise and industrialise the technology.
- Scope: Proposals will focus on the demonstration of floating offshore wind innovations (such as blades, floaters, moorings, electrical subsystems and cabling, monitoring systems, and/or integrated systems, including whole wind turbines specifically conceived for floating offshore), in view of scaling-up power rating to >10 MW. Different sea and weather conditions shall be considered. Proposals shall improve industrial design and manufacturing processes, installation methods and operation & maintenance.
- Proposals to bring the technology(ies) to TRL 6-8

LC-SC3-RES-20-2020: Efficient combination of Concentrated Solar Power and desalination (with particular focus on the Gulf CC region)

IA

- Specific Challenge: Several arid and semi-arid regions of the world are highly dependent on desalination and the demand for desalination is projected to grow. Many of these regions have also an abundant solar resource, which is suitable for the application of Concentrated Solar Power (CSP). Several technical aspects need to be addressed to match the thermal cycle of a CSP plant to the energy needs of a desalination system in an effective way.
- Scope: Support will be given to demonstrate efficient solutions that couple the thermal cycle of a CSP plant to a water desalination system.
- The proposals are expected to bring technologies to TRL 6
- International cooperation is encouraged, in particular with Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

LC-SC3-RES-33-2020: Increase performance and reliability of photovoltaic plants

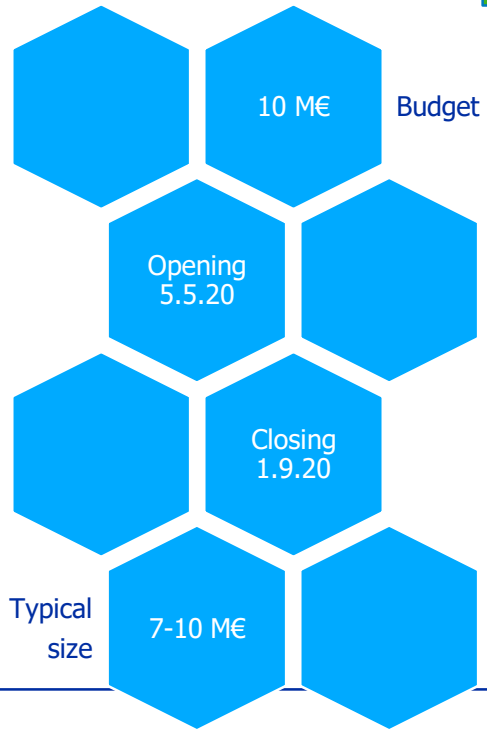
IA

- Specific Challenge: …It is necessary to establish accurate operation (and fault diagnostic) models in both "utility - large commercial" and "medium-size commercial - residential" scale plants. Reliability assessment and improvement can be achieved / Plan for PV established in the context of the SET-Plan
- Scope: Proposals will develop and demonstrate technical solutions, processes and models, which increase a PV system's operational stability and reliability… Proposals are expected to address ..the reliability of system components, advanced and automated functions for data analysis, diagnosis and fault detection, forecasting and model-predictive control frameworks, ancillary services for the stability of the network; maintenance planning and/or reporting; interoperability of plants and components; business models; etc.
- Proposals are expected to bring the technologies from TRL 6-7 to TRL 7-8 (please see part G

LC-SC3-RES-34-2020: Demonstration of innovative and sustainable hydropower solutions targeting unexplored small-scale hydropower potential in Central Asia

IA

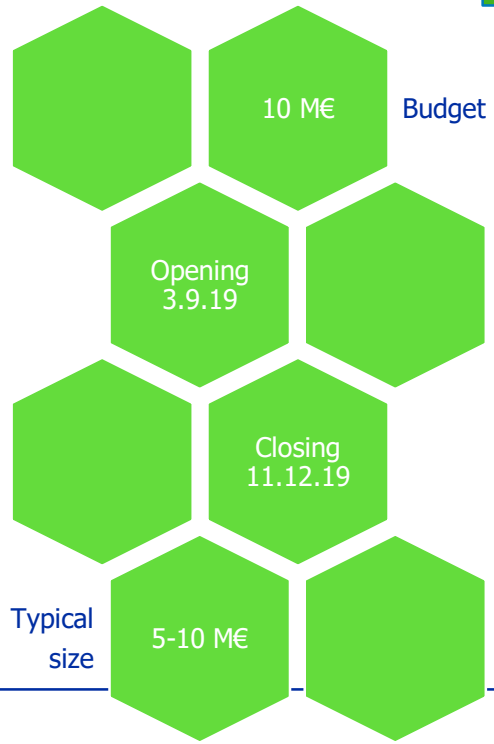
- Specific Challenge: The challenge is to demonstrate innovative solutions targeting unexploited small-scale hydropower potential in Central Asia that will contribute to solve the particular cross-border water and energy management challenges in the region. Therefore, the hydropower technological solutions will need to be socio-economically and environmentally sustainable and embedded in a forward-looking cross-border Water/Food/Energy/Climate nexus concept for this region.
- Scope: Projects will demonstrate innovative hydropower equipment exploiting unexplored small-scale hydropower potential in Central Asia up to 10 MW installed capacity by means of sustainable and cost-effective small-scale hydropower solutions. The demonstration will provide solutions for realising innovative and sustainable hydropower, based on synergies between innovative European hydropower technology, research and industry partners, and the Central Asian hydropower sector. Therefore, the demonstration activities shall take place in Central Asia (Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan or Uzbekistan), with participation of local partners.
- The project should also fulfil the highest standard in terms of socio-economic and environmental sustainability and impact, and engagement of local civil society. It should also demonstrate how it will contribute positively to the regional cross-border Water/Food/Energy/Climate nexus and refer to embedded sustainable hydropower auxiliary services.
- Proposals are expected to bring the technology from TRL 6-7 to 7-8



LC-SC3-RES-35-2020: Reduce the cost and increase performance & reliability of CSP plants

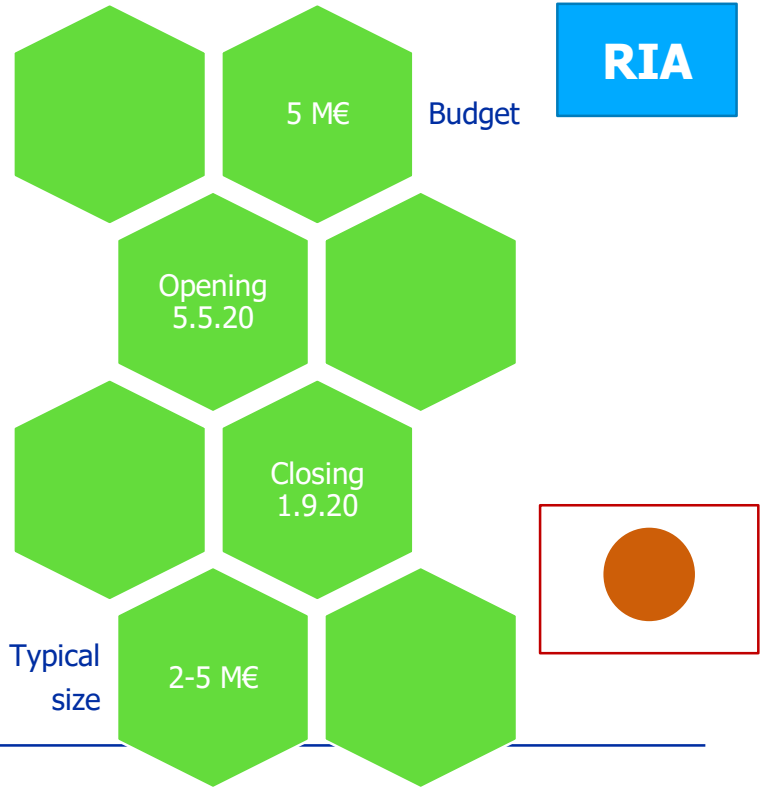
IA

- Specific Challenge: Several research and innovation activities are set out in the SET Plan's Implementation Plan for Concentrated Solar Power (CSP) to reduce the cost and increase performance and reliability of CSP plants. Promising innovative solutions that have been already validated in laboratories and/or in relevant environment need to be developed further to bring them to a higher TRL.
- Scope: The proposals will demonstrate innovations that reduce the cost and/or increase the performance and/or the reliability of CSP plants, in relation to any of the plant subsystems.
- The proposals have to state clearly to which R&I Activity (or Activities) of the Implementation Plan for CSP they contribute. The possible impacts on the environment of the proposed innovations shall be assessed during the execution of the project.
- Proposals are expected to bring the solutions to TRL 6-8



LC-SC3-RES-25-2020: Int'l cooperation for R & I on advanced biofuels and alternative renewable fuels

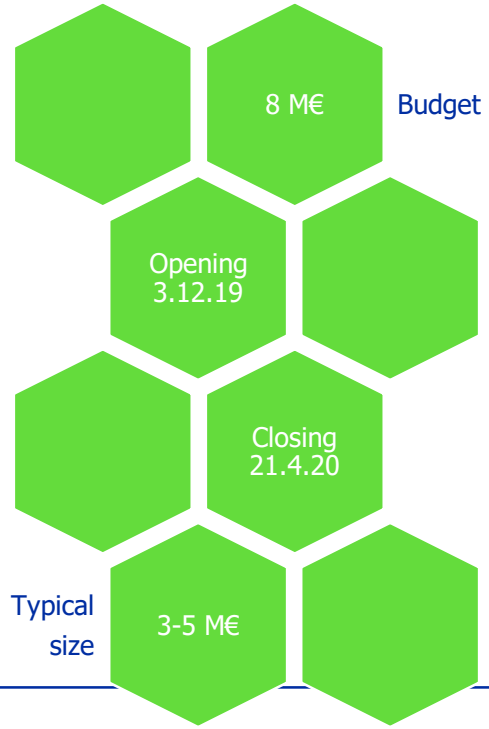
- Specific Challenge: Disruptive conversion technologies are needed for replacing the use of fossil fuels in transport and heating sectors with advanced biofuels and alternative renewable fuels. /Mission Innovation Challenge 4.
- Scope: Proposals will aim at international cooperation with Japan involving Japanese organisations in the consortia for the development of disruptive catalytic technologies, by developing novel catalysts and linked lab-scale components/systems with significantly improved performance for conversion efficiency and specific marginal cost reduction for obtaining low-cost bioenergy carriers, non-food/feed based advanced biofuels and alternative renewable fuels (excluding hydrogen) and maximizing GHG abatement.
- TRL 3
- The Japan Science and Technology Agency (JST) is the expected funding Japanese authority



LC-SC3-RES-26-2020: Devmt of next generation renewable fuel technologies from CO^2 and renewable energy (Power and Energy to Renewable Fuels)

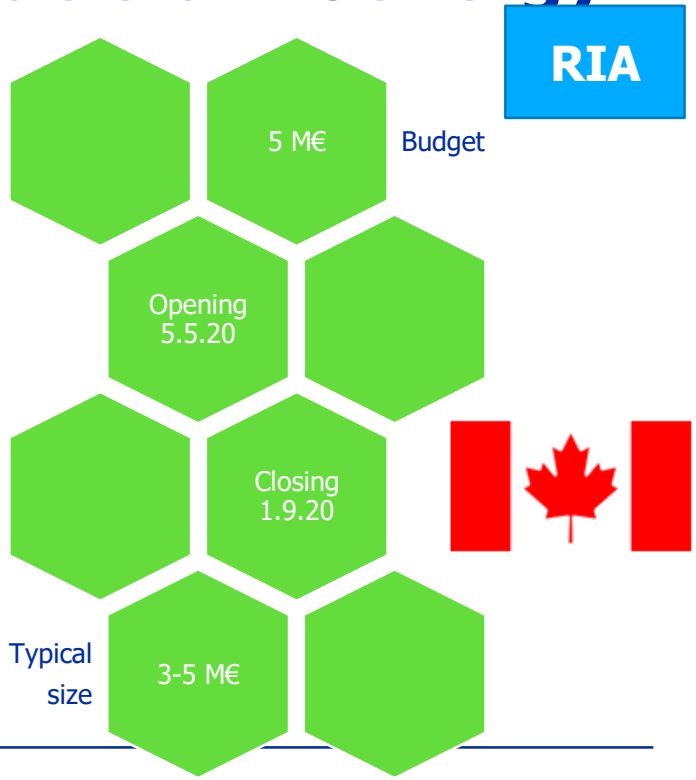
RIA

- Specific Challenge: Renewable energy is expected to grow faster than the capacity of the grid, thereby creating storage needs. The energy required to produce current renewable fuels reduces their competitiveness as alternatives to fossil fuels. The specific challenge is to increase the competitiveness of next generation renewable fuels through efficiently integrating unexploited renewable energy sources in their production process and to foster their use as a renewable energy storage option taking advantage of the existing infrastructure for gaseous and liquids fuels.
- Scope: Proposals will develop next generation renewable fuels for energy and transport, which improve substantially the performance regarding energy efficiency as well as cost of the conversion of direct renewable energy (e.g., sunlight) or renewable electricity and /or heat to liquid or gaseous renewable fuels from CO_2..
- Proposals are expected to bring the technology from TRL 3-4 to 4-5



LC-SC3-RES-36-2020: International cooper. with Canada on advanced biofuels & bioenergy

- Specific Challenge: ..advanced biomass supply chains and overcoming specific conversion technology barriers are needed ..for replacing the use of fossil fuels in the transport, power and heating sectors. /Mission Innovation Challenge 4.
- Scope: International cooperation with Canada for …biofuels and bioenergy while substantially decreasing the costs of the feedstock supply or the conversion process.
- Proposals should address at least one of the following issues:
  - Biomass-to-bioenergy applications including intermediate bioenergy carriers, advanced biofuels, heat and power generation. … All types of non-food/feed biomass including forestry, agricultural and their residues, organic fractions of municipal and industrial wastes can be targeted.
  - Thermochemical, biochemical and chemical processing of sustainable biomass to advanced biofuels focusing on the pre-treatment and the conversion process and in particular on reducing the respective marginal cost.
- Proposals are expected to bring the technology from TRL 3 to TRL 5



LC-SC3-RES-27-2020: Demonstr of advanced biofuels production from aquatic biomass

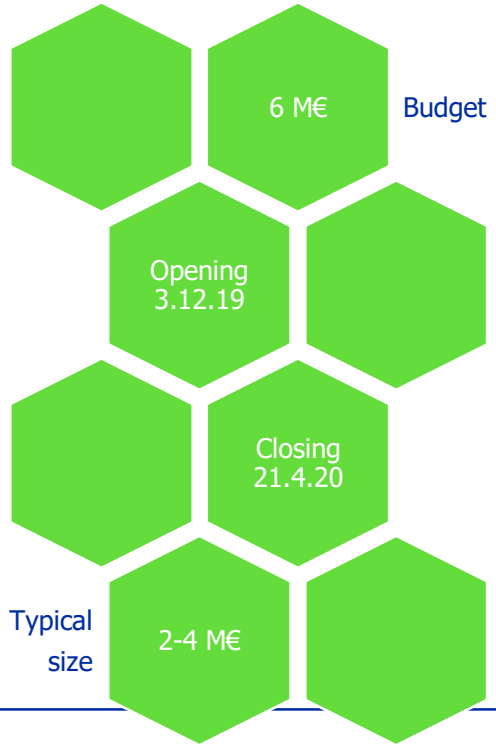
IA

- Specific Challenge: The security of feedstock supply is essential for the large-scale production of advanced biofuels which is a prerequisite for improving their competitiveness. The specific challenge is to increase the reliability of processes through diversifying and securing the sustainable supply of seaborne feedstock at large scale.
- Scope: Proposals will demonstrate aquatic advanced biofuel pathways which improve the economic viability of the subsequent energy production, including the upgrading technologies and valorisation of co-products. Proposals will address processes and technologies for advanced biofuels at a scale of 100-1000 tonnes from seaborne aquatic biomass such as macro-algae and/or fish residues in an energy-driven integrated biorefinery concept.
- …at least 70% energy output (fuel, heat and power) and environmental sustainability based on a life-cycle assessment. Long-term potential for large scale biofuel production should be considered.
- …from TRL 5 to 6-7

LC-SC3-RES-37-2020: Combined clean biofuel production and phytoremediation solutions from contaminated lands worldwide

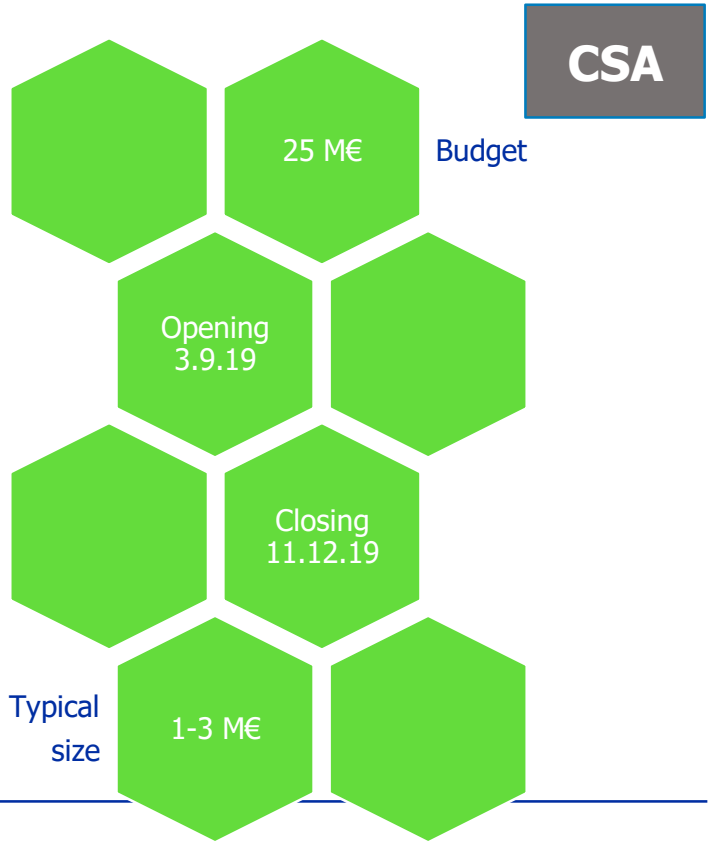
- Specific Challenge: Dedicated biofuel production at large scale depends on sustainable land availability that does not compete with other uses. Phytoremediation is a holistic approach that best de-contaminates lands from a vast variety of pollutants. The challenge is to bridge….. and restore lands for agricultural uses. /Mission Innovation Challenge 4.
- This is a global challenge that calls for international cooperation.
- Scope: Proposals will …optimise energy crops for phytoremediation by targeting different classes of known soil pollutants and integrate in the conversion process to biofuels a strategy to extract these pollutants in concentrated form. …Pilot-scale, small trials are expected for both clean biofuel production and phytoremediation processes.
- International cooperation is encouraged. Proposals are expected to bring technologies from TRL 3-4 to TRL 4-5

RIA



LC-SC3-RES-28-2018-2019-2020: Market Uptake support

- Specific Challenge: There is still a lot of market potential to be exploited. This potential is recognised in the "Clean Energy for all Europeans" package…barriers. These cover issues such as consumer acceptance, …necessity of making renewable energy solutions compliant with the new legislations, facilitation of… at the grid levels and also at the community or citizen level.
- Scope: The proposal will develop solution(s) addressing one or more of the identified challenge(s), for the entire renewable energy sector or focusing on a specific energy market, such as electricity, heating, cooling or renewable fuels. The proposed solution can be developed to address a local challenge but should have wide potential for reapplication. ..
- For all actions, the consortia have to involve and/or engage relevant stakeholders and market actors who are committed to adopting/implementing the results. ..



ADVICE AVAILABLE FROM NPC

HORISONTTI 2020
EU:n tutkimus- ja innovaatio-ohjelmat

BUSINESS FINLAND

What can NCPs do for you?

- NCPs provide general and specific info and guidance about calls and conditions, and offer Commission's annotated info behind calls.
- NCPs assist, advise and train eg. about project submission, budgeting and reporting. They can offer project proposal second opinion & pitching coaching.
  - Questions are welcome and the NCP has direct contacts to the European Commission for clarifications.
- Signposting and cooperation with other funding opportunities (national & international).
  - NCPs have a close national cooperation between Business Finland, Academy of Finland, VTT, Sitra, ministries and key stakeholders
  - NCPs have their colleagues in every EU country to help to find the relevant partner in different industry R&D domains.
  - Business Finland NCPs have the access to Business Finland customer portfolio (research and corporate projects) which helps to build either domestic and international consortia.
- NCPs monitor Finnish participation in H2020 in their respective theme/area
- NCP can provide call statistics, conclusions and reasons behind success rates. NCP has the access to proposal Evaluation Summary Reports which provide valuable information about different consortia and lessons to learn.
- Knows about the key technology platforms, PPPs and events in EU in advance.
- Finnish NCPs act as expert members in different thematic committees thus following where the Commission's R&D activities, funding instruments and conditions develop.
- The cooperation with other delegates and NCPs supports Finland's administration in discussions with the Commission.
- Also possibility to use national voice to foster Finnish research and innovation in the short term & in the long run (Horizon Europe and other, 2021–2027).
- NCPs : no conflicts of interest.

BUSINESS FINLAND

Sources of information related to Horizon-2020 Energy

WP2018–2020 Secure, clean and efficient energy [full text]

- https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-energy_en.pdf

WP2018–2020 Secure, clean and efficient energy [topic list]

- https://www.businessfinland.fi/globalassets/finnish-customers/horizon-2020/3-yhteiskunnalliset-haasteet/3-energia/hakutiivistelma-h2020-energia_2019_07_02.pdf

Finland's pages for Horizon-2020 and for the energy programme in Finnish

- https://www.horisontti2020.fi
- https://www.businessfinland.fi/suomalaisille-asiakkaille/palvelut/rahoitus/horisontti-2020/yhteiskunnalliset-haasteet/energia/

European Commission's pages "Funding and tenders"

- https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/h2020

The National Contact Point at your service:

Tom Warras

Reijo Munther

Etunimi.sukunimi@businessfinland.fi

https://www.horisontti2020.fi/