

Uses of graphene by an energy utility

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As energy markets move away from fossil fuels, new technological needs emerge. Companies aiming at the sustainable production, storage, transport or use of energy require disruptive innovations in order to maintain services to existing customers and being able to provide energy to people energy insecurity situation. ENGIE, as a major energy player, develops its businesses (power, natural energy and energy services) around a model based on responsible growth to take up today's major energy and environmental challenges: meeting energy needs, ensuring the security of supply, fighting against climate change and maximizing the use of resources.

Innovation is a key assets to achieve this development and as one of the most active domain of research and development, nanotechnologies are a useful part of the toolset at hand. Quick development of graphene activities in the world of energy is real milestone for this conservative industry. In that perspective, this talk will try to give an overview of the potential applications of graphene that may quickly find usefulness in the energy industry.

Through a review of the current developments of graphene based devices and materials, we will highlight potential applications in energy storage, energy transformation, and associated services. We will also propose new processes and applications allowed by the uncommon

properties of graphene in sensing, catalysis, electrochemistry, thermal transfer or electrical conductivity.

Finally, we'll expose through which processes and framework an international industrial group such as ENGIE can become an early adopter of emerging technologies developing specific partnerships.

References

- [1] A. C. Ferrari et al., *Nanoscale*, 7 (2015) 4598