



Flagship and H2020 Battery Calls Advisory Group Meeting

Dr. Orkun HASEKİOĞLU
Advisor to the President, TÜBİTAK
Ankara, 25.04.2019

Programme Overview



Time	Dur.	Title	Given by	Venue	Part.
9:00	25'	Welcome	Prof. Hasan Mandal President, TÜBİTAK	Feza Gürsey	All
	20'	Flagship on Battery Tech. Battery 2030 Coordination Support Action	Prof. Kristina Edström Uppsala University	Feza Gürsey	All
9:45	15'	Break and networking session		Foyer	All
10:00	20'	Battery Research at TÜBİTAK & H2020 Battery Calls in 2020	Dr. Orkun Hasekioğlu Advisor to the President	Feza Gürsey	All
	20'	European Technology Innovation Platform - Batteries Europe European Ecosystem	Ilka von Dalwigk InnoEnergy	Feza Gürsey	All
	20'	Battery R&D Activities - RINA Consulting (industry perspective)	Donato Zangani Manager at RINA Consulting	Feza Gürsey	All
	15'	TR Presentations x 2	13 – 8 min presentations by the academia and industry		
11:15	15'	Break and networking session		Foyer	All
11:30	90'	TR Presentations x 11		Feza Gürsey	All
13:00	60'	Networking lunch		Foyer	All
14:00	120'	Exchange of ideas		Rooms	
16:00	15'	Closing	Dr. Orkun Hasekioğlu	Feza Gürsey	All
16:15		End of the day			

Batteries with numbers

250B Euro: Annual European Battery Market

40%: share of batteries in an electric car cost

Over 1 Billion Euro: Amount of support by the EC on batteries in the Battery Flagship

About 15,000 MWh: European battery manufacturing capacity (2017 figures by Bloomberg)

MWh capacity of manufacturing factories
■ Under construction ■ Announced

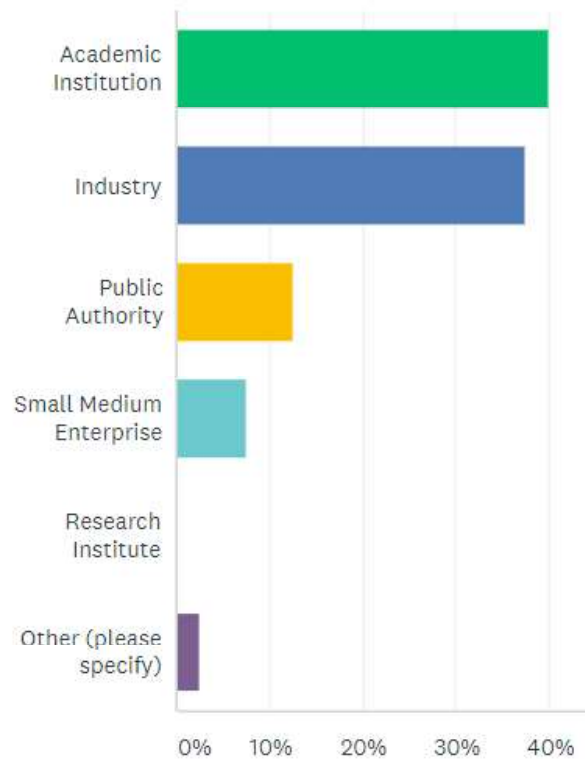


Audience with numbers



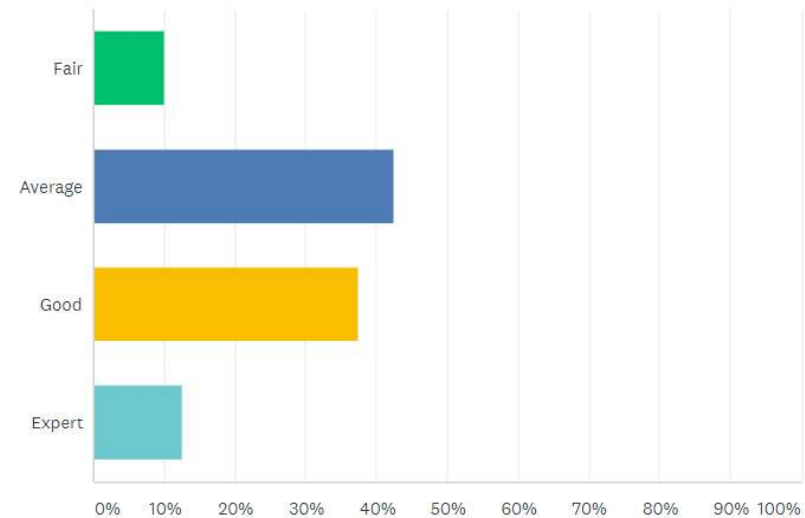
What is your organisation type?

Answered: 40 Skipped: 0

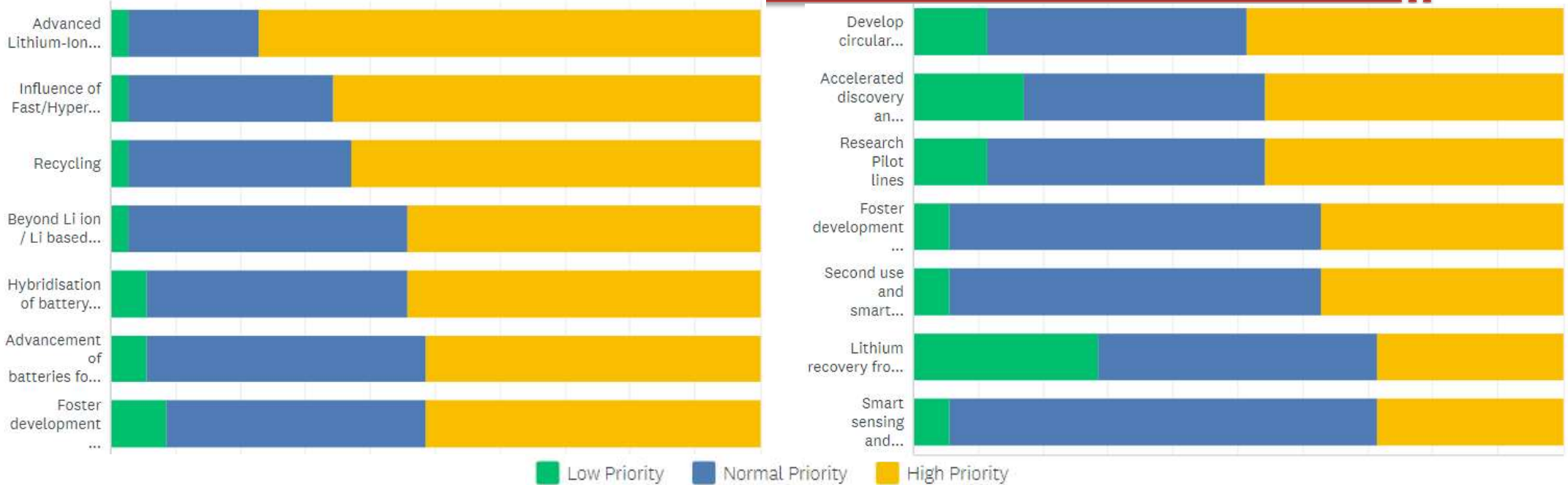


How would you self-assess your level of Knowledge about H2020?

Answered: 40 Skipped: 0

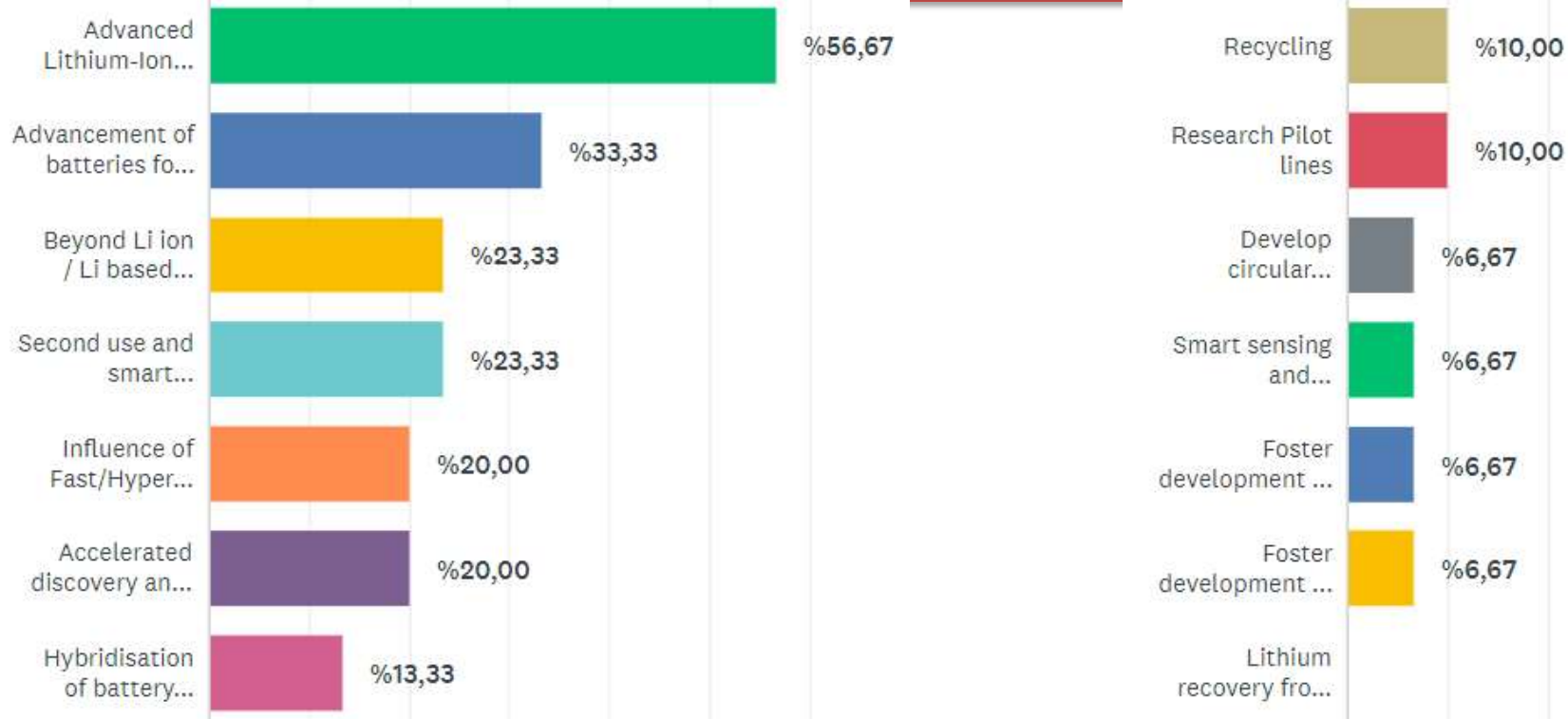


In your opinion how do you prioritize the following European Battery policy initiatives (SET plan):



- Advanced Lithium-Ion Batteries for e-mobility
- Influence of Fast/Hyper charging of Li ion batteries on materials and battery degradation
- Advancement of batteries for stationary energy storage (ESS)
- Beyond Li ion / Li based batteries for e-mobility
- Develop circular economy and de-bottleneck availability of critical raw materials
- Lithium recovery from European geothermal brines and sustainable beneficiation process for indigenous hard rock occurrences of lithium
- Accelerated discovery and design of battery materials, interphases, interfaces and concepts
- Smart sensing and self-healing functionalities
- Recycling
- Foster development of materials processing techniques and components for fast and compatible with present mass production lines
- Foster development of cell and battery manufacturing equipment
- Research Pilot lines
- Hybridization of battery systems for stationary energy storage
- Second use and smart integration of smart grid

Please indicate which areas should be the priorities in the battery R&D activities in Turkey?

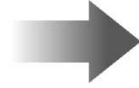
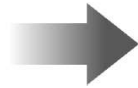


Advanced Lithium-Ion Batteries for e-mobility
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H2020 and National Coordination Office

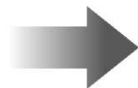
EU Framework Programmes



FP 6

2002-2006
(5 years)

19,1 Billion €



FP 7

2007-2013
(7 years)

53,2 Billion €



Horizon 2020

2014-2020
(7 years)

76 Billion €

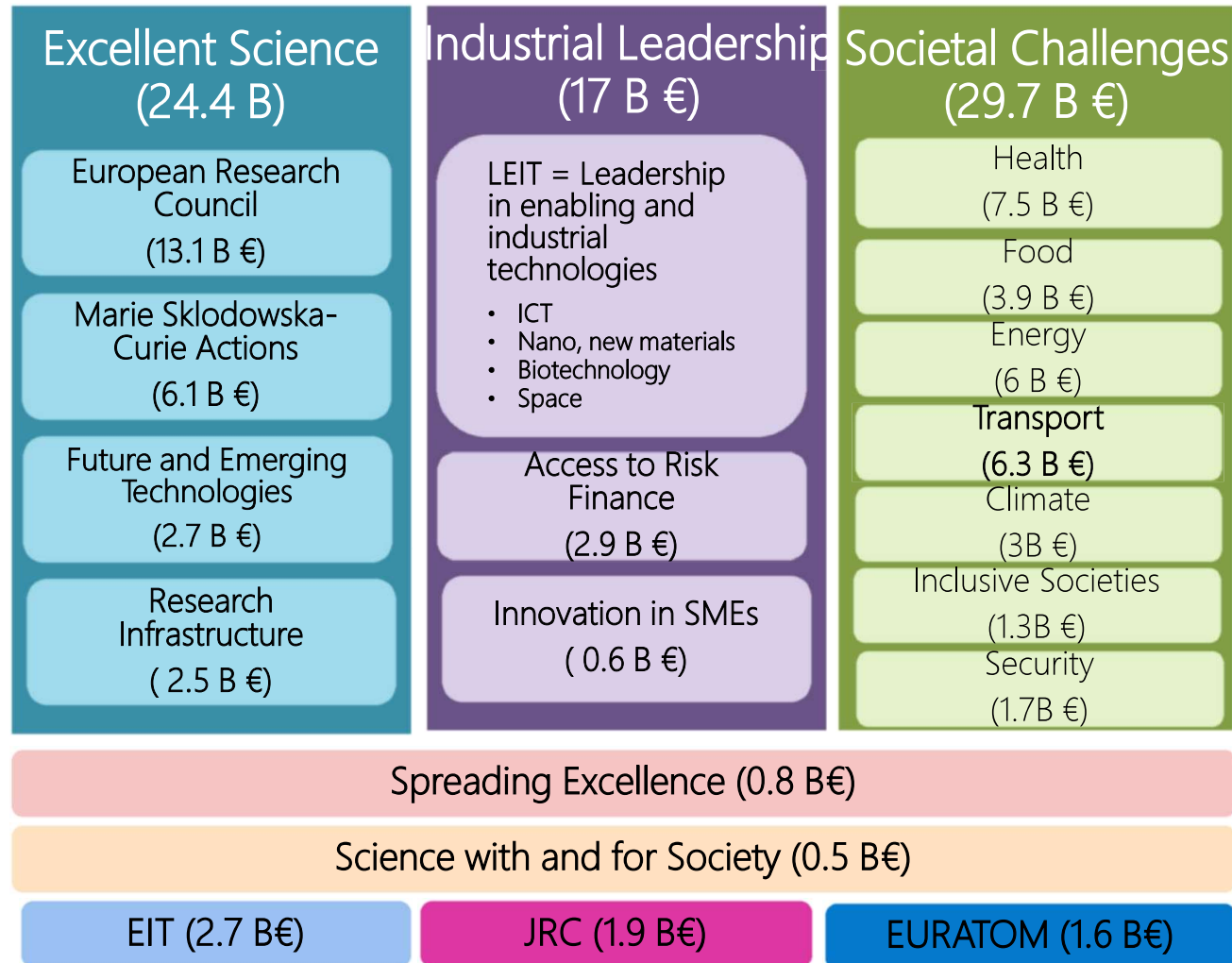


Horizon Europe






2021-2027
(7 years)

120 Billion €

Horizon2020 - Pillars



TUBITAK H2020 Promotion and Award Programmes

	Objective	Scope	Amount
<u>Travel Support</u> 	Involvement in consortia	Plane tickets, accommodation and inner-city transportation, conference fee, visa expenses, departure fee, daily allowance	Max. 1.500€/Travel
ERC Principal Investigator 	Improving the quality of ERC projects	Training for preparing and submitting project proposals, Pre-evaluation Service, Interview Rehearsal Support	Max. 16.500€/Project
Marie-Curie Pre-evaluation 	Improving the quality of Marie-Curie Individual Projects (IF, COFUND)	Improving the project proposal form	Max. 8.000€/Project
<u>Coordinator Support</u> 	Increasing the number of coordinators in multi-partner projects and SME projects	Training for preparing and submitting project proposals, Pre-evaluation Service, Project Writing Service, Organization Support, Travel Support	Max. 33.000€/Project
<u>Success and Above- Threshold Reward</u> 	Promoting success and re-application, Increasing the budget share	All Project Partners With Above-Threshold Scores or Who were awarded by the EC	Above threshold. Max. 7.000 €/Project Success (x2 Coordinator). Max. ~350.000 € /Proje
ERC Awards	Triggering ERC success	All ERC Project Coordinators With Above-Threshold Scores or Who Have Obtained Project Support	Above threshold. Max. 12.000€/Project Success. Max. ~%9/Project



Competencies of TUBITAK Marmara Research Center (MAM)

MAM Battery Technologies R&D Laboratory



The Battery Technologies R&D Laboratory operates under TÜBİTAK MAM Energy Institute Power Electronics and Control Technologies department. Develops battery technologies and provides industrial testing services for a wide variety of batteries (Pb-acid, NiCd, NiMH, Li-ion etc.).



MAM Battery Technologies R&D Laboratory



1. Active material development laboratory for Li-ion, Na-ion, LiS batteries and supercapacitors)
2. Anode and cathode production laboratory (mixing, coating and hot-pressing)
3. High-purity electrolyte development laboratory for Li-ion batteries
4. Electrochemical characterization laboratory
5. Design and control systems laboratory
6. Prototyping laboratory for pouch cells
7. Battery electrical test systems laboratory
8. Safety and mechanical testing laboratory

850 m2 area with a 320 m2 dry-room



Ongoing Research



1- Cathode material development for Li-ion and sodium-ion batteries

a. *Layered Oxides (NMC, NCA, etc)*

b. *Olivins (LFP, LMP, LCP)*

2- Anode Materials for Li-ion batteries

a. *Nano-structured carbon materials (Graphene, Carbon Nano Tubes, etc.)*

b. *Si-based nano-materials (nano-powders, nanowires, nanotubes, etc.)*

c. *Sn and Fe₃O₄ based nano-materials*

3- Li-ion cell design for electric vehicles and space applications

4- High Voltage Electrolytes

5- Lithium-Sulfur (LiS) batteries

6- Li-air batteries

7- Battery management system (BMS) electric and thermal design

8- Modeling and Optimization for Li ion batteries



THANKS



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