

## 4 The energy infrastructure challenge

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Today, energy is not only driving EU market integration and competitiveness; it is also a key ingredient of EU policies for sustainability, foreign relations and security. Infrastructure is at the heart of the EU's energy policy. Timely investment in infrastructure is needed to link new power plants, wind farms and solar panels to consumers. Interconnections between national energy markets and pan-European pipeline and electricity networks are required to integrate the EU's internal energy market. Interconnectors, together with storage facilities, will also add to the flexibility and resilience of the EU energy market and therefore enhance security of supply. New and better power grids are needed for the EU-wide shift towards renewables. The application of carbon capture and storage technology to polluting power plants will require new infrastructure to transport and store carbon. New pipelines are needed to diversify imports of oil and gas from outside the EU.

The European Commission reckons that €1 trillion in investment will be required over the next decade to complete the EU's integrated energy market and set the EU on course to achieve its 2050 climate aims. Most of this money will have to come from private sources. The EU's main challenge will be to shape a policy framework for the energy sector that stimulates massive investment while at the same time fulfilling public policy goals. The right policy framework will support economic growth and innovation, enhance energy security, enable the EU to manage its increasing dependency on fossil fuel imports, reduce its carbon emissions and enhance energy efficiency.

Of the estimated €1 trillion, around half will have to go to infrastructure if the EU is to achieve its vision of a “Europeanisation” of the energy market (in the words of Energy Commissioner Oettinger). Recent EU communications on energy convey a sense of urgency: the infrastructure investment choices made today will set the pace and parameters for the EU’s welfare and prosperity throughout the 21<sup>st</sup> century.

### Energy policy takes a top-down view

To date, the main drivers for EU energy market liberalisation and integration have been laws (the three energy market packages) and competition policy. These measures have led to power and gas market liberalisation within many EU countries but they have not brought about an integrated European energy market. National integrated energy companies had little interest in building connections to neighbouring countries and so increase competition in their own markets. The fluid regulatory environment, with 27 independent regulators, did not incentivise companies to build pipelines or power lines through third countries. Although the EU has been drawing up plans for ‘trans-European networks’ (TENs) in energy since the late 1980s, the limited funds earmarked for these TENs in the EU budget were mainly spent on feasibility studies. Many in the EU concluded that new measures were needed to make the European market a reality.

The Lisbon treaty has added a new dimension to EU energy policy. The new article 194 on energy requires member-states to act “in a spirit of solidarity” to ensure the functioning of the internal market and security of supply, enhance energy savings and efficiency, promote the use of renewable energy and, last but not least, interconnect energy networks. The EU is now using this new clause to construct an EU-wide industrial energy policy, to complement the application of energy and competition law in individual member-states. The critical role that cross-border infrastructure (rather than just market opening) plays in the EU’s policies for the

single energy market and the transition to a low-carbon economy could therefore undermine the subsidiarity principle (which demands that EU institutions only exercise those functions that member-states cannot perform).

The following proposals, currently under discussion in the EU, are part of the move towards this more top-down, solidarity-driven approach:

- ★ **Strategic TENs:** in the past, the list of TENs often reflected the needs and wishes of individual member-states, as well as an attempt to spread EU support evenly. The EU will now whittle down the list of infrastructure projects that receive EU support, guided by the idea that only projects of ‘European interest’ that cannot be funded by the market should get public support. For electricity infrastructure this means integrating renewables securely into the grid, building interconnections and making sufficient network capacity available through ‘super grids’ to transmit power to demand centres and storage facilities. For gas infrastructure it means diversifying sources and routes of supply while increasing interconnections within the EU to strengthen competition and resilience.
- ★ **Public financial support:** the EU is increasingly inclined to finance directly, or at least guarantee the finance of, infrastructure projects of ‘European interest’, where the market does not provide the necessary funds of its own. The EU, together with international lenders, is also exploring how to use public-private partnerships to leverage public funding. At the end of 2008, the EU earmarked €4 billion of its economic stimulus package for energy sector investments. In 2009, the European Investment Bank energy sector financing target was raised to €13 billion, which also includes financing for TEN projects. The Commission has proposed that the EU’s next seven-year budget starting in 2014 should include a new infrastructure financing facility of €40 billion.

- ★ **Regulatory convergence:** the EU will encourage the construction of new infrastructure and energy facilities by streamlining licensing procedures in and among EU member-states. The European Council on energy of February 4<sup>th</sup> 2011 asked the Commission to draw up new legislative proposals to address obstacles – financial, regulatory and licensing – to infrastructure investment by the autumn of 2011.
- ★ **International frameworks:** the intergovernmental agreements that the EU signs with energy producing and transit states help to create legal stability, and thus mitigate geo-political and transit risks; this can help stimulate investment in major infrastructure projects for energy supplies from outside the EU.
- ★ **Larger markets:** the integration of national electricity and gas markets will make it easier to sell energy generated from renewable and fossil sources and thus allow energy companies to recoup high upfront investment costs. This principle applies equally to infrastructure investments related to the offshore wind farms in the North Sea, the solar energy facilities in the Mediterranean and the new pipelines planned to bring Caspian gas to the EU.

### Bottom-up policies do not deliver

Although politicians and business people agree on the need for massive new investment in electricity, gas and other infrastructure facilities, commercial incentives are too weak to bring these about. The third energy package, which is currently being implemented across the EU, does not sufficiently encourage investment and, contrary to expectations, could even slow it down.

The third energy package forces integrated energy companies to ‘unbundle’ their production and/or import businesses from the transport and distribution of energy. Those companies, or parts of companies, that own and operate pipelined and power grids (system

operators) need to sell access to this infrastructure to other companies. Since the transport and supply of infrastructure is so central to each country’s economy, the overall aim is to keep their costs (both in terms of investment and tariffs for transmission services) as low as possible. What the third energy package does not do is bring about a tariff structure that would make it worthwhile for companies to build the infrastructure required for a pan-European energy market. The aim of low energy prices can conflict with the need of companies to recoup their infrastructure investments.

Furthermore, respecting the subsidiarity principle, the EU offers integrated energy companies a menu of unbundling options: companies can either sell their networks into the hands of ‘transmission system operators’ (TSOs) (full ownership unbundling); keep infrastructure assets on their books but make sure they are managed independently through a designated ‘independent system operator’ (ISO); or, finally, allow the management and ownership of infrastructure assets to remain in the integrated company (called the independent transmission operator, or ITO).

The last two options, ISO and ITO, will require considerably more regulation and supervision to work. The need to comply with such heavy regulation could complicate the operation of integrated energy companies. Nevertheless, many of them will opt for the ISO or ITO option, as they still hope to exploit the considerable commercial value of keeping their networks on their books. This value depends on how national markets are regulated. National regulatory frameworks still differ hugely in how they set tariffs for energy transport, value networks and set performance criteria for capital and operational expenses. The third energy package does not change that, leaving national regulatory authorities with plenty of autonomy and – in cases where they have to deal with ISOs or ITOs – an added incentive to tighten regulation on a national basis. This is not the way forward.

The ‘a la carte’ mode of unbundling will entrench obstacles to cross-border investment, at least in the short term. However, if

national regulators acted fast to make it less worthwhile for companies to retain networks on their books, integrated companies (at least those that are not mollicoddled as ‘national champions’) would be more likely to sell off their networks and invest in opportunities that give them higher returns than running a network in a highly regulated environment. A strong regulatory push would thus lead to a widespread sale of network assets and bring about a level playing field among TSOs. This, in turn, would vastly facilitate cross-border investment. It would also attract capital from investors keen on long-term regulated returns, such as pension funds.

### **Horizontal approaches are needed**

In addition to the (sluggish) bottom-up liberalisation and the new top-down measures, the EU also needs horizontal co-ordination. The EU has set up three new co-ordinating bodies: the Agency for the Co-operation of Energy Regulators (ACER), which will by default be the EU’s primary energy market regulator since national regulatory agencies are ill-suited to sort out cross-border issues; and the two European Networks of Transmission System Operators for electricity and gas (ENTSO-E and ENTSO-G), which bring together the companies that own and manage energy infrastructure. The EU has asked the new bodies to draw up EU-wide ‘ten year network development plans’ (TYNDPs) that take a truly European view of future infrastructure needs. At least the TYNDPs will shed more light on what kind of infrastructures European energy markets require in the long term. ACER and the ENTSOs will also support the convergence of methodologies used to distribute the costs of cross-border infrastructure projects among owners, users and customers – or taxpayers for those projects of European interest that receive public funding.

However, ACER and the ENTSOs are only just beginning their consultation processes. These bodies still reflect the diverse regulatory and business cultures of their memberships, made up of

independently-minded national regulators and transmission companies that are to varying degrees unbundled. Their authority will ultimately depend on in how far they act collectively in the pursuit of EU-wide infrastructure investment and energy market reform.

### **Cohesion and consistency**

In sum, the ‘infrastructure challenge’ for the EU and its member-states is the following: ensure that all three approaches – top-down, bottom-up and horizontal – to stimulating investment are compatible and eventually become mutually reinforcing. The EU should not rush into rigidly imposing a long-term policy vision. Legitimate commercial interests need to be taken into account. National energy policies and public-private consultations should be given sufficient time to deliver a functioning cross-border market model. Public acceptance of big infrastructure projects will increase only slowly.

Top-down visionary approaches look good in public announcements from politicians. They also help to focus minds on future market development and infrastructure investment needs. However, the EU must be cautious not to interfere too much in the allocation of infrastructure investments. Such interference would ‘lock in’ both a particular energy mix and selected technologies, which might saddle European energy markets with suboptimal solutions and high prices for years to come.

The third energy package will initially cause further delays in infrastructure investments – especially if regulatory decisions cannot be contested. However, as markets develop, ACER and the ENTSOs get into their stride and regional co-operation among EU countries deepens, a consensus will slowly emerge on cross-border infrastructure needs while tariffs, asset valuations and performance methodologies will converge. Such an approach stands a better chance of bringing about cross-border investments in line with actual market needs. If the EU tries to pre-judge such decisions, it

might hinder the effective and economically viable mobilisation of the €1 trillion needed for the EU's future energy needs.

## Outlook and recommendations

The EU's institutions, governments and regulatory agencies should work with industry bodies to focus EU energy policy on the critical importance of infrastructure investment. Ill-co-ordinated, misguided or badly timed initiatives will destroy investment opportunities. The private sector will only fund the lion's share of the EU's €1 trillion energy investment needs if the EU resolutely implements existing and, where necessary, new legislation to allow markets to function properly. Industrial and financial players need to have certainty about the future risks and rewards of their investments. This means that the EU needs to find a better balance between consumer interests (cheap energy prices and tariffs) and investment incentives (sufficient yields on capital spending). Consistency, coherence and predictability are key to solving the EU's infrastructure challenge.

Firstly, therefore, EU member-states should build on the momentum created by the third energy package by making the new co-ordination bodies (ACER and the ENTSOs) work. The EU already has the ability to remove obstacles to investments that markets cannot overcome, for example, by providing the right level of support for investment in big infrastructure projects or building infrastructure where there is an obvious, if not quantifiable, benefit to EU society as a whole. The new bodies can take this work forward.

Secondly, national regulatory decisions need to be contestable to some degree. At present, national regulators exercise their wide but differing mandates largely without checks and balances – other than being asked to “take utmost account” of EU energy policy goals. ACER offers an opportunity to develop a system of reconciliation and dispute settlement for national decisions that do not support EU goals such as energy security and sustainability. Such a system

should allow for a better balance between investor and consumer interests, as well as between energy market integration and climate goals, in the EU's big push for infrastructure investments.

Thirdly, EU member-states should work together on a regional basis to ensure that accurate data and information is available to support regional infrastructure development while respecting commercial confidentiality.

Finally, innovative approaches at the EU level to boost major infrastructure investment projects are only useful to the extent that they strengthen established EU policy and practices, rather than adding uncertainty. The ‘Caspian development corporation’ – the idea to aggregate EU gas demand to offer large contracts to Turkmenistan and other Caspian gas producers – is a case in point. It might help to get the Nabucco pipeline off the ground but it would also undermine the market principles of the EU energy sector.

The EU needs to prevent taxpayers footing too big a share of the infrastructure investment bill. It therefore needs a clear definition of ‘European interest’ in terms of the wider opportunities that such investments open up to. Publicly supported investments could then create momentum for infrastructure development that should spur private investors to finance the bulk of new projects. If the EU pushes too hard for certain projects, markets will not be able to test the commercial viability of the many options that are still conceivable under the EU policy pathways beyond 2020. It is crucial that these options remain open at acceptable cost to consumers and fair returns to investors in order to achieve the EU's energy and climate vision to 2050.