



2018 Air Power Conference

Air Power in a Disruptive World

Energy Security: Norms, Assumptions and Alternatives

Air Vice-Marshal John Blackburn
Sir Richard Williams Foundation Fellow



ENERGY SECURITY

Norms, Assumptions and Opportunities

**Government expects Defence to operate when markets fail,
NOT just when the environment is guaranteed to be permissive to industry ...**

GPCAPT “Doc” Millar

AVM John Blackburn AO (Retd) – RAAF Air Power Conference – 20 Mar 18

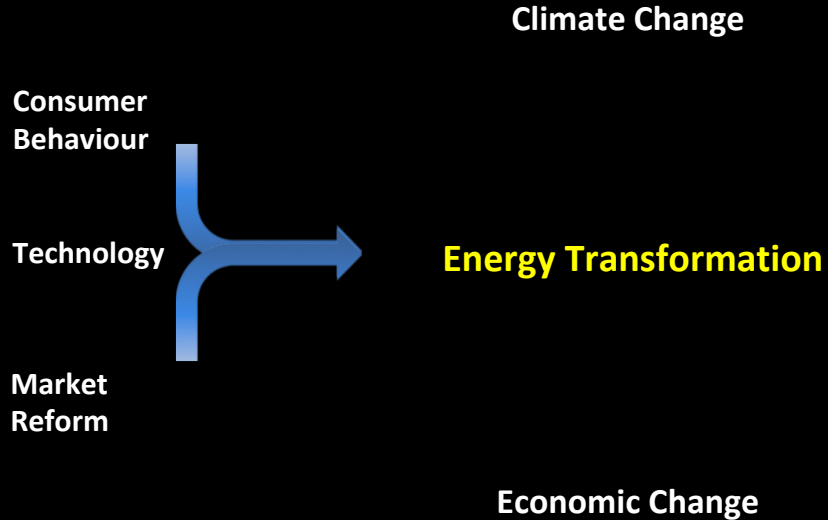
NATIONAL SECURITY

Depends on

ENERGY SECURITY

AVM John Blackburn AO (Retd) – RAAF Air Power Conference – 20 Mar 18

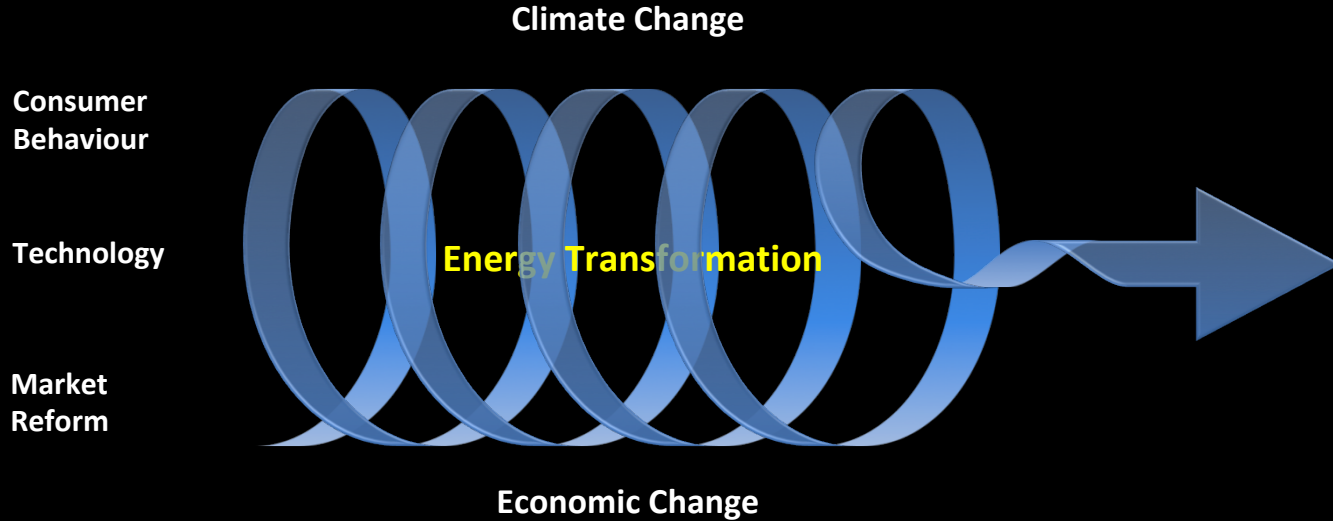
What's happening - we are undergoing an Energy Transformation



In 2017 energy prices for east-coast consumers rose (12%) ... six times the average pay rise

SMH 31 Jan 18

What's happening - we are undergoing an Energy Transformation



How can we navigate this transformation?
Can Defence and the Nation get secure and resilient Energy supplies?

What's happening - we are undergoing an Energy Transformation

Energy issues have simply become too intertwined with other security developments to allow Defence Forces to ignore them ... *But it's not just about fuel stocks.*

Defence organisations need to understand :

- the ongoing transformation in Energy.
- the complex interactions between energy and geopolitics, foreign investment and ownership of energy supply chains, energy and cyber attack, and energy supply resilience in the face of climate change impacts.
- the balance short term security issues and long term opportunities.

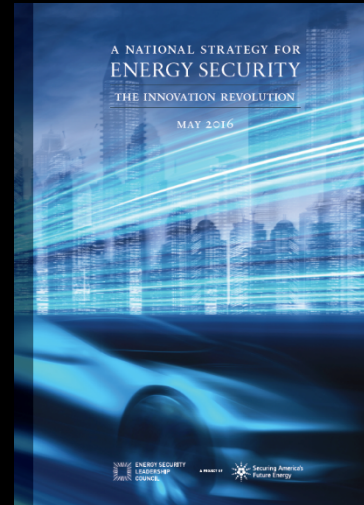
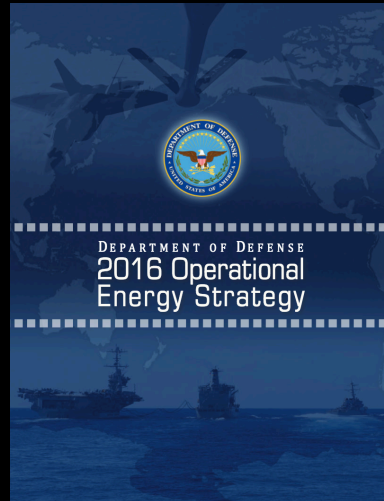
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NATO's energy security agenda has focussed on three major areas:

- raising strategic awareness of energy developments with security implications,
- contributing to the protection of critical energy infrastructure, and
- enhancing energy efficiency in the military.

US Approach :





DEPARTMENT OF DEFENSE
**2016 Operational
Energy Strategy**

The 2016 OES objectives are to :

- Increase future warfighting capability by including energy throughout future force development.
- Identify and reduce logistics and operational risks from operational energy vulnerabilities.
- Enhance the mission effectiveness of the current force through updated equipment and improvements in training, exercises, and operations.

A NATIONAL STRATEGY FOR ENERGY SECURITY

THE INNOVATION REVOLUTION

MAY 2016



A PROJECT OF



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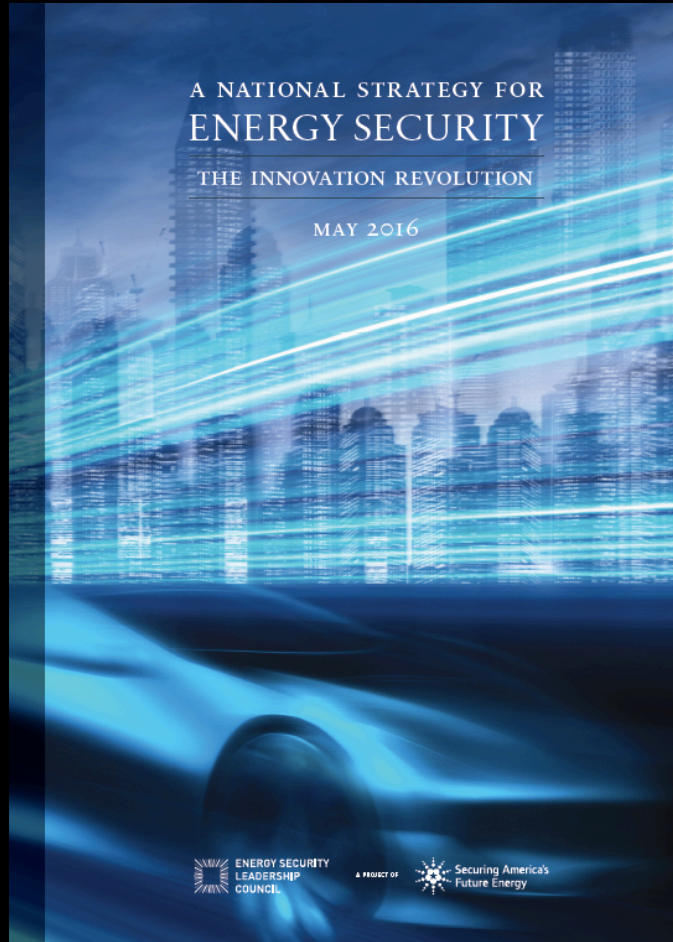
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A NATIONAL STRATEGY FOR ENERGY SECURITY

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ENERGY SECURITY
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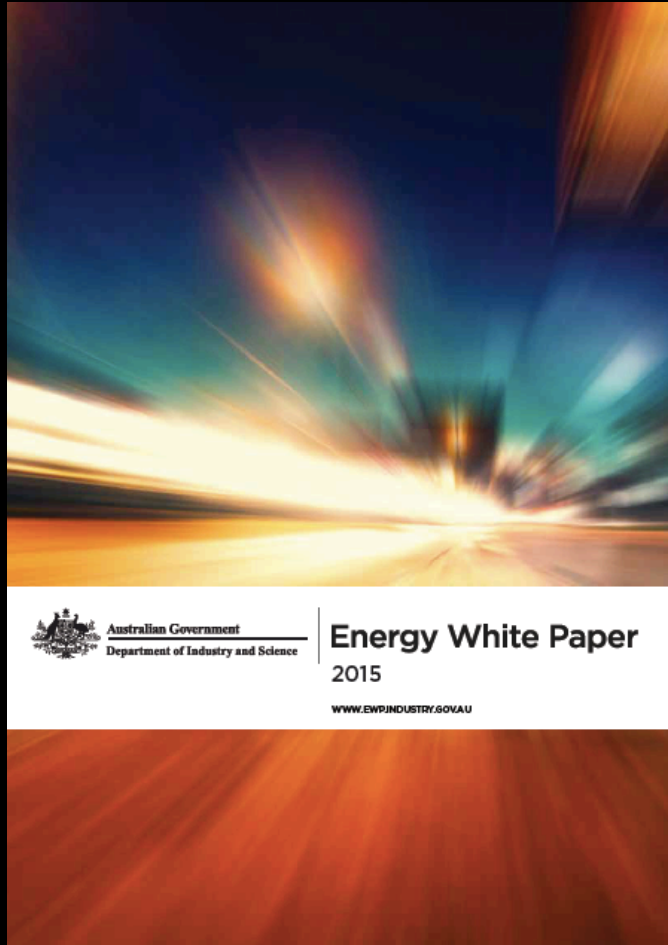
A PROJECT OF

Securing America's
Future Energy

The Energy Security Leadership Council recognizes that market-designed and market-driven approaches are the preferred method for overcoming economic challenges.

But given the importance of oil to our economy and the power that foreign governments wield over oil production levels, engagement by the U.S. government is warranted.

Put simply, only government action can address a problem that is the creation of foreign governments.



- Australia is a growing energy superpower (*9th largest energy producer*).
- Australia is endowed with vast energy resources. We have had decades of readily available and low-cost energy to meet domestic and export demand.
- Our guiding principle is that markets should be left to operate freely, without unnecessary government intervention.
- The Australian Government continues to monitor and identify emerging risks to energy supplies through the periodic National Energy Security Assessment (NESA). The next NESA is due in mid-2015.

Australian Defence Energy Strategy, Policy and Plans

- Good energy related developments across Defence / Services, but in piece parts ...
- Defence Estate Energy Strategy 2014-19.



Defence - Issue 114 - 2016

- An innovative **Defence Energy Integration Framework** has been developed to enhance Defence's energy security into the next century.
- Today's military missions require large amounts of energy, and depend on fuel supply lines that can be costly and vulnerable to disruption.
- The aim of the DEIF is to ensure delivery of sustainable energy security for operations, both now and in the longer term.

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- There is no Defence Operational Energy Strategy.
- There is no Defence Operational Energy Policy.
- Who in Defence has the lead for Energy Security?

ENERGY POLICIES OF IEA COUNTRIES

Australia 2018 Review

- While Australia is well endowed with natural resources, **energy security risks across several sectors have increased.**
- **The signs of stress in the Australian energy system have grown.**
- **The energy policy governance in Australia is very complex and fragmented.**
- *(Australia)* **is increasingly exposed to new challenges for maintaining security of energy supply.**
- **With proper monitoring, analysis and planning, security issues could have been signalled earlier and remedies could have been applied.**

ENERGY POLICIES OF IEA COUNTRIES

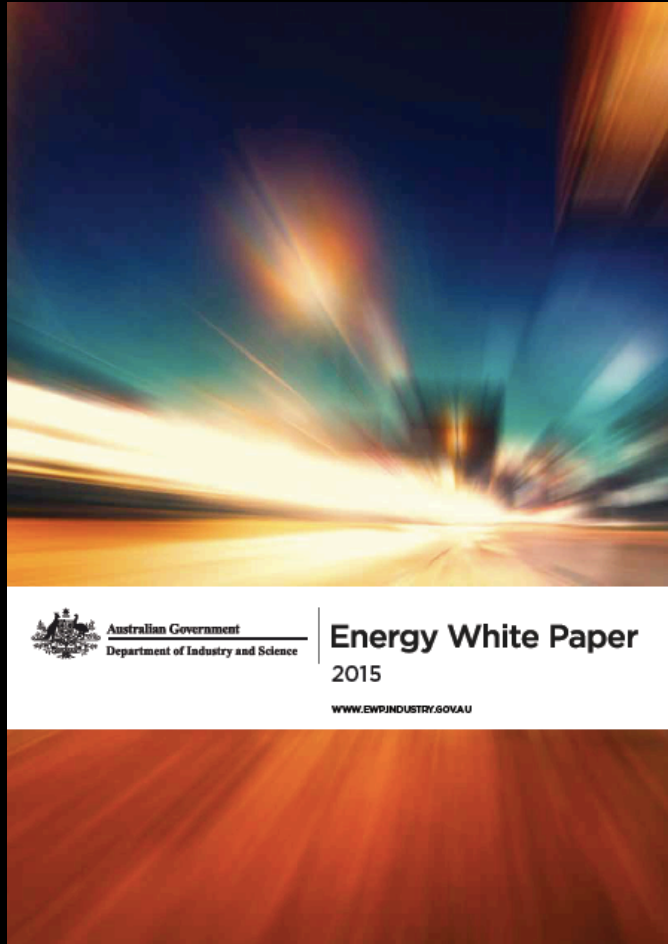
Australia 2018 Review

- An updated National Energy Security Assessment (NESA) remains critical.
- Australia is the **only** IEA country which is a net oil importer and **solely relies on the commercial stockholding of industry** to meet its obligation.
- All IEA countries have two obligations: **Australia meets neither obligation.**
- **The country's oil stocks ... are at an all-time low ...** with the country having no strategic oil stocks and not placing any stockholding obligation on industry.

ENERGY POLICIES OF IEA COUNTRIES

Australia 2018 Review

- Australia's oil security policy is based on ensuring the operation of an efficient and flexible oil market.
- Accordingly, the country's liquid fuels market is largely unregulated during business-as-usual
- Australia's focus on ensuring that the oil market operates efficiently and flexibly during business-as-usual is a sound policy position.
- However, it is less clear how the country would respond in the event of a serious oil supply disruption leading to market failure.
- Do we have a secure and resilient Energy system?



- The 2015 Energy WP did not refer to electricity supply security ... *the 2011 NESA noted that: improved reliability for electricity supply is expected as current new infrastructure investments replace ageing network infrastructure.*

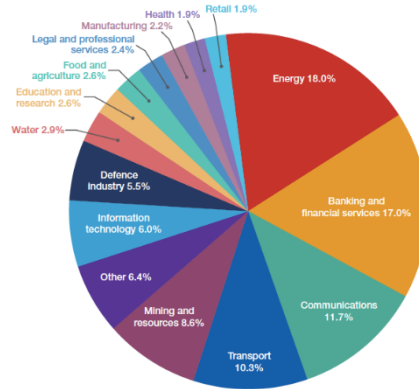
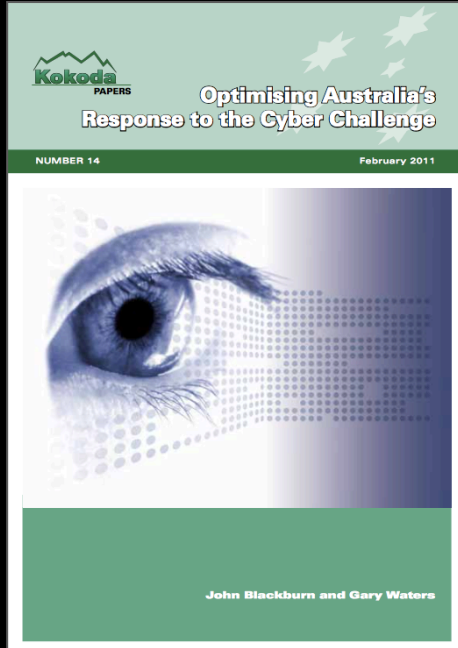
What happened –

- In 2016, the country saw itself confronted with a state-wide blackout in South Australia ... Finkel Review.
 - Creation of an Energy Security Board – *no Defence representation*
- The IEA recently noted that Australia's electricity system (*has significant design weaknesses that*) can lead to power system disruptions, notably during extreme weather events.



Matt Golding
Taking the Lead
The Sunday Age 18 March 2017

My Journey ...



In CERT Australia's experience, the energy and communications sectors had the highest number of compromised systems, the banking and financial services and communications sectors had the highest incidence of DDoS activity, and the energy and mining/resources sectors had the highest number of malicious emails being received.

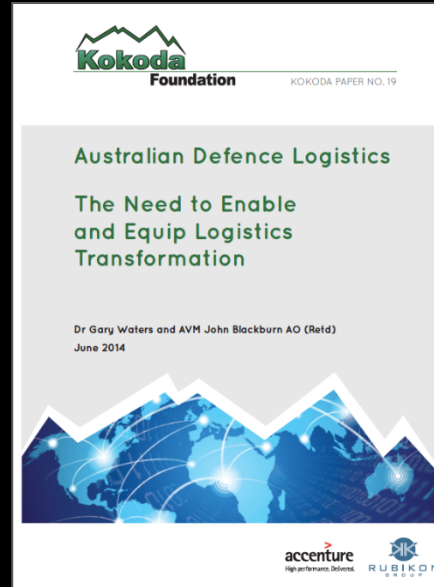
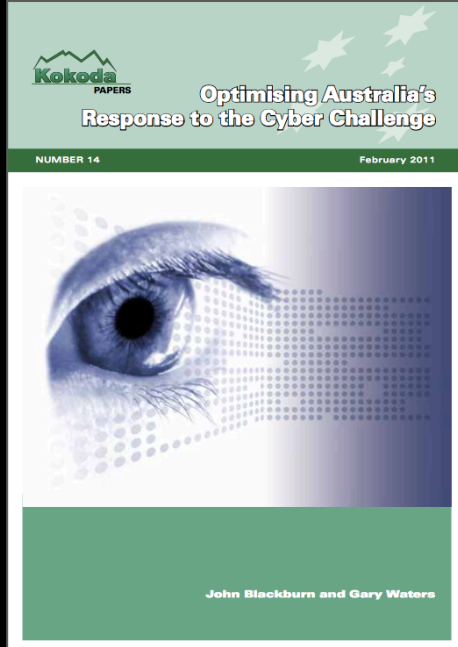
UK finance, power and water on highest alert as threat of Russian cyber reprisal grows

Guardian – 18 Mar 18

US accuses Russia of cyber-attack on energy sector and imposes new sanctions

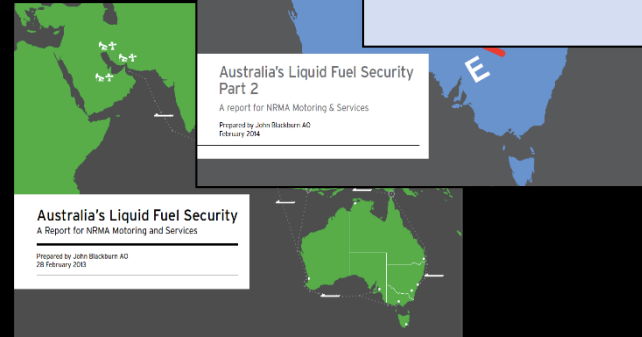
Guardian – 16 Mar 18

My Journey ...



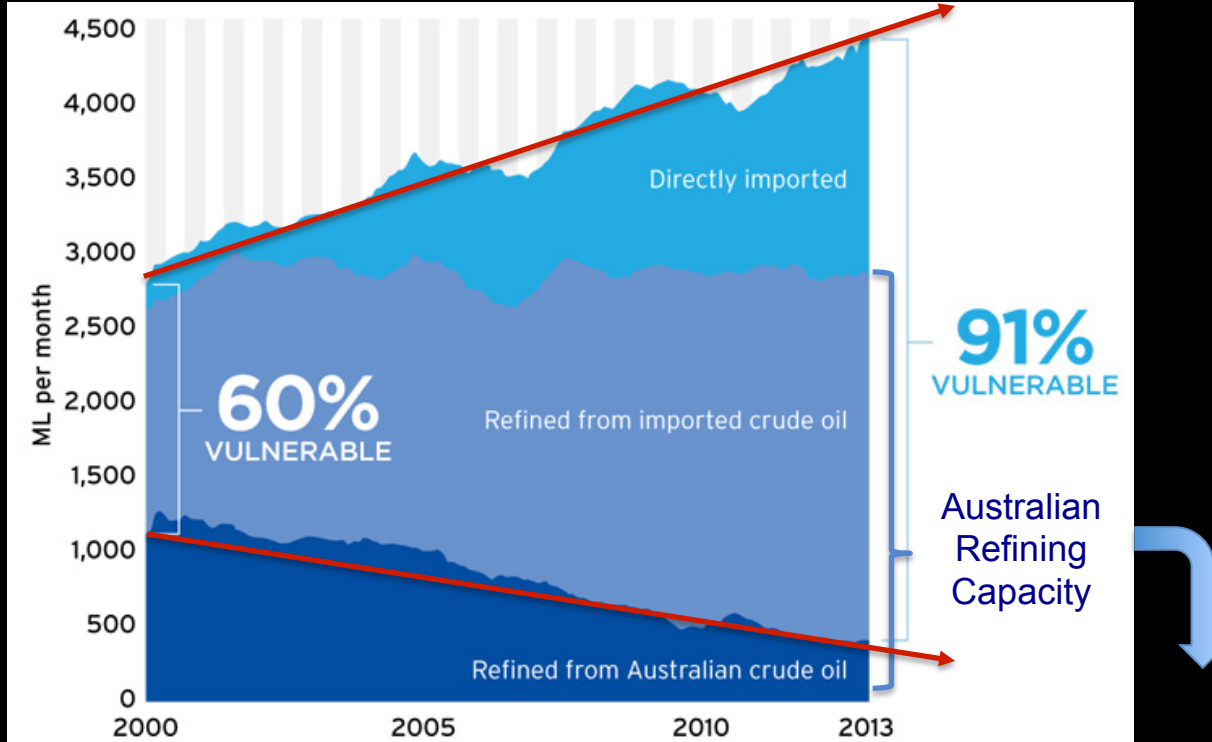
ASSUMPTIONS ?

Will market forces provide for energy security?



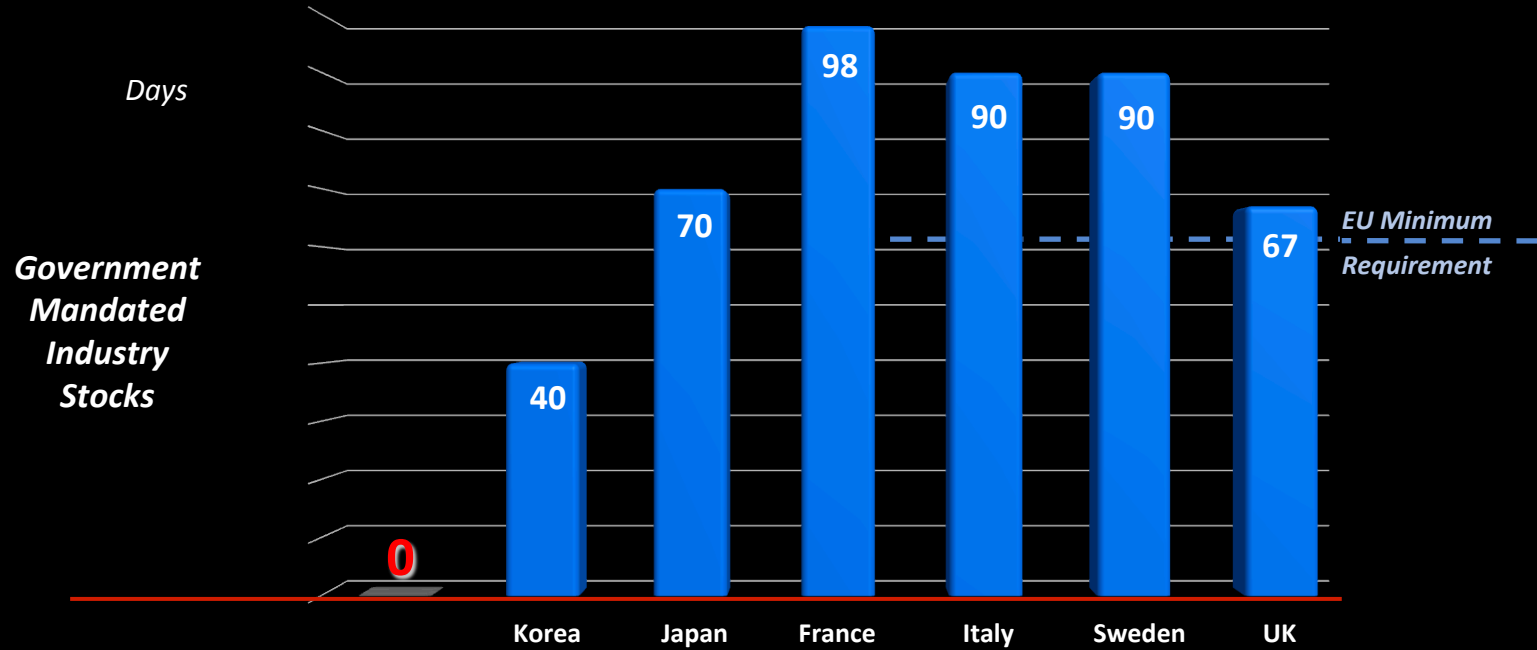
Fuel Trends

Australia's crude oil resources are small by world standards and depleting at a faster rate than they are being replenished by discovery



Government Mandated Stockholdings of Oil / Fuel

European and Regional Examples





Dr Greg Calbert – 2014 SecDef Fellow – Fuel Security

- Shift of fuel product sourcing
- Dominance of nationalised refining in Asia
- Rise of tensions in Sth China Sea region
- Dependence of Asia on MENA crude
- Strategic weapons systems in MENA
- Closure of Refineries
- Growing fragility of oil / fuel supply chain
- Decline in relative financial power regionally
- **We are in a strategic warning period for fuel security**

Current Fuels Vector

Australian Government:

- *Poor NESAs*
- *zero government owned fuel stocks and zero industry mandated fuel stocks*
- *100% reliance on “the market”*
- *No “Plan B”*



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*Responsibility passed
... “she’ll be right”*



Oil / Fuel Industry :

- *National Security scenarios not appropriate for fuel supply security assessments !*
- *Not the role of fuel distributors to hold buffer stocks ...this is the role of industry fuel users.*

Current Fuels Vector

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*Responsibility passed
... “handing over”*



Users:

- *Many larger users hold only limited stocks on the expectations that stocks will be held by suppliers or Government ...*
- *Many businesses and industry fuel users **incorrectly believe** that as they are essential users they will get preferential supplies during a supply emergency ...*



*Responsibility passed
... “she’ll be right”*



Oil / Fuel Industry :

- *National Security scenarios not appropriate for fuel supply security assessments !*
- *Not the role of fuel distributors to hold buffer stocks ...this is the role of industry fuel users.*

*Responsibility passed
... “not our role”*



Current Fuels Vector



2015 Senate Inquiry into “Australia’s transport energy resilience and sustainability” :

- The committee recommends that the Australian Government undertake a comprehensive whole-of-government risk assessment of Australia's fuel supply, availability and vulnerability.

On 15 Mar 18 the Joint Committee on Intelligence and Security review of the Critical Infrastructure Bill 2017 recommendation 1 was :

- *“that the Department of Home Affairs, in consultation with the Department of Defence and the Department of the Environment and Energy, review and develop measures to ensure that Australia has a continuous supply of fuel to meet its national security priorities.”*

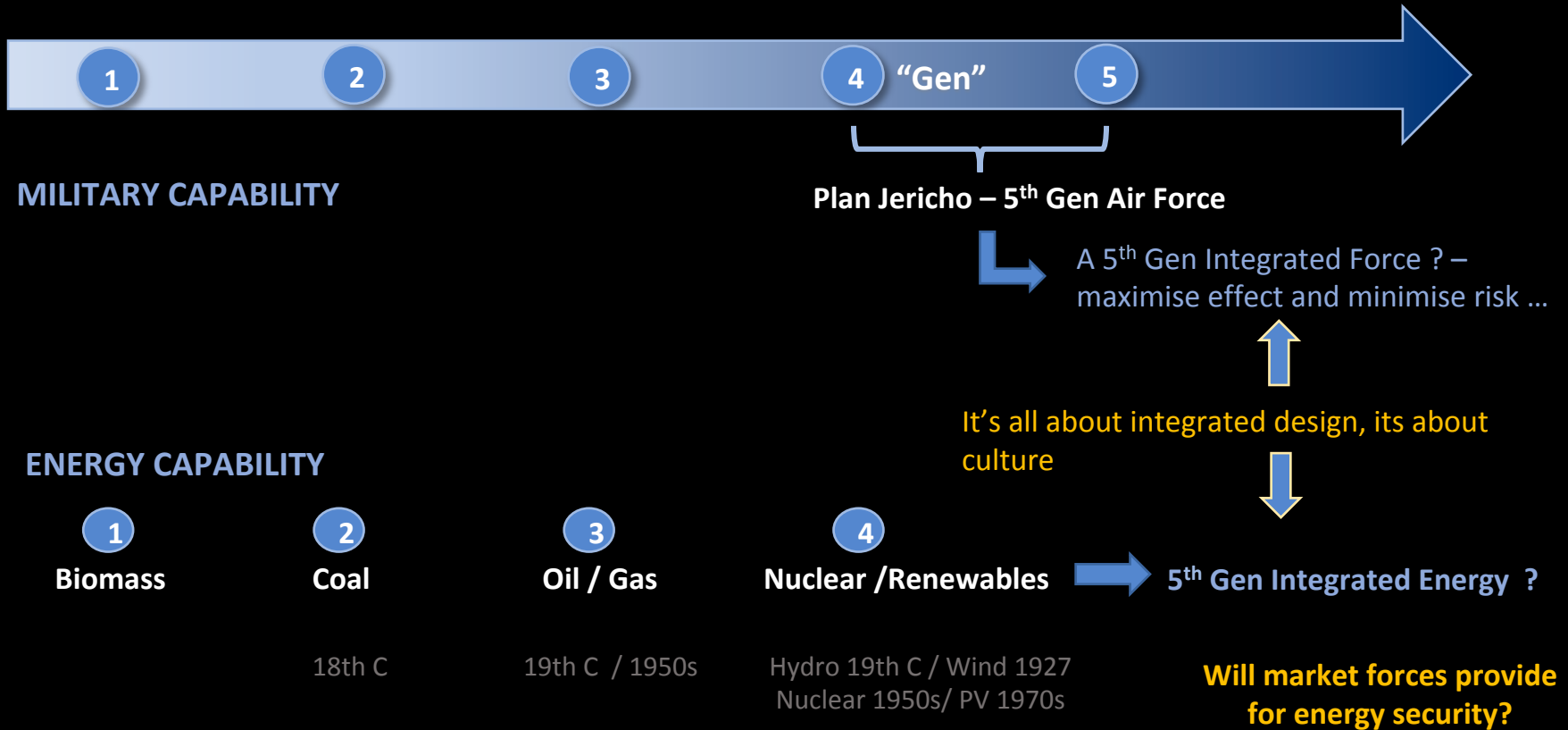
Where are we now?

The Government expects Defence to operate when markets fail, not just when the environment is guaranteed to be permissive to industry.

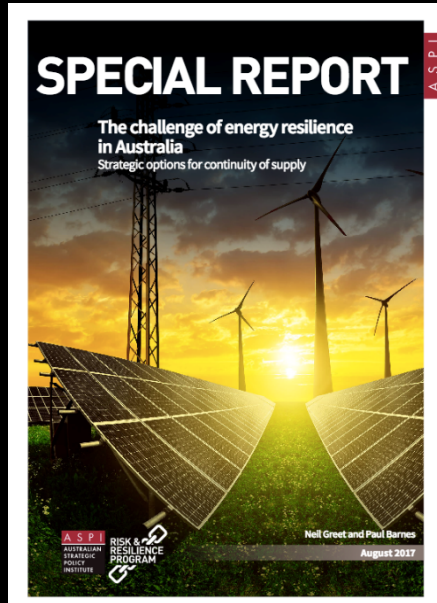
However:

- The analysis of resilience of our own national “systems” is poor.
- Operational risks resulting from scale of assumptions made would be significant.
- Energy Security has been outsourced to the market ... *and the market doesn't see that as their role.*
- The IEA 2018 report highlights that it is unclear how the country would respond in the event of a serious oil supply disruption leading to market failure.

Opportunity - Energy Transformation



Opportunity - Energy Transformation



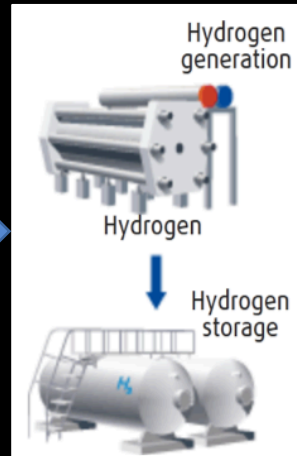
Currently, Australian energy policy tends to be stovepiped and sector-specific, which doesn't map well to the complexity inherent in energy infrastructure systems.

Developing energy resilience strategies is essential after a long period during which energy supply has been seen through singular lenses focused on discrete energy types with discrete global supply chains and disparate, separately managed, vulnerabilities.

Opportunity - Energy Transformation



Excess



Power Generation

NH_3 / CH_4

Transport/ Fuel Cells

Export

Integration

Resilience

Economics

Energy Security

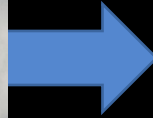
Scalability

Time / Mode Shifting

Opportunity - Energy Transformation

- A 5th Gen force can run on a 3rd/4th Gen Energy System ... at a cost / risk premium.
- A 5th Gen Force needs a 5th Gen Energy System.
- Defence's use of energy has evolved ... now it needs to transform along with a national energy system.
- Defence must have an Energy Strategy and Energy Policy.
- Defence needs to be a part of the national energy system design process.
- We have to lead, not just follow ...

Otherwise ...



NATIONAL SECURITY

Depends on

ENERGY SECURITY

We have to lead, not just follow ...

AVM John Blackburn AO (Retd) – RAAF Air Power Conference – 20 Mar 18