

EUROPE NEEDS CROWD-BASED INNOVATION FOR A COMPETITIVE ENERGY TRANSITION

Thomas Pellerin-Carlin | *research fellow at the Jacques Delors Institute*
Pierre Serkine | *End-user Architect at KIC InnoEnergy*

Europe is at a crossroads. It faces a multifaceted crisis with rising distrust in representative democracy, doubts about the purpose of the European project, an urgency to tackle climate change, and a poisonous definition of competitiveness¹. In this context, the [Energy Union Research Innovation and Competitiveness Strategy \(EURICS\)](#) can kill three birds with one innovative stone: to boost its competitiveness, Europe should become the global provider of low-carbon solutions, an objective best achieved democratically.

To make the energy transition² happen, Europe needs innovative companies³. Yet, to paraphrase Mariana Mazzucato, companies sometimes behave like pussycats fearful of change, rather than being the innovative tigers who bring novelty into people's life. Transforming business pussycats into energy transition tigers is key for a genuine energy transition⁴ and involves to **complete a cultural paradigm shift within all organisations: demystify failure and unleash the entrepreneurship potential lying in researchers and employees.**

How best can the EU foster radical innovations? First, the EU should not idealise the Silicon Valley as its model of Venture Capital and start-ups is the "wrong model for clean energy innovation"⁵. Second, both academic literature and business experiences suggest that innovation is more efficient when it is open. Third, the EU innovation policy would be more legitimate if it were more democratic. The EU should thus set its own innovation path, with one element being a citizen-based instrument to steer European energy innovation: **a digital platform where innovators and citizens can co-create** innovations that are democratically selected; and financed by citizens, business angels, local communities and the European Union. **On this platform, EU budget allocation would be very simple: where an EU citizen invests one euro, the EU invests one euro.**

1. Innovation as the new cornerstone of the EU competitiveness policy

European energy incumbents are struggling with **outdated business models** that cannot cope with the current decrease of EU primary energy and electricity consumptions, which is a long-term trend that requires a shift in energy suppliers' strategies. For them, as for any company, competitiveness cannot anymore be reduced

to cost-minimisation, it stems first and foremost from innovation.⁶

To prosper, all organisations must **harvest the dormant innovative potential** present in their current workers while attracting and retaining talents⁷. This requires to reward and foster entrepreneurship while demystifying failure. As successful innovation increasingly originates in agile and dynamic relations, stiff governance become less relevant. To remain competitive, any organisation needs to consider itself as an element of a multi-stakeholder ecosystem composed by academics, entrepreneurs, venture capitalists, civil servants and elected officials. This is where the EU can play a better role to develop a more functional ecosystem for energy innovation.

2. Democracy: the citizen at the centre of the Energy Union

Democracy is a system where decisions are taken for the people, by the people⁸. The European Commission puts the Energy Union on a similar path: "Most importantly, our vision is of an Energy Union with citizens at its core, where citizens take ownership of the energy transition"⁹. In practice, suiting the actions to the words is tricky and the European Commission now needs to answer a tough but necessary question: how can the EU energy innovation policy be done *for citizens*, and *by citizens*?

Innovation for citizens. So far, the EU energy innovation policy has mostly focused on pushing technologies, thus leaving aside what matters for people: the fulfilment of energy services such as heating, mobility or lighting. An innovation strategy for citizens thus starts by focusing on what they actually need, how they use energy, what their energy behaviours are and how such behaviours can change. An innovation strategy for citizens should then seek that public actions aim to be as just as possible, i.e.

trying to be to the greatest benefit of all, and especially to the least-advantaged members of society.

Innovation by citizens. Citizens are increasingly defiant vis-à-vis representative democracy and politicians riding the wave of popular distrust are proliferating all over Europe. In this political context, the EU should **make a simple and disruptive strategic choice: answer defiance with democracy, really put citizens in control of energy union innovation choices.**

With citizens truly at its core, the Energy Union would not only be more democratic and legitimate, but also more effective and efficient. Citizen's involvement is indeed a way to mitigate the over-influence of some lobbies as engaged citizens would help policy makers to adopt policies serving the European peoples, not merely fitting the interests of current main energy stakeholders. It would moreover increase the chances that citizens not simply accept but desire and power the energy transition¹⁰, enabling a **change from NIMBY to PIMBY¹¹**.

3. What EURICS can do: propel crowd-based innovation for the Energy Union.

Adopting an open innovation approach does not discard the expertise of innovative firms, researchers and laboratories. It rather highlights the value of citizens as innovators and **provides them with an immense arena** to share their ideas, bring their skills, while rewarding them tangibly (financially) and intangibly (self-esteem, reputation, peer-recognition). To do so, the EU should empower its citizens to co-create, select, finance and implement innovations.

Crowdsourcing can be used to co-create an idea: the original idea is proposed, contributors collaborate, share comments and thoughts for improvement. This can be done via an open digital platform, inspired by tools already existing in companies like [Engie](#), [EDP](#) or [ENEL](#).

The EU should therefore launch a **digital platform where all ideas can be freely co-created by everyone**. It would seek to have a **large number of diverse participants** with various backgrounds and cultures to foster "outside the box" thinking and cross-fertilization that can lead to unexpected breakthroughs¹².

Involving more people in the process is also essential to favour a swift and efficient implementation of innovations. This is partially due to the IKEA effect¹³: the more we contribute to an endeavour, the more we tend to value its outcome. In the end, contributors to this platform are likely to become grassroots backers of innovation.

The selection of the innovations worth pursuing should resort to the very foundation of our democracies: a vote by all the platform's contributors. This selection can be very quick as to reduce time-to-market while ensuring a **very good fit between market needs** (represented by citizens

themselves) **and innovations**. Gamification¹⁴ mechanics should be used to engage many and diverse citizens on this platform, to cultivate interdisciplinarity, promote and reward the necessary cultural shift.

To finance innovation, crowdfunding¹⁵ can play a greater role. It is a booming sector that could even **become more important than venture capital in 2016¹⁶**. It also effectively **empowers citizens by involving them directly**, both in the innovation process and in the energy system¹⁷.

Crowdfunding brings additional benefits. First, it is an effective way to get a **market validation** of a project, to check its adequacy with people's needs. Second, it helps to **identify and build a community of users¹⁸** who can actively support the innovation project and play an ambassador role. Thirdly, it can be fast and therefore **reduce the time to market**. Last but not least, the platform approach is a suitable solution to coordinate multi-level, multi-discipline and multi-national players, **simplify the governance and improve the funding of innovation** by avoiding overlaps and gaps.

In practice, this platform would gather four categories of crowdfunders. **EU citizens** who fund the projects they like best. **EU public money** would be allocated by citizens through a simple rule, such as: for each euro invested by a citizen in a project, the EU pours one euro. **Business angels and venture capitalists** should be involved to increase the leverage effect and demonstrate that citizen-chosen projects can be good investment opportunities. **Local authorities**, especially cities, can co-finance a project, especially those requiring to engage local communities to test the innovation before full deployment or commercialization.

Once an idea is produced, selected and financed, it still has a long way to go to fulfil its potential to become an innovation. The current EU trend is to look at the US with envy, and hope that venture capital (VC) and start-ups would bring innovation to life¹⁹. Problem is, VC does not work well for the US energy sector, and start-ups are no panacea.

The current US VC model is the "wrong model for clean energy innovation"²⁰. Its Achilles heel is the reluctance from large energy corporations to mimic their pharmaceutical counterparts: invest in innovation by acquiring start-ups that have already passed important milestones but yet require years of further funding and development.

Start-ups in general and unicorns²¹ in particular are considered to be the engine of the new economy. Yet, recent evolutions suggest that this may constitute a bubble about to burst²². Start-ups moreover encounter obstacles that would not exist within bigger companies, such as too high Return-on-investment expectations sometimes set by venture capital firms, disregarding economic rationality and the ability to manage growth²³.

The EU can learn from the US as start-ups and VC are undoubtedly essential as one element of the innovation ecosystem. But to boost energy innovation in Europe, the EU should set its own path, one that includes **intrapreneurship**²⁴. Intrapreneurship can scale-up an innovation at a faster pace than start-ups as the intrapreneur can rely on the financial, legal and commercial backing of its mother-company. If intrapreneurs circumvent the hurdles of private bureaucracies, breakthrough innovations can be rolled-out fast, allowing European companies to stay ahead of the global energy transition race and keep on winning markets all over the world²⁵. Building on existing tools, such as Google “20% time” programmes, Facebook-like “Hackathons”²⁶ and Fab Labs²⁷, **intrapreneurship can be a channel to unleash the dormant innovative potential** present in workers. It facilitates the transformation of the incumbents, a transformation necessary to dodge painful destruction of financial and human capitals that will eventually harm those who keep digging their heads in the sand. In the end, this transformation is also about making a more social energy transition by avoiding the lay-off of thousands of workers that will lose their jobs if their companies fail to adapt.

Conclusion

The energy transition is a key challenge in the 21st century. It aims at decarbonising our energy systems to save ourselves from catastrophic climate change, while reducing and better managing our energy dependence to foreign countries. It is also a matter of competitiveness as energy innovation policy can be Europe’s offensive approach to competitiveness, a policy that helps European companies to lead the energy transition race, conquer global markets and thus create more and better jobs for Europeans.

EURICS must be an ambitious strategy allowing Europe to make a more democratic, social, competitive and swifter energy transition. In this regard, it must look for ways to put citizens at its centre and to ramp up the transformation of energy incumbents.

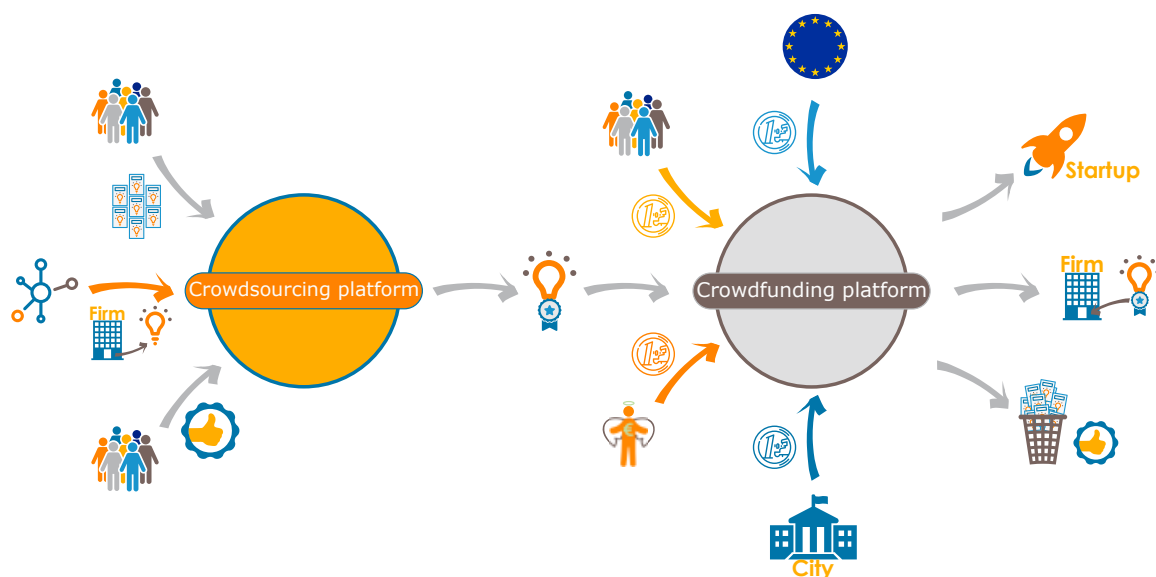
This paper suggests a tool to do just that: a digital platform to allow citizens to co-create new and better innovations, select and crowdfund innovations with both their and the EU’s money, while fostering intrapreneurship.

In operational terms, the European Commission should launch a pilot-project to be operational as soon as 2017. This would give time to test the project and, if successful, it should be scaled-up in view of the next Multiannual Financial Framework 2021-2028.

If well implemented, this proposal would yield important strategic results: more and better energy innovation projects for the European and global energy transition; a real-life demonstration that the EU is at the forefront of innovative thinking and wishes to give European citizens a greater and more direct say in concrete decisions.

All in all, the EU ship has a capable crew of entrepreneurs and researchers, and enough public and private investment capacity that can blow in its sail to safely navigate towards a carbon-neutral future. The Energy Union provides the right compass, but Europe should set its own course: ignoring the US Sirens’ songs and avoiding the reefs of immobilism, the EU must truly place citizens at the helm to keep the heading. Only then can Europe lead the global energy transition race.

FIGURE 1 ▶ A citizen-centric energy innovation process in tune with the times



Source: T. Pellerin-Carlin & P. Serkine, Jacques Delors Institute

1. Thomas Pellerin-Carlin and Pierre Serkine, "From Distraction to Action – towards a bold Energy Union Innovation Strategy", *Policy Paper No. 167*, Jacques Delors Institute, June 2016.
2. For a comprehensive take on the energy transition and the Energy Union, cf. Sami Andoura & Jean-Arnold Vinois, "From the European Energy Community to the Energy Union", *Studies & Reports No. 107*, Jacques Delors Institute, January 2015.
3. The energy transition requires much more than innovative companies – that constitutes one focus of this paper. Among other elements that are required to achieve the energy transition and abide by the 2015 Paris Agreement, more basic research and more efficient research should be pursued. Cf. Thomas Pellerin-Carlin and Pierre Serkine, *op.cit.* p. 27-29.
4. The term 'energy transition' constitutes the mainstream expression to talk about the transformation of our energy system from high-carbon systems relying on fossil fuels (i.e. coal, oil and gas) to low/zero-carbon energy systems relying on energy efficiency and renewables. The Energy Union aims at undertaking this energy transition, which would arguably constitute the first energy transition ever performed in human history. Cf. Thomas Pellerin-Carlin and Pierre Serkine, *op.cit.* p. 17-18.
5. B. Gaddy, V. Sivaram and F. O'Sullivan, *Venture Capital and Cleantech: the wrong model for clean energy innovation*, MIT Energy Initiative Working Paper, July 2016.
6. As Donald Kuratko puts it: "The ability to continually innovate... has become the source of competitive advantage." Donald Kuratko, *The entrepreneurial imperative of the 21st century*, Business Horizons, 2009, p. 421. For a complementary view on innovation as the cornerstone of competitiveness, cf. Industrial Innovation for Competitiveness (i24c), *Scaling-up innovation in the energy union to meet new climate, competitiveness and societal goals*, May 2016.
7. Phillips, Jack J., and Lisa Edwards. *Managing talent retention: An ROI approach*. John Wiley & Sons, 2008. p.1.
8. The first occurrence of this definition can be traced back to the funeral oration allegedly given by Périclès in 431BC. Cf. Thucydides, *The Peloponnesian War*, Book II.
9. European Commission, *Energy Union Framework Strategy*, 25 February 2015, p.2
10. For instance, in Germany, around half of the renewable capacity installed between 2000 and 2010 has been installed by citizens. Cf. Noémie Poize and Andreas Rudinger, *Projets citoyens pour la production d'énergie renouvelable : une comparaison France-Allemagne*, IDDRI working Papers, 2014.
11. The acronym 'NIMBY' means 'not in my backyard' and is used to name individuals –or organisations- who favour something (e.g. wind power development) as long as it does not directly impact their lives (e.g. people opposing a windfarm from being built in their area). By contrast, our acronym 'PIMBY' means 'please in my backyard' and can be used to name individuals –or organisations- who suit the word to the action by both advocating for something and literally doing it (e.g. investing money in a windfarm through a crowdfunding campaign).
12. Andrew King and Karim R. Lakhani, *Using Open Innovation to Identify the Best Ideas*, MIT Sloan Management Review, fall 2013, pp.41-48
13. Norton, M.J., Mochon, D. and Ariely, D., 2011. *The 'IKEA effect': When labor leads to love*. Harvard Business School Marketing Unit Working Paper, (11-091).
14. Contrary to a game, which is made to entertain users, gamification is made to engage them, using gaming mechanics such as collaboration, competition and rewarding, to channel and coordinate participants. The gamification dimension could also allow to institutionalise the multidisciplinary and social diversity in the platform, through the use of various badges (for the socio-economic background, the gender, the age, the type of professional background etc.).
15. Crowdfunding pools financial contributions from a large number of people.
16. Chance Barnett, *Trends show crowdfunding to surpass VC in 2016*, Forbes, 09 June 2015.
17. Crowdfunding schemes varies depending on the platforms, as it can be equity-based crowdfunding (energy cooperative) or lending-based crowdfunding with a guaranteed return on investment. Whatever the scheme, this approach enhances the appropriation of energy infrastructure, mitigating the NIMBY effect and contributing to transform it into a PIMBY effect. Cf. Kristiaan Versteeg, *Tracking renewable energy crowdfunding*, Solar Plaza, 15 September 2015.
18. See for instance, Peter Hesselndahl, *The new normal: from products to platforms and processes*, 10 September 2014.
19. Thomas Pellerin-Carlin and Pierre Serkine, *op.cit.* p. 5-6.
20. B. Gaddy, V. Sivaram and F. O'Sullivan, *op. cit.*
21. A unicorn is a young company owned by venture capital firms and valued over 1 billion dollars. When a unicorn makes an Initial Public Offering (IPO), it stops being owned by venture capital firms only, thus exiting the category.
22. Thomas Pellerin-Carlin and Pierre Serkine, *op.cit.* p. 5-6.
23. Thomas Pellerin-Carlin and Pierre Serkine, *op.cit.* p. 34.
24. Intrapreneurship is the fact of acting as an entrepreneur while being employed in an existing company.
25. As they recently did in Chile where this country's greatest ever power auction was largely won by two EU companies. Cf. Ryan Dube, *Chile awards contracts in its largest power auction*, The Wall Street Journal, 17 August 2016.
26. Internal hackathons are used by companies such as Facebook, Google, or Microsoft. The well-known "Like" button popularized by Facebook is arguably the most famous outcome of a hackathon.
27. A Fab Lab is a workshop where machines, materials and electronic tools are available for people to design and produce unique goods through digital fabrication. A bottom-up approach to technology, Fab Labs aim to unlock technological innovation and promote social engineering.

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Thomas Pellerin-Carlin, *Synthesis of the Energy Union conference*, Jacques Delors Institute, June 2016

PUTTING THE CONSUMER AT THE CENTRE OF THE EUROPEAN ENERGY SYSTEM

Thomas Pellerin-Carlin, *Synthesis of the Energy Union conference*, Jacques Delors Institute, June 2016

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Thomas Pellerin-Carlin and Pierre Serkine, *Policy Paper No. 167*, Jacques Delors Institute, June 2016

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Maroš Šefčovič, *Tribune*, Jacques Delors Institute, June 2016

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