

# Future EU Budget funding and finance for low-carbon energy innovation

**Jesse Scott**

Programme Director for Energy and Climate, demosEUROPA – Centre for European Strategy

The EU Budget multiannual financial framework which is currently under negotiation in Brussels will define approximately €1 trillion of EU spending commitments until 2020. Among the key objectives of the “smart, sustainable and inclusive” Europe 2020 Strategy adopted by European leaders in 2009 is delivery of the 20/20/20 EU climate targets legislated in 2008. Will the new multiannual financial framework therefore reflect these targets, in particular offering support for research, development and innovation (RDI) in low-carbon energy technologies? Will these programmes help Poland?

The EU Budget is rather small, and the European Commission emphasises that it needs to focus on “valued added”: those projects which would not happen through private investment or the national public sector alone. Typically, value is added by focusing on major transnational projects and by using EU funding/finance to leverage private commitments or national public funds. In this way, the EU can make a crucial difference – if it can identify the

right programmes and projects to support: those which would not happen without its extra contribution, and which will deliver the most useful results. This paper reviews the proposals on low-carbon energy RDI in the draft Budget multiannual financial framework put forward by the Commission in June 2011 to the Member States (Council of Ministers, led by the Polish Presidency) and the European Parliament. The Commission’s proposals have both strengths and weaknesses, and can be significantly modified by the Budget negotiators before their final agreement in late 2012.

## **European Commission proposals for low-carbon energy RDI**

The main source of EU Budget funding for RDI in the 2007-13 multiannual financial framework is the €55 billion 7th Framework Programme (FP7), of which just 4% has been spent on energy<sup>1</sup>.

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1. Eurelectric, Position on the Post-2013 EU Multiannual Financial Framework “Europe must live up to its commitments”, May 2011.





There will not be an 8th Framework Programme in the future multiannual framework. Instead, in line with the Europe 2020 Strategy and the Innovation Union Communication from 2010<sup>2</sup>, the Commission proposes to create a new Horizon 2020 Common Strategic Framework for Research and Innovation (CSFRI), updating and replacing all existing EU RDI programmes across all economic sectors. The Commission also recommends a 46% funding increase for RDI, to a total of €80 billion during 2014-20. This sum will include both traditional cash grants, and EU capital investment in financial risk-sharing instruments managed by the European Investment Bank (EIB).

At this stage of the negotiations, the Commission has not divided the CSFRI among sectors. But it is expected that funds for low-carbon will be substantially boosted. Most likely, the CSFRI will incorporate increased FP-type grants for fundamental research in low-carbon energy. The Commission also specifically highlights the EU Strategic Energy Technology Plan (SET-Plan) for major low-carbon “demonstration” projects<sup>3</sup>. And it is logical that the recently launched Sustainable Industry Low-Carbon Initiative (SILC)<sup>4</sup> will be included.

Each of these low-carbon energy programmes (FP-type, SET-Plan and SILC) can be beneficial to Poland. But there are five key design issues which need to be considered.

**1.** How can Polish small and medium sized businesses (SMEs) with limited research capacities

compete for EU grants against the multinational energy technology companies headquartered in France and Germany?

**2.** Could Poland compete more effectively for EU grants which target “I” rather than “R&D”? That is, programmes which fund “innovation impact” through technology demonstration, validation and deployment projects in high-carbon power plants, factories and cities (rather than “research excellence” in the form of fundamental breakthroughs taking place in laboratories).

**3.** The Innovation Union Communication emphasises “a broad concept of innovation,” including access to intellectual property (IP), new business models, design, branding and services, especially for SMEs. Should there be wider/public access to IP which has been developed using EU funds? And should EU funds also support non-technological innovation, e.g. in business models for low-carbon energy?

**4.** What can be the role of EIB financial instruments, e.g. equity and risk-sharing in place of cash grants?

**5.** What will be the role of EU Structural Funds in continuing to support additional decentralised low-carbon energy RDI programmes?

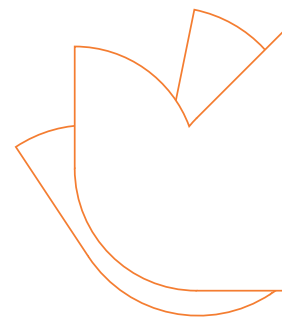
In light of this, the paper also suggests that the Polish government and national stakeholders need to prepare clear positions on these issues.

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2. European Commission, Communication on the Europe 2020 Flagship Initiative Innovation Union, COM(2010)546, see [http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication\\_en.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication_en.pdf#view=fit&pagemode=none)

3. See [http://ec.europa.eu/energy/technology/set\\_plan/set\\_plan\\_en.htm](http://ec.europa.eu/energy/technology/set_plan/set_plan_en.htm)

4. See [http://ec.europa.eu/enterprise/newsroom/cf/itemlongdetail.cfm?item\\_id=5161&lang=en](http://ec.europa.eu/enterprise/newsroom/cf/itemlongdetail.cfm?item_id=5161&lang=en) and European Commission press release IP/11/680.



## Poland's track record and the role of SMEs

In 2007 Poland's gross national expenditure – public and private – on all sectors of R&D was just €1.76 billion (0.77% of the EU total)<sup>5</sup> Germany's was €61.48 billion (26.78% of the EU total). Meanwhile, in 2007-9 Poland won under 2% of total EU FP7 grants<sup>6</sup>. The proportion is similar for energy-specific FP7 projects.

Crucially, not enough Polish companies have applied for FP7 grants. During 2007-9 Poland submitted only 925 bids seeking a total of €166.2 million from the EU, compared to 6677 bids from Germany seeking €2.55 billion. Additionally, German and French FP7 bids had an average 25% success rate, compared to the EU average of 20% success, while Polish bids won funding 9-15% of the time (approximately on a level with Slovenia, Greece and the Czech Republic)<sup>7</sup>.

This pattern of low FP7 applications and relatively low success may be because Poland has many SMEs, which often are less resourced and less experienced in applying to EU funding competitions. Certainly the question of how to improve SME access to EU RDI funds is widely acknowledged and studied throughout Europe, e.g. in a 2009 report for the Commission specifically investigating SME participation in FP6 (non-nuclear) energy projects. This report has interesting results for Poland to consider. The report found that the most important issue is cash flow and financial risk. Participating in an FP

project “usually has severe financial consequences for an SME due to the amount of money involved relative to their financial capabilities. Projects have to partly be pre-financed by each participant. This puts many SMEs in a difficult financial position. Late payments can even worsen this situation”. The report also discovered that SME participation improves the results achieved from FP energy grants “by significantly contributing to successful project execution and improved technological development”. SMEs are shown to be more flexible, more committed to a project, more market oriented and more innovative. Overall, 85% of the interviewed SMEs said that participation had benefitted their organisation in terms of “improved knowledge development” and “improved international cooperation and partnerships.” Fully 87% were willing to participate again. On this basis, the report concludes that the biggest challenge is how to get non-participating SMEs interested and involved in EU applications for the first time<sup>8</sup>.

First and foremost, getting SMEs interested and involved in EU projects is the task of national business associations, which can brief members on opportunities and can share know-how about writing successful applications. A crucial question is therefore whether Poland has (or can build) an equally strong social infrastructure of business associations as some of its European neighbours?

In addition to cash flow issues, Polish (and other) companies also complain about the competition

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5. See [www.kpk.gov.pl](http://www.kpk.gov.pl)

6. European Commission, Directorate-General for Research, Third FP7 Monitoring Report, July 2010, see [http://ec.europa.eu/research/evaluations/pdf/archive/fp7\\_monitoring\\_reports/third\\_fp7\\_monitoring\\_report.pdf](http://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/third_fp7_monitoring_report.pdf). See also European Commission, Communication on the Europe 2020 Flagship Initiative Innovation Union, COM(2010)546, statistics on business R&D intensity, *ibid*.

7. European Commission, Directorate-General for Research, Third FP7 Monitoring Report, *ibid*.

8. Partners for Innovation, Study on Role and Impact of Small and Medium Size Enterprises in Energy Research Framework Programme Projects, December 2009, see [www.partnersforinnovation.com/PDF\\_web/publicaties/091203%20Pfi\\_final\\_report\\_Role\\_impact\\_SMEs.pdf](http://www.partnersforinnovation.com/PDF_web/publicaties/091203%20Pfi_final_report_Role_impact_SMEs.pdf)



rules for EU funds involving heavy paperwork, audit procedures, and requirements for project partners in three countries (for value added). These issues can be tackled directly within the multiannual financial framework negotiation. During 2011-12, as part of the CSFRI proposal, the Commission needs to revise and update the RDI competition rules in a new EU Regulation, setting out detailed objectives, procedures and requirements. The first draft is due to be published in October. Will Polish stakeholders and government ministries therefore take this opportunity to communicate their views and ideas?

## Funding for “impact”

The SET-Plan was created on the initiative of Commissioners Andris Piebalgs and Janez Potocnik in 2007-8 as a major programme to accelerate the commercial availability of eight new power generation technologies which have the potential to significantly impact on carbon emissions by 2020: bio-energy, carbon capture and storage (CCS), electric grid, fuel cells and hydrogen, nuclear fission, solar, wind, and smart cities (including energy efficiency and e-cars). It should support €74 billion of projects over ten years.

Unlike FP7, the SET-Plan is not focused on new research breakthroughs, but on the “innovation valley of death”: the gap in technology development between small-scale research (pilot) projects and market deployment. This is where technologies like CCS need expensive large-scale “first of a kind” demonstration/testing in order to validate engineering performance and evaluate costs before the suppliers can design a commercial offer: e.g. a CCS pilot plant may be 30MW and cost €100 million, but only a 300MW demonstration costing €1 billion can prove

the technology sufficiently realistically for commercial deployment in 600MW or 800MW power plants.

The SET-Plan concept recognised four problems for low-carbon energy technologies.

**One:** that the key weakness in European innovation has not been research funding or market design, but investment in timely demonstration projects.

**Two:** that making an investment in a first-of-a-kind demonstration is distinct from investing in an early commercial deployment project, because the demonstration is subject to performance risk and has no guaranteed revenue stream.

**Three:** that the costs of demonstrations are sometimes beyond the means of any one company or country alone.

**And four:** that, optimally, low-carbon energy demonstration projects need to take place at or near the high-carbon industrial or urban sites where there is the greatest need for future mass deployment (usually a different location from the research laboratory).

The SET-Plan therefore aims for co-funding by private investors and public money from the EU and national budgets, approximately on a 50:25:25 ratio. This will depend, however, on finding €30 billion of additional public money – including at least €1.5 billion per year in the CSFRI from 2014. Meanwhile during 2010-13, the SET-Plan is mainly being implemented with EU funds from the ad hoc European Energy Programme for Recovery (EEPR) and the NER300 programme for CCS and innovative renewables – see PGE’s proposed Bełchatów CCS power plant<sup>9</sup>. Other

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9. The Belchatow CCS demonstration project has a €180 million grant from the EEPR, has applied to the NER300 for €380 million, and additionally has a €134 million contribution from the Norwegian government. This is matched by €123 million equity from PGE and €30 million from Alstom, towards a total of €610 million capital expenditure and €621 million in operating costs over ten years.



smaller SET-Plan projects are also available for bids, e.g. the current €40 million smart cities 2012 Call for Proposals for demonstrations of large-scale systems for urban heating and cooling supply (deadline 1 December 2011)<sup>10</sup>.

Launched in May 2011, the SILC fund will support similar early commercial and demonstration projects in the energy intensive manufacturing industry sector. It offers EU grants for up to 75% of costs (to a maximum of €950,000 per grant) for projects in industries affected by the ETS carbon market, e.g. cement, paper, chemicals etc. The SILC will be implemented in two steps: SILC/1 for 2011-13 will support projects which can achieve a short-term (3 year) impact by deploying technological and non-technological innovation measures to reduce carbon-intensity, without needing further research or demonstration; SILC/2 for 2014-20 will support mid- to longer-term demonstration projects. The Commission published the first SILC/1 Call for Proposals on 26 May (deadline 30 August 2011) aiming to select a maximum of three projects. Two further Calls for SILC/1 are expected in 2012 and 2013.

The EU's decision to focus these major programmes on innovation impact at high-carbon sites provides Poland with a clear opportunity. Do Polish stakeholders in cities, factories and the power sector therefore have a list of their candidate low-carbon demonstration projects which could be eligible for SET-Plan or SILC funding? And do they have ideas for additional which projects they would like to see highlighted in future Calls for Proposals – e.g. projects for balancing gas base-load power generation with renewables?

## Non-technological innovation

The Innovation Union Communication is a wide-ranging analysis of Europe's innovation challenges. It especially emphasises the role of opening up knowledge transfer markets to new entrants and unlocking the potential of the many intellectual property rights (IPR) "that lie dormant in universities, research institutes and companies". Crucially, the Communication proposes that the results of EU-funded research should be "open access". It also envisages that IPR trading markets "become less opaque and fragmented so that buyers and sellers can find each other efficiently, financial investments are made in IPR assets, and transactions take place on fair terms".

Besides these ambitious goals, the Innovation Union strategy also identifies five "system components" of innovation performance: human resources, science base, industrial R&D, industrial innovation, and users and markets – all of which are affected also by financing. In the context of the CSFRI, this suggests an intention to increase EU funding not only for technology "hardware" projects, but also for "software" projects that focus on sharing best practices, and building skills, management systems and institutional capacity.

There is already some EU funding for capacity building in low-carbon energy, e.g. in the current Intelligent Energy Europe programme as part of the small Competitiveness and Innovation Framework Programme (CIP)<sup>11</sup> which operates alongside FP7. Notably the SILC will also fund non-technological projects. What is Poland's track record and interest in benefiting from this sort of EU support?

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10. See <http://ec.europa.eu/research/participants/portal/page/cooperation?callIdentifier=FP7-ENERGY-SMARTCITIES-2012>

11. See <http://ec.europa.eu/cip/>



## Finance instead of grants

The EU Budget is limited and the range of policies it must cover is growing steadily. Consequently a key theme of the Commission's multiannual financial framework proposals is "leverage": how to stretch and spread EU funds more thinly by sometimes offering finance instead of grants. This makes good sense in the case of those low-carbon energy projects which will generate revenues – e.g. infrastructure investments. But it is less clear how financial leverage can help in the case of innovative technologies, given their performance risks. (Confusingly, the leverage proposals are often referred to as "innovative financial instruments").

The Commission's ideas on new EU-funded financial instruments seem rather vague. In 2010, the Innovation Union Communication concluded that European banks are risk-averse partly because they lack of competent staff to assess the new opportunities offered by emerging technologies. The Communication also noted the fragmentation of venture capital markets and the perception that innovation projects give returns on investment (especially in the short term). It therefore announced that the Commission will work with the EIB, national financial intermediaries and private investors "to develop proposals addressing the following critical gaps: (i) investment in knowledge transfer and start-ups; (ii) venture capital for fast growing firms expanding on EU and global markets; (iii) risk-sharing finance for investments in R&D and innovation projects; and (iv) loans for innovative fast growing SMEs and midcaps. The proposals will ensure a high leverage effect, efficient management and simple access for businesses."<sup>12</sup>

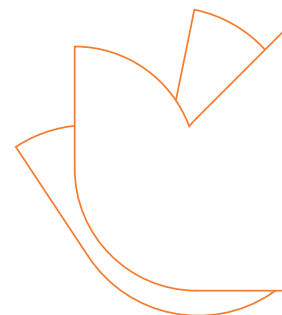
Subsequently, the Commission's 2010 Budget Review Communication has recognised the distinction between projects which can generate revenues and those which cannot, arguing that: "innovative financial instruments could provide an important new financing stream for strategic investments. The norm for projects with long-term commercial potential should be that EU funds are used in partnership with the private and banking sectors, particularly via the EIB, but also with other partners including development banks in Member States and the European Bank for Reconstruction and Development. The logic of such an approach is that projects are supported on the basis of competitive application by the project promoters, with a focus on EU added value. The toolkit of EU budget financial instruments required is essentially, an EU Equity Platform Mechanism and an EU Risk Sharing Platform Mechanism (including guarantees)"<sup>13</sup>. So far, however, there is not much more information available on this aspect of the multiannual financial framework and CSFRI proposals.

What sorts of Polish projects might benefit from EU-backed equity and/or financial risk-sharing? On the one hand, this approach could work well for many energy projects that are unlikely to be funded by the main multiannual financial framework, but which struggle to attract commercial bank investors. On the other hand, there is growing anxiety among low-carbon stakeholders working in Brussels and elsewhere that there has been little consultation about the design of these new mechanisms, especially regarding innovative technologies. It is also unclear how far the various leverage funds will be ring-fenced for particular policies, e.g. for infrastructure in general, or for low-carbon energy infrastructure in particular.

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12. European Commission, Communication on the Europe 2020 Flagship Initiative Innovation Union, *ibid*.

13. European Commission, Budget Review Communication, COM(2010)700, see [http://ec.europa.eu/commission\\_2010-2014/president/pdf/eu\\_budget\\_review\\_en.pdf](http://ec.europa.eu/commission_2010-2014/president/pdf/eu_budget_review_en.pdf)



## Structural Funds

The Commission's Practical Guide to EU Funding Opportunities for Research and Innovation outlines for regions the role and functioning of the various EU instruments to fund research and innovation<sup>14</sup>. The Regional Innovation Scoreboard meanwhile monitors divergence in innovation performance within the EU, and emphasises the need for policies to reflect regional contexts and for better data to assess regional innovation performances<sup>15</sup>. Overall, the Commission calculates the total investment in energy sector research and innovation as part of the EU Cohesion Policy 2007-13 (Structural Funds) at more than €60 billion Europe-wide.

Will the current pattern of allowing regions to choose whether or not to spend EU funds on RDI continue? And how can different regional strategies interact with the centralised CSFRI innovation programme? The Commission has made clear that it would like to introduce stronger sectoral objectives, with conditionality and programming for EU regional spending through "smart specialisation strategies" and a performance reserve to be re-allocated (following a mid-term review) to those Member States whose programmes "have contributed most to progress in meeting agreed milestones"<sup>16</sup>. In contrast, in May 2011 the European Parliament's regional affairs committee overwhelmingly backed a report which rejected "absolutely all proposals to sectoralise Cohesion Policy," arguing that "new thematic funds (for climate, energy and transport) would undermine the tried and tested principle of shared management and integrated development

programmes and jeopardise the availability of synergies and the effectiveness of interventions"<sup>17</sup>. Poland will certainly need to take a position on this question in both the negotiations on the Cohesion Policy and the parallel CSFRI negotiations.

## Conclusions

Member States' negotiating teams on the multiannual financial framework will tend to be unfavourable to increases in EU RDI funds. This is because, rather than shares in RDI money being pre-allocated to each country, competitive funds of this kind are kept centrally at EU-level until bid for and won by particular projects, and therefore doesn't count towards a country's "net benefit" calculation. In short, the CSFRI cannot immediately be accounted anyone's national "win". Additionally, many experts observe that there is little "realistic" chance to significantly re-structure EU spending priorities. The political interests of key Member States to replicate the status quo are too strong: France on agriculture, the UK on its rebate, Poland on Cohesion Policy, and Germany preferring not deal with a battle between the other three while it is focused on the Eurozone crisis.

But perhaps it is too soon to give up hope. On October 20-21 Prime Minister Tusk and Commission President Barroso will jointly host a high-level conference on the multiannual financial framework, aiming to agree "a Budget for the whole of Europe: how we can with European tools help growth in Europe". This is where a more far-sighted argument needs to be made that it is equally "unreal" for the EU to acknowledge its weaknesses in competitive-

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15. European Commission, Communication on Competitive Regions through Research and Innovation, COM(2007)474, see <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0474:FIN:EN:PDF>

16. See [www.proinno-europe.eu/page/regional-innovation-scoreboard](http://www.proinno-europe.eu/page/regional-innovation-scoreboard)

17. European Commission, Communication on a Budget for Europe 2020, see <http://ec.europa.eu/budget/reform/>

18. European Parliament, 5th Cohesion Report and strategy for the post-2013 Cohesion Policy, see [www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P7-TA-2011-0316](http://www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P7-TA-2011-0316)

ness and innovation, and its divergence performance across different Member States, without insisting that therefore the multiannual framework must be reformed so that it can truly contribute to building a smart, sustainable and inclusive Europe.

Without increased support from the multiannual framework, Europe's goal for 3% of GDP to be invested in RDI (1% public funds, 2% private) will remain impossible for many countries to achieve. Could the high-level conference discuss the CSFRI as a specific, concrete example of EU Budget value added, and will confirm that its role tomorrow in boosting innovation (and in low-carbon) is more important than today's net benefit calculations?

Besides chronic under-investment (compared to the US, Japan and other competitors, increasingly China) there is also good evidence that Europe has key weaknesses in its innovation governance systems and especially regarding SME participation. The Commission can be part of a "top down" answer, e.g. with its important plan to create a pan-European CSFRI database of all EU and national RDI public funding opportunities. This will provide companies with comprehensive information and (over time) can enable governments to synchronise their

various programmes: improving coherence and reducing duplication and contradictions.

But there is also a task for national authorities and stakeholders to better organise "bottom up" participation in FP7 competitions and the future CSFRI, and to ensure that detailed feedback on problems and solutions is sent to Brussels. Here it will be crucial to look in more depth at the role of business associations and government agencies which disseminate information and advice to local members in Poland.



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demosEUROPA  
Centre for European Strategy Foundation

A. Idżkowskiego St 4/6  
00-442 Warsaw, Poland

e-mail: [demoseuropa@demoseuropa.eu](mailto:demoseuropa@demoseuropa.eu)  
[http: www.demoseuropa.eu](http://www.demoseuropa.eu)

phone: +48 22 401 70 26  
fax: +48 22 401 70 29