



PACIA submission

To the Energy White Paper – Issues Paper

20 February, 2014

OVERVIEW AND CONTEXT

The Chemicals and Plastics Industries Association (PACIA) is pleased to provide input to the preparation of the Department's Energy White Paper (EWP).

It will be critical that the Energy White Paper be developed with a strong focus on the full range of competitive advantage provided by Australia's abundant energy reserves for Australia's future prosperity. As such, a clear vision and strategic national plan are required to enable the economy to make full use of available energy.

Significant opportunities exist for the Australian economy to meet increased demand opportunities driven by unprecedented global and local population and economic development. The \$40bn Australian chemicals and plastics sector is a significant user and converter of energy. In addition to gas and electricity for plant and process energy, the sector consumes 10% of Australian domestic gas demand converting this into intermediate and finished goods used by 109 of Australia's 111 industries. These include agriculture and food, mining, building and construction, manufacturing broadly, services including healthcare and many others.

PACIA has recently developed a Strategic Industry Roadmap¹ setting out the critical enabling role of the chemicals and plastics industry for Australia's future. Based on two scientific studies conducted by CSIRO, it sets out a prioritised set of actions for industry and government to address economic decline in this pivotal sector and support and encourage a trajectory of sustainable growth.

The most urgent of the actions is access to natural gas for feedstock and energy use. This is alongside urgent regulatory reform and ensuring Australia is an attractive investment destination.

The Energy White Paper - Issues Paper process coincides with the Department's Eastern Australian Domestic Gas Market Study (the Study). Many of the items of key interest to PACIA members in respect of gas on a national basis are covered by PACIA's submission to the Study. For efficiency, PACIA has appended this submission and asks that it be read as part of the submission to the Issues Paper. Specific areas of PACIA's response to the Issues Paper will be referred to in the content of the Study as required.

The Oxford Dictionary includes a definition of energy as "*power derived from the utilisation of physical or chemical resources, especially to provide light and heat or to work machines*"².

PACIA's submission will focus on this aspect and the need for energy policy calibrated to strengthening the broader Australian economy. Australia's significant natural endowment in energy should also be one of its competitive advantages. Governments, industry, community and research have an obligation to ensure the broader economy is best positioned and able to take advantage of this endowment.

This is set against a background of Australia's declining global competitiveness. The 2013 Global Manufacturing Competitiveness Index commissioned by the US Council on Competitiveness and undertaken by Deloitte, notes

¹ "Adding Value. The critical, enabling role of the chemicals and plastics industry for Australia's future", PACIA, June 2013.

² Oxford dictionary "<http://www.oxforddictionaries.com/definition/english/energy>"

that “High performing manufacturing also creates a virtuous cycle for a nation.”³. It ranked Australia 16th out of 38 economies in terms of current competitiveness, forecasting a drop to 17th in five year’s time. Recent announcements by significant companies in the fertiliser, automotive and aluminium sectors, either withdrawing from the Australian economy or investing elsewhere, are further evidence of a manufacturing decline that requires a strategic plan for sustainable growth.

The Issues Paper appears to emphasise the energy and resources sector itself without fully recognising and aligning the requirements and opportunities of the demand side of the economy that add value to the raw energy. PACIA notes the ‘Growth and Investment’ and ‘Trade and International Relations’ sections of the Issues Paper that provide opportunity for comment on these themes, which is beneficial and welcomed. However, without a coherent understanding of the manufacturing demand side and alignment of its capability to support growth, the possibility for unintended policy consequences, as well as lost opportunities, exist. This is particularly relevant for the chemical feedstock transformation of energy resources.

However, the good news is that there is not only abundant energy, but also mature business capability to take advantage of this national resource. The transformation of energy into a broad range of manufactured goods includes high value-added materials, products and services to equip Australia for a modern, healthy and sustainable future. PACIA looks forward to continuing to work with governments to ensure energy policy embraces and enables this opportunity.

³ “2013 Global Manufacturing Competitiveness Index”, US Council on Competitiveness. P 29, (Conclusion)
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THE AUSTRALIAN CHEMICALS AND PLASTICS INDUSTRY

The chemicals and plastics industry has been enabling the broader Australian economy for the past 136 years since the first fertiliser plant was established in Yarraville in 1878⁴. Raw materials, chemistry, the energy sources of the day, human ingenuity and capital combined to underpin the country's food production.

The chemicals and plastics industry is now the second largest manufacturing sector in the national economy. It is "... a diverse industry that produces essential inputs to nearly every other sector of the economy⁵."

Approximately 80% of its outputs are inputs to other sectors of the economy and CSIRO determined that the sector underpins and enables 109 of Australia's 111 industries. These industries include agriculture and food, mining, building and construction, manufacturing broadly, services including healthcare and many others.

The sector has over 5,500 businesses employing over 60,000 highly skilled people and delivers \$11.6 bn of value-adding to GDP. In common with all of these businesses, is the demand for both electricity and gas for lighting, power and manufacturing processes generally.

Importantly, within this cohort is a group of unique businesses who manufacture chemicals using natural gas as a feedstock. These chemical processes convert the raw gas molecule into a range of value-added intermediate and finished products used throughout the economy.

PACIA's survey of the gas use for chemical feedstocks in October 2013 shows the following consumption:

Feedstock PJ	Process PJ	Total PJ
110	20	130

The feedstock and process usage component amounts are inseparable in a chemical plant and its processes. Based on the BREE national figures published in October 2013:

- 130 PJ accounts for 9.7% of the 1,335 PJ domestically consumed in 2011/12
- 130 PJ accounts for 30.4% of the 427 PJ domestically consumed by the manufacturing sector (the largest user in the economy itself)

The raw gas used as feedstock is value- added into a range of C1 and C2 products used throughout the country's supply chains and economy as the following table illustrates. In addition to the applications from the two chemical streams, the table also notes the Megatrends and growth markets identified by CSIRO as an example of their capacity to enable broader economic growth.

⁴ "Chemicals and plastics regulation study" Productivity Commission, 1878.

⁵ CSIRO "Elements in Everything", page 11

C1: Ammonia / ammonium Nitrate	Applications	Megatrends and growth markets
	Fertilisers to increase agricultural yields	Food for all: <i>Agriculture and food</i>
	Refrigeration, supply chain storage	Food for all: <i>Agriculture and food</i>
	Explosives	Resource scarcity: <i>Mining</i>
	Carbon dioxide, soft drinks / medical	Food for all: <i>Agri and food, Healthcare and wellbeing</i>
C1: Sodium cyanide	Gold extraction and processing	Resource scarcity: <i>Mining</i>
C1: Methanol	Building products: MDF, particle board	Emerging markets: <i>Building and construction</i>
	Agri chemicals	Food for all: <i>Agriculture and food</i>
	Water treatment: waste water, sewerage	Emerging markets
	Fuels: biodiesel, GEM transport, fuel cells	Emerging markets
C2: Polyethylene	Applications	Megatrends and growth markets
	Agricultural piping, irrigation, tanks	Food for all: <i>Agriculture and food</i>
	Agricultural film: silage, grain bunkers	Food for all: <i>Agriculture and food</i>
	Packaging: bag and film; rigid containers; transport film and wrap	Food for all: <i>Agriculture and food</i>
	Industrial, mining, commercial, residential piping for water, gas and other reticulation	Emerging markets, Resource scarcity: <i>Mining; building and construction, Mining</i>

A critical aspect of this gas feedstock demand to supply these diverse sectors is that it is non-switchable, non-substitutable and operates in a narrow band of operational tolerance. Chemical plants operate either on or off and have low tolerances for demand side response during supply tightening. All of the businesses using gas as a feedstock are energy intensive and trade exposed.

An important conclusion then for policy makers from this information is that nearly 10% of Australia's domestic gas use, or 30% of its industrial use, is consumed for chemical feedstocks that underpin Australia's agriculture, irrigation, food and packaging, mining, building and construction, healthcare and medical sectors. This gas is non-substitutable as in electricity and other use categories. You can't replace gas with coal or other fuels to make chemicals in current plant.

In addition to these factors, is the issue of the rapidly changing supply environment from LNG exports and the additional uncertainties created from Australia being the first economy to deliver significant amounts of LNG from Coal Seam Gas. Page 113 of the Study (Conclusions and next steps)⁶ notes:

“The development of LNG export facilities has introduced a significant new dynamic into the Australian domestic gas market. The previous stable and long-term contract market for domestic gas supply in the eastern market will now be subject to market forces that are determined on the global stage. How the market will respond, and the nature of the transition to a more dynamic market, are not clear – primarily due to the asymmetries of information in an opaque, long-term contract based market and the presence of some new and large risks in the supply-demand balance. This is largely uncharted territory – no country has tried to deliver this many LNG trains from CSG resources in such a short period – so it is not surprising that high levels of uncertainty prevail.”

The Study provides a valuable catalogue of potential new gas market reforms on page 95. By and large, PACIA recognises that these will be valuable in addressing some of the current issues in a market based manner. However the basis for these reforms appears to be calibrated against gas as an energy source. Whilst this is not unreasonable given its majority volume-based use as raw gas, it appears to not take the critical role of chemical feedstocks into full account.

⁶ “Eastern Australian Domestic Gas Market Study” Commonwealth Department of Industry, January 2014.
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The good news and its opportunities

From PACIA's perspective, Australia has an obligation to ensure the noted "golden age of gas" include it's capacity to enable and underpin significant development of the broader Australian economy. This can and should be a good news story.

The good news is that:

- Australia has significant gas reserves, which can be applied to both expanding the energy sector and its export potential, as well as underpinning and growing the manufacturing sector and its export potential.
- Australia has mature and innovative energy and manufacturing sectors able to make best use of this gas throughout the economy.
- Australia has a mature and innovative chemicals and plastics sector, the second largest manufacturing sector in the economy, which currently enables and underpins 109 of the country's 111 industries⁷ – including oil and gas, and manufacturing.
- Globally and domestically, there is increasing demand for products and services as a result of increasing population, education levels and wealth (e.g. the projected need to significantly increase food production to meet current and future demand). Importantly the global chemicals and plastics sector will be a key enabler for industries to meet this demand.

As such, the opportunity is for the Australian economy to make the best use of our strategic gas reserves to take advantage of these favourable circumstances, and the domestic chemicals and plastics industry is key to meeting this demand.

The good news is that the Department and PACIA have co-funded CSIRO to examine the critical role of the Australian chemicals and plastics industry, the megatrends likely to influence its future and have compiled a set of strategic directions with actions that industry and governments can take for economy wide benefit. PACIA has subsequently developed a Strategic Industry Roadmap⁸, which provides a structured and prioritised approach for industry and government to address the sector's current contraction with its implications, and encourage and support a trajectory of sustainable economic growth, with its benefits.

⁷ *'Elements in Everything, current profile and future trends for the Australian chemicals and plastics sector'*, page 3, CSIRO, March, 2013

⁸ *'Adding value, the critical, enabling role of the chemicals and plastics industry for Australia's future'*, PACIA, June 2013
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PACIA RESPONSE TO THE ISSUE PAPER KEY POINTS

1. The Security of Energy Supplies

Increasing transparency in market conditions

PACIA's submission to the Eastern Australian Domestic Gas Market Study and member delegations to the Department have identified problems associated with access to natural gas. The rapid expansion of LNG exports creating supply tightness has created both supply access and price related issues for a range of consumers. These issues have been well documented by other companies and associations and form the basis of the aforementioned Study itself.

PACIA supports both the export of raw gas as well as its use in value-adding products and services. The existence of abundant gas reserves provides the platform both the energy and manufacturing sectors to contribute to Australia's future prosperity by making the full range of uses of this natural endowment.

2. Regulatory reform and Role of government

Greater price transparency

Improving market competitiveness

The proposed potential new gas market reform principles in table 7.2 of the Study and the summary of options for government consideration provide a valuable and structured approach to the reform needed in the changing market. In the main they align well with the issues raised in the PACIA Roadmap and PACIA's October, 2013 submission.

However there are other policy reform considerations dating back to the 2002 Parer report to COAG: "*Towards a truly national and efficient energy market,*" which COAG confirmed as valuable, but have not yet been implemented. These include, but are not limited to, a review of the then Trade Practices Act to allow the ACCC to examine joint gas marketing agreements to improve upstream competition and supply.

In addition to gas, there are a number of energy and climate change regulatory policy areas that are relevant when considering broader energy policy. PACIA provides comment below on these specific regulatory policy areas, some of which are proposed to be abolished, currently under review, or under development.

Repeal of the carbon pricing mechanism (or 'carbon tax')

The carbon pricing mechanism (CPM or 'carbon tax') is directly relevant to energy policy as it has a direct impact on the cost of energy. These costs are incurred under contracts for which there is no compensation. This includes contracts on natural gas (used for feedstock and energy) and electricity as well as non-natural gas feedstocks and industrial gases.

Particularly in regard to electricity, it is generally agreed that the CPM and associated carbon price has resulted in price increases of around 10%. In this sector, where the cost of energy accounts for up to 50% of the overall PACIA submission to the Energy White Paper – Issues Paper

cost base, this uplift due to the carbon price is significant. In regards to natural gas, the method of passing on costs under the CPM means that member companies in some states (e.g. NSW) are prejudiced over others.

Those within the chemicals and plastics industry that are directly liable under the CPM and receive financial assistance (free permits) as emissions intensive trade exposed ('EITE') industries, find that the level of financial assistance across their business operations is insufficient and they are burdened with additional costs that they cannot pass on.

The end result is that CPM has, and is still, materially impacting the competitiveness of the Australian chemicals and plastics industry. This is because it operates in global markets where its competitors are not subjected to an equivalent carbon price, and therefore they are forced to absorb these costs. As such, PACIA supports removal of the CPM.

An early move to an emissions trading scheme would have also been favourable as it is consistent with PACIA's climate change policy principles. However, we understand the Australian Government favours removal of the CPM, replacing it with an Emissions Reduction Fund (ERF).

In terms of timing, it is critical that the CPM is repealed as quickly as possible so that business does not feel the direct and in-direct impacts of the 2014-2015 fixed carbon price.

PACIA has provided a more detailed response in relation to the proposed repeal of the carbon tax in its submission to the Department of the Environment.

Direct Action – Emissions Reduction Fund (ERF)

The ERF will be the main policy mechanism by which Australia achieves its national greenhouse gas emissions reduction target and will be designed to incentivise industry to reduce its greenhouse gas emissions.

The ERF is being developed through a separate White Paper process run by the Department of the Environment, but given there are some direct linkages with energy policy (in particular gas policy), it is important to mention it here.

For instance, the recent ERF Green Paper discusses the potential of Australia using more natural gas in its energy mix as a means to significantly reduce greenhouse gas emissions. Ideally both the gas and ERF policies would complement one another. However, unless action is taken to address the current domestic gas market associated policy, it is possible that Australia could end up in the perverse situation where industry switches from gas back to coal, rather than the other way around. This would increase Australia's carbon footprint. It is therefore important for the Department of Industry to work closely with the Department of the Environment in undertaking any energy policy reform so that these areas of complementarity can be found.

PACIA is pleased that in its recent ERF Green Paper, the Government is clear that the ERF will be designed to allow business to continue ordinary operations without penalty and is founded on the basis that economic growth is inevitably good for Australia. However, we have a number of concerns regarding design of the ERF,

which if not addressed could lead to it being ineffective. PACIA elaborates on these points of concern in its submission to the Department of the Environment.

Energy Efficiency Opportunities (EEO) Program

PACIA supports the decision to terminate funding for the EEO Program from 1 July 2014. A number of PACIA's member companies find that the Program adds significant administrative and implementation costs without any real benefit.

Given the significant increases in the costs of energy in Australia, and that cost of energy accounts for up to 50% of the overall cost base for our industry sector, energy efficiency is not something that needs to be driven by regulation. It is simply a core part of business. As such, the majority of companies in the Australian chemicals and plastics industry have already implemented the efficiency projects that have a reasonable payback period and are consistent with business priorities. Any decisions to invest in further efficiency projects will likely be considered with a range of other key commercial decisions.

The problem with the EEO Program is that forces companies to prioritise their capital in one area – energy efficiency projects – above other priorities.

If Government would like to support investment in business efficiency in the future, it can do this by providing a long-term and stable industry, energy and climate change policy environment in which policy risks are minimised.

3. Growth and investment

Supporting growth

The reality of increased global population, education and wealth brings an increased demand for a broad range of products and services to improve living standards. This increased demand has to be met from finite resources and an increasingly challenging energy demand profile. The demand will be met by the global chemicals and plastics industry enabling downstream sectors in areas such as the basics of food, healthcare and construction, to transport and infrastructure, through to household, recreation and luxury goods. The question for Australia is how it makes best use of the full range of energy opportunities to meet this demand and grow the national economy.

CSIRO in their analysis of the chemicals and plastics industry in the 'Elements in Everything' report found that the sector underpinned and enabled 109 of Australia's 111 industries. 80% of the outputs of the chemicals and plastics sector are inputs to a multitude of other sectors, notably agriculture and food, mining, broader manufacturing, construction and services including healthcare.

CSIRO also identified six megatrends, or major shifts in coming decades, likely to influence the future of the chemicals and plastics sector due to the ability of these downstream industries to meet future demand growth.

The megatrends are:

- Emerging markets
- Resource scarcity
- Food for all
- Responsible industry
- Health and wellbeing
- Technological advances.

In the second CSIRO report, 'Strategic Directions'⁹ they built on the megatrends to identify a set of five global and local market growth areas:

- Agriculture and food
- Mining
- Building and construction
- Materials recycling
- Healthcare and wellbeing

Further analysis set out a series of nine Industry Enablers. These are actions able to be taken by industry and governments to address decline and support sustainable growth – based on the market growth areas. PACIA refers the Department to the specific research findings underpinning these key points for further details of growth options and actions to support their realization.

Encouraging investment / Reducing costs and barriers

Australia must be an attractive investment destination for capital. Market-based economics point to capital flowing to areas of higher return and lower risk. PACIA's strategic industry roadmap is in itself a set of strategic recommendations and actions for industry and governments to reduce barriers to capital investment. This section of the Issue Paper can be valuably informed by the set of prioritized fundamentals needing to be in place for a sustainable economy, value- adding to Australia's energy through manufacturing. A summary of these is included here:

- Urgent: short term:
 - i. Access to natural gas for feedstock and energy
 - ii. Balanced regulatory environment
 - iii. Competitive capital
- Strengthen: Medium term:
 - i. Social licence to operate
 - ii. Innovation and strong intellectual property

⁹ "Strategic Directions. Towards sustained growth of the Australian chemicals and plastics industry", CSIRO, May 2013
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- iii. Strong customer base
- iv. Skilled and productive talent
- Maintain: Long term
 - i. Stable financial and political systems

Community engagement

Community engagement to improve the understanding around the capability of energy to help grow the national economy is a key opportunity for governments, industry and research. A range of community concerns exist including rising unemployment from an economy in transition and uncertainty about new energy sources. The opportunity exists to gain a more complete understanding of community concerns and provide information about how current and new energy applications can play a part in a sustainable economy.

4. Trade and international relations

Growing export markets including value-added products and services

PACIA re-iterates the CSIRO analysis of megatrends and export market opportunities from transforming gas to a range of value-added products targeting global demand growth opportunities.

As noted earlier, the current transformation of natural gas in Australia is into a range of C1 and C2 products. In addition to these current uses large, integrated chemical plants produce a much broader range of intermediate and final products from natural gas. These have the capability to expand the higher value-adding to raw natural gas for both intermediate and finished products in markets such as high technology fibres, agriculture, coatings and pharmaceuticals.

The Department will be aware of Australian businesses with an interest in the development of world scale, integrated chemical manufacturing plants and there may be examples from other sectors where business growth from gas availability is achievable.

Attracting foreign investment

PACIA re-iterates the Strategic Industry Roadmap points around the need to ensure Australia is an attractive investment destination. This can be achieved by working with industry to remove roadblocks and improve investment incentives such as accelerated depreciation options.

A key setting for this will be to recognise the unique, strategic and transformational capability of the chemicals and plastics sector in investment and planning decisions.

6. Driving energy productivity

current suite of energy efficiency measures, ways these could be enhanced to provide greater energy efficiency or possible new measures that would enhance energy productivity.

Energy productivity is one of the levers that the Australian chemicals and plastics industry continues to use to remain competitive and able to operate successfully in a global market.

Monitoring and improving energy efficiency simply makes business sense. As noted earlier in this submission, not only have there been significant increases in the costs of energy in Australia, but the cost of energy accounts for up to 50% of the overall cost base for our industry sector¹⁰. Companies across the industry are therefore constantly seeking opportunities to use energy more efficiently, make the most of the energy they purchase, and power their operations in smarter ways.

This is reflected in the *PACIA Sustainability Leadership Framework* for the chemicals and plastics industry. The Framework sets out *energy and greenhouse* as one of eleven priority areas for the industry; other areas include *innovation, workforce, financial and materials, processes and products*. The agreed Framework industry goal for energy and greenhouse is ‘*An energy efficient industry that is reducing greenhouse emissions*’. Companies across the industry have taken significant action to achieve this goal.

Further, a company’s efforts to improve its energy efficiency can have a positive impact on the overall performance and profile of that company amongst its key stakeholders – i.e. its social licence to operate. Similarly this can occur at an industry-wide level. This is one of the many areas where a business or industry can take action to demonstrate sound performance, including protection of the environment, and positive contribution to the economy and society.

There are a range of strong business drivers prompting a proactive approach to energy efficiency. Certainly there are many excellent examples of the initiatives that companies have taken to increase their energy productivity, simply driven by the business value rather than any legislative or regulatory requirements.

It is therefore important that any Government-led support programs or measures recognise these existing business drivers, and focus on complementary facilitation or support. A balance must be struck between regulatory/standards-driven mechanisms and voluntary/incentive-based approaches. We agree with the EWP statement that support must be “consistent with the needs of business, and in a manner that minimises unnecessary regulatory, reporting and compliance obligations”. This will result in far better outcomes, not only in terms of energy productivity, but also in relation to the value achieved through Government investment (whether economic or resource based), attractiveness of business operating conditions, and industry’s capacity to efficiently contribute to the Australian economy because it is not being held back by ineffective and unnecessary compliance and reporting requirements.

Targeted industry programs that provide practical resources, information, support and shared learning opportunities are an effective way of encouraging energy efficiency action across a sector. The PACIA ‘energy+’ program developed under the Federal Government’s Energy Efficiency Information Grants program is one example. Programs such as this also provide the opportunity to profile and promote companies that have done

¹⁰ [Energy policy at the crossroads, Finding the road to a competitive, low carbon and energy efficient Europe, CEFIC, 2013](#)

well with energy efficiency, which again helps to raise the profile and contribute to the social licence to operate.

Use of demand-side participation measures to encourage energy productivity and reduce peak energy use.

PACIA reiterates a critical characteristics of gas supply noted in its submission to the East Coast Gas Study. Chemical plants run continuously and with a narrow band of supply fluctuation tolerance. A plant cannot effectively be slowed down, it is inherently on or off. Running low on feedstock supply or use of demand side participation measures would likely create a significant and material impact on a chemical business and the supply chains reliant on them.