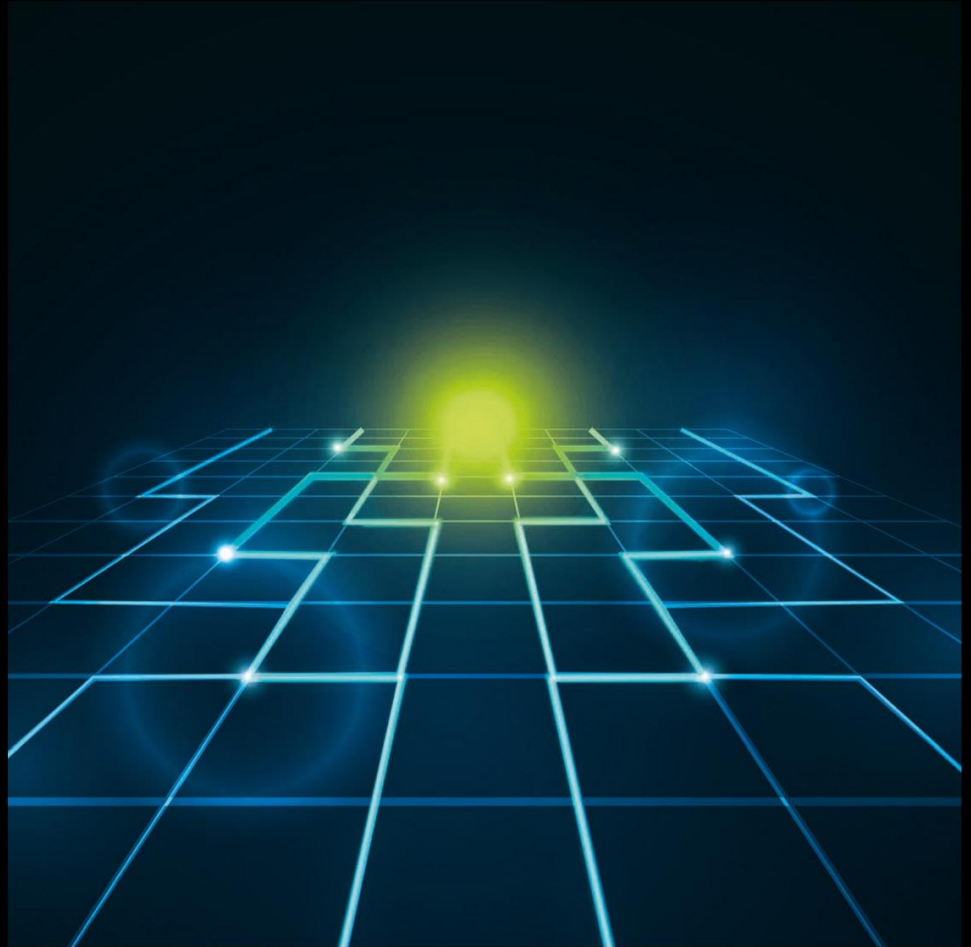


GI Glimpse



**Actuaries
Institute**

Tuesday 8 September 2015 • Sydney





Five things insurers can do about climate change

Sharanjit Paddam

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*This presentation has been prepared for the Actuaries Institute 2015
General Insurance Half Day Seminar.*

*The Institute Council wishes it to be understood that opinions put
forward herein are not necessarily those of the Institute and the
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1. Quit Carbon

Stop investing in fossil fuels



Climate risk for us is neither an ideological or theoretical issue: it is a core business issue, as we are already seeing the impact of increasing weather-related disaster risks.

Extreme weather events are increasing in intensity and severity. Last year alone, AXA paid out over EUR 1 billion globally in weather-related insurance claims.

Henri de Castries, Chairman and CEO of AXA
France's largest insurer

A photograph of Henri de Castries, Chairman and CEO of AXA, speaking at a podium. He is wearing a grey suit, a white shirt, and a dark patterned tie. The podium has a microphone and a sign that reads "PARIS 2015 CLIMATE". The background is a dark blue map of the world.

PARIS 2015
CLIMATE



COAL DIVESTMENT



AXA has decided to divest from the companies most exposed to coal-related activities.

This initiative represents a divestment of

€ 0.5 billion

"GREEN" INVESTMENTS



AXA commits to its green investments

X3

aiming to reach over

€ 3 billion by 2020



- \$190m in four green bonds since 2014
- Another \$100m over next three years

- US\$2b in green bonds
- "This is not a philanthropy exercise"



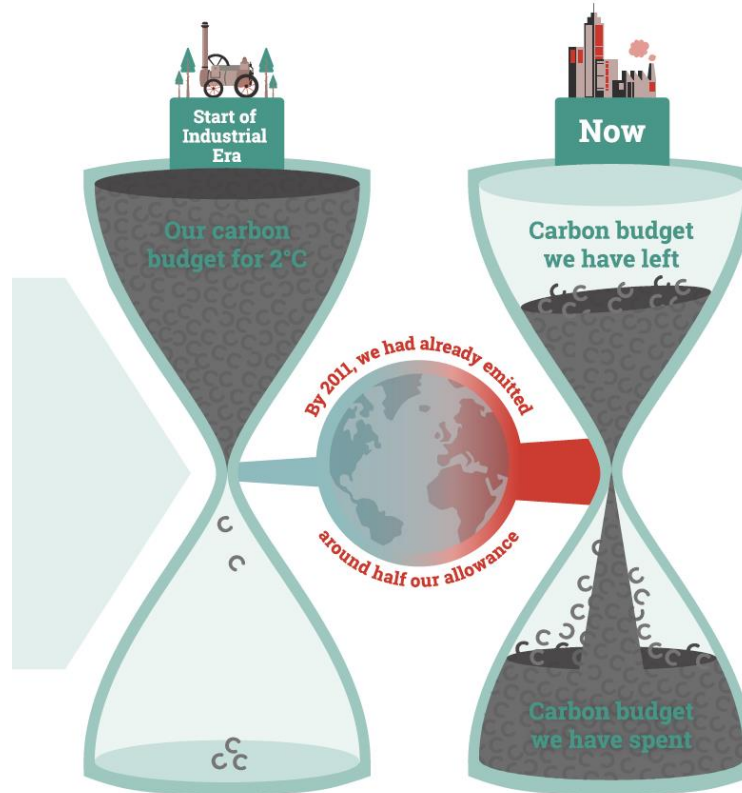
The pathway to two degrees

Meeting the internationally agreed target of 2°C means spending what remains of our carbon budget wisely*

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Unless we follow the '2.6' path we will reach our budget limit between 2050-2070

Source: ClimaspHERE 2013

Unburnable Carbon & Stranded Assets



No more than one-third of proven reserves of fossil fuels can be consumed prior to 2050 if the world is to achieve the 2°C goal, unless carbon capture and storage technology is widely deployed.

World Energy Outlook 2012, International Energy Authority

The issue of the bubble arises because the combined proven oil, gas and coal reserves currently on the books of fossil fuel companies will produce far more than this amount of CO₂ when consumed.

David Hone, Climate Change Advisor for Shell

We agree that burning all known reserves would probably cause global temperatures to rise by more than 2°C – and that addressing this issue will require the efforts of governments, industry and individuals.

BP

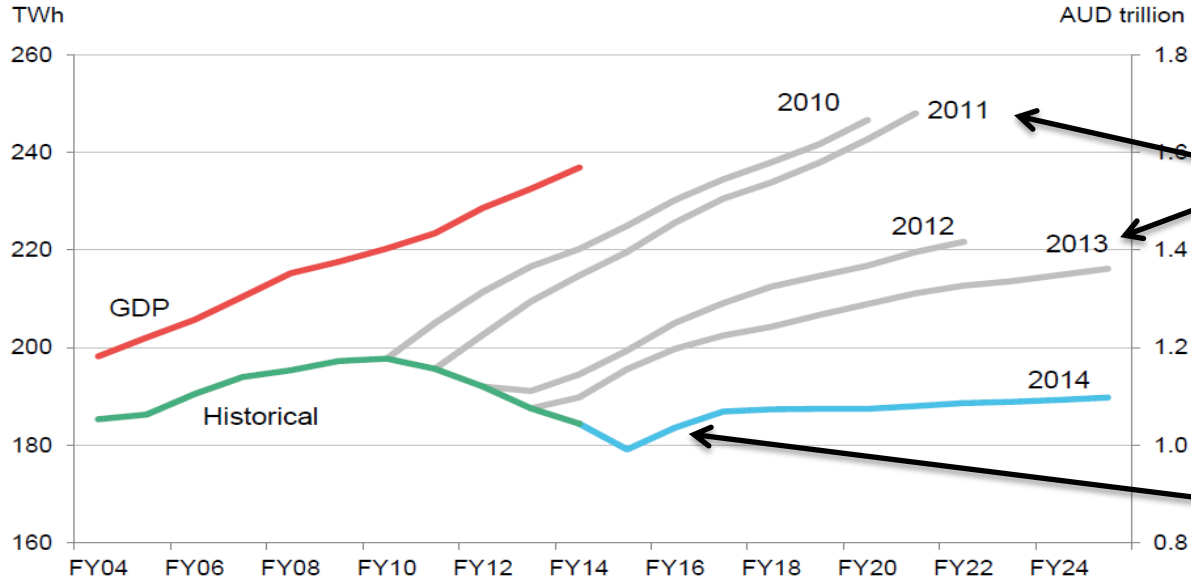
Falling demand in developed nations

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NATIONAL ELECTRICITY MARKET ACTUAL VS FORECAST ELECTRICITY DEMAND, FY2004–25

Bloomberg
NEW ENERGY FINANCE



Source: Australian Energy Market Operator, Reserve Bank of Australia, Bloomberg New Energy Finance

Forecasts were based on GDP growth and assumed electricity demand would grow with economic growth

But even though economic activity (GDP) is increasing, **electricity demand is flat**

Pollution putting political pressure

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What is China doing?

CLEAN ENERGY COOPERATION

WORLD'S TWO LARGEST EMITTERS OF GREENHOUSE GASES AGREE TO REDUCE CARBON POLLUTION



U.S. President Barack Obama greets his Chinese counterpart Xi Jinping in Beijing on Wednesday. – PHOTO: REUTERS

- U.S. to cut net carbon emissions by 26-28%, below 2005 levels, by 2025
- China to increase share of non-fossil fuels to 20% by 2030

TOTAL CO₂ EMISSIONS IN 2012 (million metric tonnes)



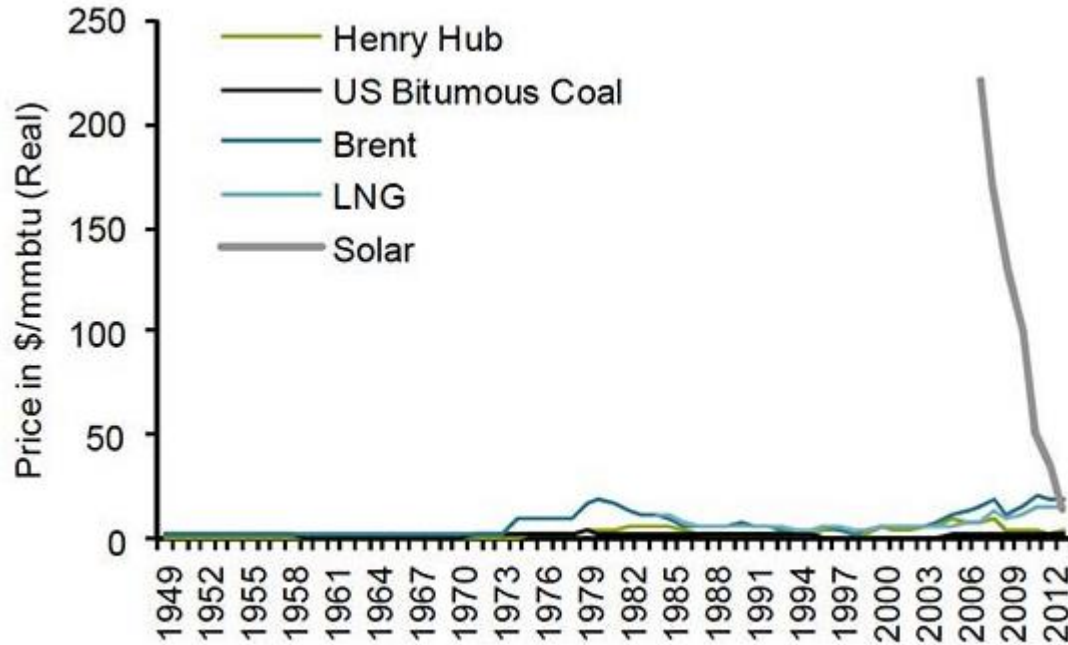
Source: U.S. Energy Information Administration

China's commitment is for additional 800-1,000 gigawatts of nuclear, wind & solar within 15 years.

That's:

- More than all the coal-fired power plants in China today
- Close to current total energy generation capacity in US today
- 16x to 20x Australian total energy generation capacity today

Massive reductions in price of renewables



Source: EIA, CIA, World Bank, Bernstein analysis

Revheads Rejoice!

P85D

All-Wheel Drive

85 kWh battery with high performance all-wheel drive

480 km range (NEDC est.)

3.3 seconds 0-100 kph

165 kW front, 350 kW rear motor power

250 kph top speed





1. Quit Carbon

Stop investing in fossil fuels

2. See the whole picture

Climate change means **everything** change

This changes everything



Cyclones, bushfires, floods,
costal erosion, drought, energy generation,
development, animals, plants, fish, coral
reefs, snow, tourism, homes, cars, business...



Climate
change



Insurance

Transforming Australia





- Australia's largest emitter of carbon
- No new coal power stations
- All coal power stations closed by 2050
- Investing in renewables
- Solar storage



“By the end of this decade, a 50% increase in renewable energy investment is likely to produce more than a doubling of insurance spending”

Swiss Re


Profiling the risks in solar and wind

**A case for new risk management approaches
in the renewable energy sector**

Category	Risk type	Description
Construction	Loss or damage	Breakage/theft in transit or during installation
	Start-up delays	Revenue losses arising from delays in project construction
Operation	Loss, damage & failure	Accident, theft, fire, natural catastrophe; equipment performs worse than anticipated; manufacturer unable to honour O&M agreements
	Business interruption	Revenue loss arising from failure, damage or extreme weather
Market	Weather	Variability in revenue due to variability in output, sometimes incurring additional balancing charges
	Curtailment	Regional grid oversupply where power output cannot be sold
	Power price	Variation in revenue due to wholesale price volatility
	Counterparty	Default of counterparty in power purchase agreement
Policy		Retroactive support cuts



Wave Power – Carnegie's Perth Wave Energy Project supplying zero-emission power and directly desalinated water

2. See the whole picture

Climate change means **everything** change

3. Pull the plug on poor planning


Endorse smarter land use and urban growth



People build houses in the bush in Australia, and they seem terrifically surprised when they burn down

**Professor Andy Pitman,
UNSW**





Our North, Our Future:
White Paper on Developing
Northern Australia

www.northernaustralia.dpmc.gov.au



What does climate change mean for Coastal flooding?





Sydney east coast low event April 2015

As a rule of thumb, a 0.1 m rise in sea level increases the frequency of flooding by about a factor of three.

Antarctic Climate &
Ecosystems CRC 2012





Cypress Central – Gold Coast



Source:
Productivity
Commission
2014

Is this sustainable?

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Grantham – a smart land use story!



3. Pull the plug on poor planning

Endorse smarter land use and urban growth

4. Keep up the momentum

Continue to drive mitigation and adaptation strategies for natural perils



AUSTRALIAN BUSINESS ROUNDTABLE
for Disaster Resilience
& Safer Communities



- White Paper 2013 examples of pre funding resilience measures:
 - Raise the wall of Sydney Warragamba Dam by 23 metres.
 - Housing resilience program to reduce risk of cyclone damage in South East QLD
 - More resilient housing approaches in bushfire prone areas on outskirts of Melbourne



Mitigation in action

What a levee in Roma means for HOME INSURANCE PREMIUMS



SINCE 2008 SUNCORP HAS PAID OUT OVER **700 HOME CLAIMS** FROM FLOODING AND EXTREME WEATHER IN THE TOWN OF ROMA AT A COST OF **\$50 MILLION+**

TOTAL PUBLIC AND PRIVATE SECTOR REPAIR BILL FOR ROMA SINCE 2005 **\$500 million**



COST TO BUILD LEVEE IN ROMA

\$20 million+

NUMBER OF PROPERTIES IN ROMA NOW CONSIDERED TO HAVE NIL FLOOD RISK



CUSTOMER PROPERTIES AT FLOOD RISK - AVERAGE PREMIUM REDUCTION **60%**



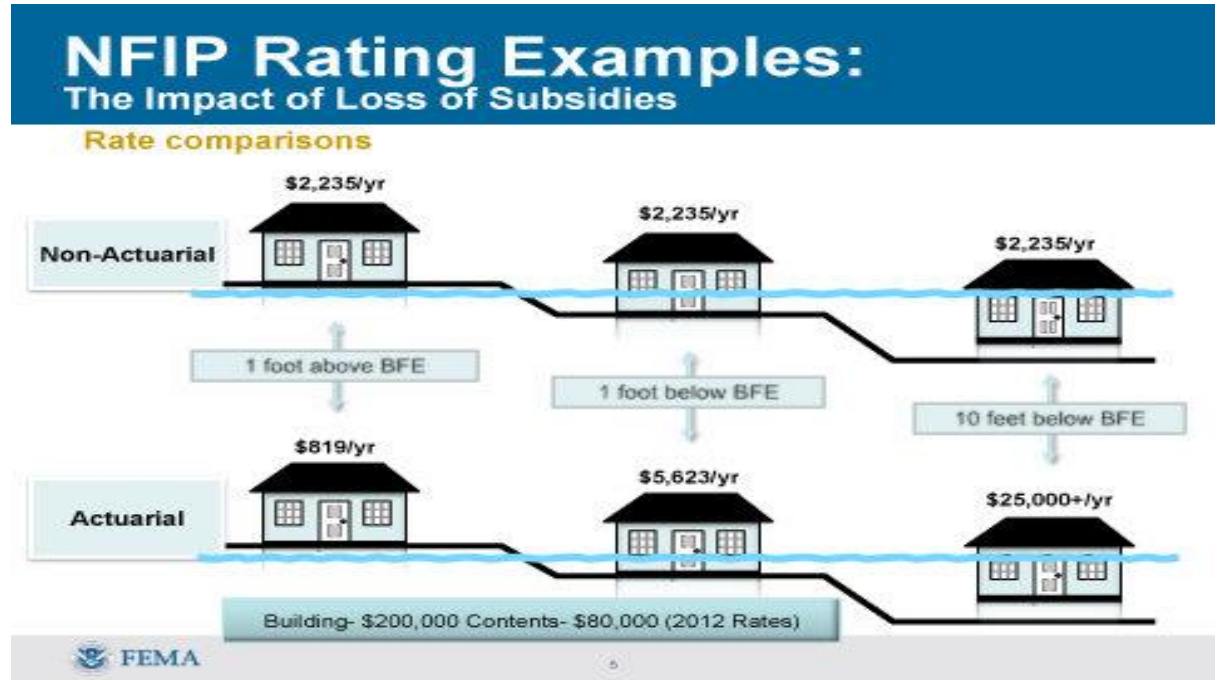
Properties protected by levee and previously at highest risk of flooding will see premiums **DROP BY 90%**

MODELLING SHOWS A TYPICAL **\$400K HOME** THAT PREVIOUSLY WAS AT RISK OF FLOODING COULD **SAVE UP TO \$7000 EACH YEAR**



Insurance as a price signal

‘Unaffordable insurance is the symptom not the cause of failures in the property market ‘
Mallon et al 2014



4. Keep up the momentum

Continue to drive mitigation and adaptation strategies for natural perils

5. Prepare for some tough talking

Regulators, Consumers & Government
– they have questions!

Government

- Role & feasibility of insurance
- Northern Australia
- Treat cause, not symptom
- Don't shoot the messenger



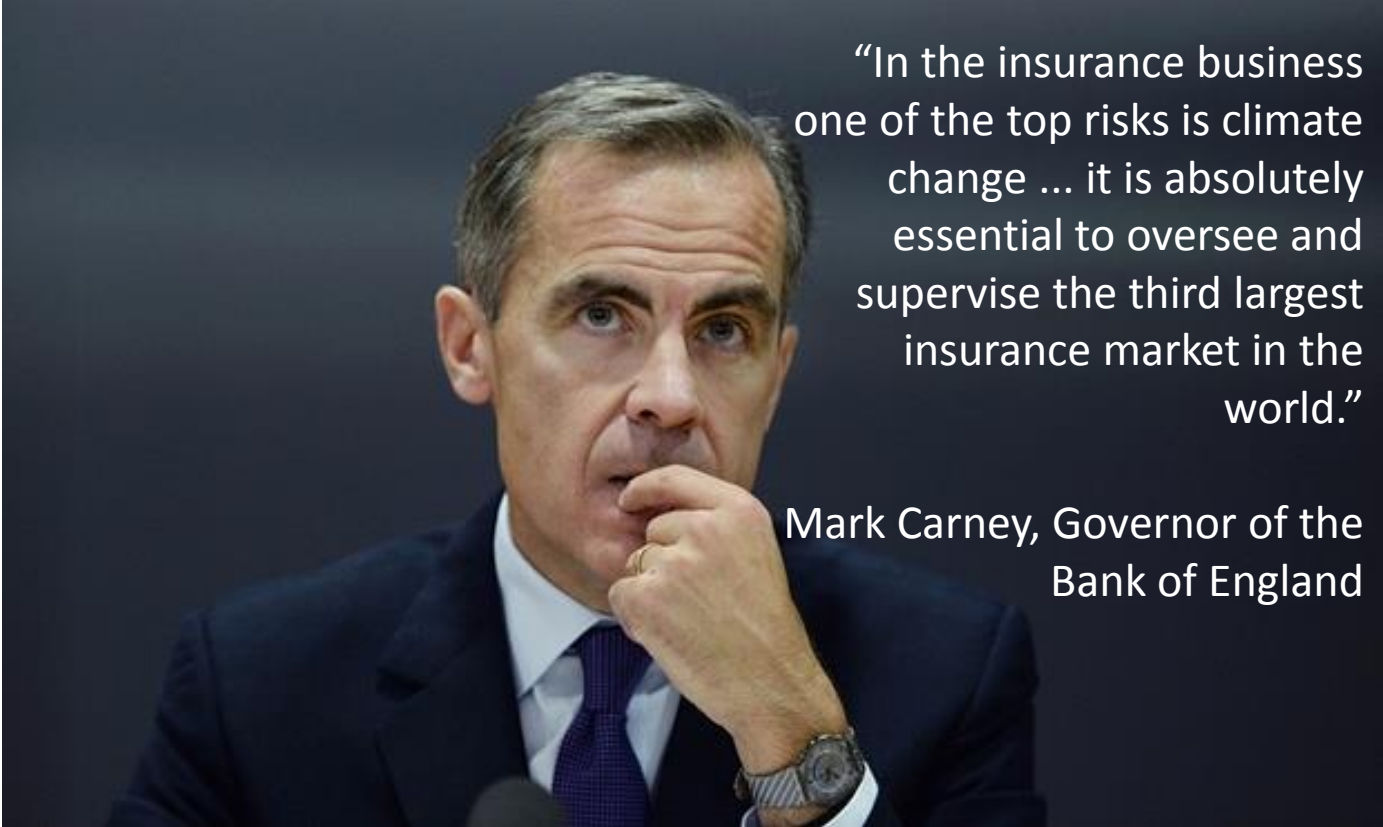
Consumers

- Financial literacy
- Awareness of risk
- Transparency
- Actions of the sea





Regulators

A photograph of Mark Carney, Governor of the Bank of England, speaking at a podium. He is wearing a dark suit, a white shirt, and a blue patterned tie. He has his right hand raised to his chin in a thoughtful gesture. The background is dark and out of focus.

“In the insurance business one of the top risks is climate change ... it is absolutely essential to oversee and supervise the third largest insurance market in the world.”

Mark Carney, Governor of the
Bank of England

5. Prepare for some tough talking

Regulators, Consumers & Government
– they have questions!



Five things you can do about climate change

1. Quit carbon
2. See the whole picture
3. Pull the plug on poor planning
4. Keep up the momentum
5. Prepare for some tough talking

