

11 October 2016

Mr Bryan Green MP
Leader of the Opposition
Parliament House
Hobart TAS 7000

By email: Gordon.luckman@parliament.tas.gov.au

Dear Mr Green,

Right to Information Request – 16 August 2016

I refer to your request pursuant to the *Right to Information Act 2009* (RTI Act) received on 16 August 2016 by Hydro Tasmania.

I am authorised to make decisions on behalf of Hydro Tasmania in respect of applications for information under the RTI Act.

1. Your Request

Your request was for:

“All information including documents, advice, briefing notes, reports, emails and other correspondence relating to cloud seeding provided to Minister Groom or the office of Minister Groom between 1 January 2016 and 16 August 2016.”

Herein after referred to as ‘the Request’.

2. Determination and Reasons for Determination of Request

I have undertaken a search of the information held by Hydro Tasmania and its subsidiaries to locate any records that may be relevant to the Request and have determined as follows:

Annexure A, of 22 pages, provides information to Minister Groom or the office of Minister Groom between 1 January 2016 and 16 August 2016 relating to cloud seeding. Further information relevant to the Request, and additional information on cloud seeding which is public information (RTI determinations) is available at:

http://www.hydro.com.au/system/files/www.hydro.com.au/AboutUs/RTI/16-08-11_RTI_Determination_Letter_Felicity_Ogilvie_Information_relativing_to_cloud_seeding_operation_on_5_June_2016.pdf (note this file is 34.75 MB and will take a few minutes to download), and

http://www.hydro.com.au/system/files/www.hydro.com.au/AboutUs/RTI/16-09-07_RTI_Determination_Letter_Rosalie_Woodruff_Cloud_seeding_June_2016.pdf.

3. Review of Rights

I have made the decision to not release certain information:

- The names of officers and contact details have been redacted as that is not information relevant to the request and officer details are also protected by the Privacy Act. Hydro

Tasmania has received verbal advice from the Ombudsman's Office that names and details of officers of Hydro Tasmania are not "information" under the RTI Act

- Information which is exempt under Section 31, 35 and 38 of the RTI Act has been withheld;

As required under Section 33 of the RTI Act, I considered the Public Interest Test assessment criteria under the Schedule to the RTI Act in regards to the information ultimately withheld pursuant to sections 35 and 38 and have determined that it was not in the public interest as a whole to disclose the withheld information.

The reasons for the determination are:

- that the release of the information would not contribute to the debate on the matter
- the information would not inform the request about the reasons for a decision
- the disclosure would not provide the contextual information to aid in the understanding of Hydro Tasmania's decisions
- disclosure would harm the business and/or financial interests of Hydro Tasmania
- the information is related to the business affairs of Hydro Tasmania and if released would cause harm to the competitive position of the Corporation.

A copy of this determination will be placed on the Hydro Tasmania website for public information.

You are entitled under Section 43 of the RTI Act to apply for a review of the decision made.


Any request for such a review should be made in writing within twenty (20) working days of receiving this letter and addressed to:

Mr S Davy
Chief Executive Officer
Hydro Tasmania
4 Elizabeth Street
HOBART TAS 7000

Should you have any questions on the information provided please contact the undersigned.

This request is now considered closed.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Alan W. Evans', is enclosed in a thin black rectangular border. The signature is stylized and cursive.

Alan W. Evans
Right to Information Officer & Corporation Secretary
Hydro Tasmania
t 03 6230 5300
e alan.evans@hydro.com.au
f 03 6231 4217

Annexure A

From: | hydro.com.au]
Sent: Monday, 11 April 2016 10:55 AM
To: @dpac.tas.gov.au)
Cc:
Subject: FW: Cloud seeding

Hi

Please find responses below.

Cheers

From:
Sent: Friday, 8 April 2016 4:25 PM
To:
Cc:
Subject: RE: Cloud seeding

See below

From: @dpac.tas.gov.au]
Sent: Wednesday, 6 April 2016 2:19 PM
To:
Subject: Cloud seeding

Hi

I would like to introduce you to a gentleman called

Anyway I have just spoken to about the most recent approach by .

Can I get some information on:

The price difference from the current proposal in 2009 and the one submitted;
The tender documentation and associated evaluations from 2008 when we tendered for a plane to support cloud seeding have all been filed away. My recollection was that the offer from organisation was in excess of \$5m per season. The total cost of the existing program is approximately \$1m per season

Overview on a dot point basis (ie not a paper but half a dozen key facts) of current program (ie based on 30 years of data, signed off by , scientifically rigorous., etc)

Information exempt under Section 35(1)(a) of the RTI Act 2009

Information exempt under Section 35(1)(a) and 38 (a)(1) of the RTI Act 2009

Information exempt under Section 31 of the RTI Act 2009

- *Hydro Tasmania's cloud seeding operations have been running since 1964 and is amongst the three longest running programs in the world*
- *The additional water gained is between 5-8%, with recent research by indicating yields of up to 12 % may be achieved*
- *For the past 10 years we have been working with [redacted] to conduct research into how to improve our operations, and via their links to CSIRO and BoM, to improve the weather forecasting tools available.*
- *The criteria for whether or not to cloud seeding are based upon the seeding criteria developed by CSIRO in the 1960-70s*
- *We cloud seed over the hydro-generation head water storage catchments (apart from the King catchment).*
- *The current benefit to cost ratio which we quote is 5:1.*

Information exempt under Section 31 of the RTI Act 2009

Information exempt under Section 31 of the RTI Act 2009

When it's the next time you are going out to tender.

We are currently reviewing the deliverables as we want to remove the CSO from the plane and place more reliance on data telemetered from the aircraft. For this to work we need to identify what data we require to be transmitted to the ground, the optimal means of achieving this and then how we may be able to control the burners and other equipment for the ground. The current plane provider has extensive experience with air to ground telemetry due to their working relationship with the Victorian fire service.

Information exempt under Section 38(a)(i) of the RTI Act 2009

Any other relevant facts about cloud seeding .

Information exempt under Section 35(1)(a) of the RTI Act 2009

Any other things to add

In December 2008 w received an offer from [redacted] to conduct cloud physics measurements in Hydro Tasmania catchments utilizing satellite, aircraft and ground based methodologies and cloud physics modelling to better understand the physical processes associated with cloud seeding at a cost of \$2.9 million during the 2009 cloud seeding season. We declined and continued to support the [redacted] research project.

(Emphasis added)

Information exempt under Section 31 of the RTI Act 2009

Cheers

Information exempt under Section 35(1)(a) of the RTI Act 2009

Office of the Hon. Matthew Groom MP
 Minister for State Growth
 Minister for Energy
 Minister for Environment, Parks and Heritage
 Level 10, 15 Murray Street, Hobart, TAS 7000

@dpac.tas.gov.au

From: @hydro.com.au]
Sent: Friday, 22 April 2016 9:28 AM
To:
Cc:
Subject: Cloud seeding

Hi

has prepared the attached draft letter in response to constituent's concerns on cloud seeding for your consideration.

You may also wish to consider including a comment around potential for Hydro Tasmania to cloud seed over agriculture catchments, we've said the following in the media previously "While seeding over hydro-generation catchments will have the highest priority, Hydro Tasmania is also prepared to undertake cloud seeding over agricultural catchments and bear the cost of this extra activity".

Cheers

Information
exempt
under
Section
35(1)(a) of
the RTI Act
2009

p +61 3 6230 | **f** +61 3 6230
e @hydro.com.au
w www.hydro.com.au
4 Elizabeth Street, Hobart TAS 7000

Please consider the environment before printing my email

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Dear

Thank you for your recent correspondence in relation to cloud seeding in Tasmania. The Minister for Primary Industries and Water passed on your correspondence as cloud seeding falls under my portfolio as Minister for Energy.

Cloud seeding is a technique that increases rainfall in a target area. Hydro Tasmania undertakes cloud seeding to increase rainfall in selected catchment areas in Tasmania. Cloud seeding operations are conducted from 1 May to 31 October. However, this year's operations began on 1 April due to the unprecedented dry conditions in Tasmania. Cloud seeding can only occur if cloud conditions are favourable.

An independent review undertaken by CSIRO and by the Antarctic Cooperative Research Centre in 2002 showed cloud seeding does not cause any detectable increase in rainfall outside the identified target area, nor does it cause any measurable decrease in rainfall downwind of the target areas. To quote from the report: "They have not detected any evidence of significant influences of seeding operations on agricultural areas in Tasmania."

The report is available at: http://www.hydro.com.au/system/files/documents/Cloud_seeding/CS-Evaluation-Report_Pook-Budd.pdf

The Tasmanian Government recognises that many Tasmanian farmers are doing it tough as a result of the unprecedented dry conditions. The Government has in place several initiatives to support our farming community. More information on these initiatives is available at the Department of Primary Industries, Parks, Water and Environment website.

Yours sincerely

Hon Matthew Groom MP
Minister for Energy

From: hydro.com.au]
Sent: Friday, 10 June 2016 11:06 AM
To: @dpac.tas.gov.au)
Cc:
Subject: FW: Minister Groom - cloud seeding June 2016 (4).docx

Hi

As discussed, see attached

p +61 3 6230 | **m**
e
w www.hydro.com.au
 4 Elizabeth Street, Hobart TAS 7000

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This e-mail and any attachments may contain confidential, proprietary or legally privileged information. If you are not the intended recipient, you must not keep, forward, disclose, adapt or copy the material and any such action is unauthorised and prohibited. If you have received this e-mail in error, please immediately advise *the sender* by return email and delete this e-mail and any attachments from your system.

From:
Sent: Tuesday, 7 June 2016 6:01 PM
To: (DPaC) @dpac.tas.gov.au)
Cc:
Subject: Minister Groom - cloud seeding June 2016 (4).docx

Hi , As discussed

Best Regards,

p +61 3 6230 **f** +61 3 6223
e @hydro.com.au
w www.hydro.com.au
 4 Elizabeth Street, Hobart TAS 7000

Hydro Tasmania is licensed (AFSL 279796) to provide general financial product advice. Hydro Tasmania is not licensed to provide nor will it provide advice which considers a person's objectives, financial situation and needs and you must therefore rely on your own assessment or seek your own independent advice in respect of decisions in relation to any financial product offered

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Please consider the environment before printing my email

Dept. Ref _____
 Critical Date _____

APPROVED/NOT APPROVED/NOTED	
SIGNED:	_____
DATE:	_____

Minute to the Minister for Energy

SUBJECT:

Minister's notation:

Purpose:

To inform the Minister of a cloud seeding flight over the catchment areas of Lakes Echo and King William on 5 June 2016.

Recommendation:

That you:

I. Note the information contained in this briefing note.

Information
 exempt under
 Section
 35(1)(a) of the
 RTI Act 2009

Summary

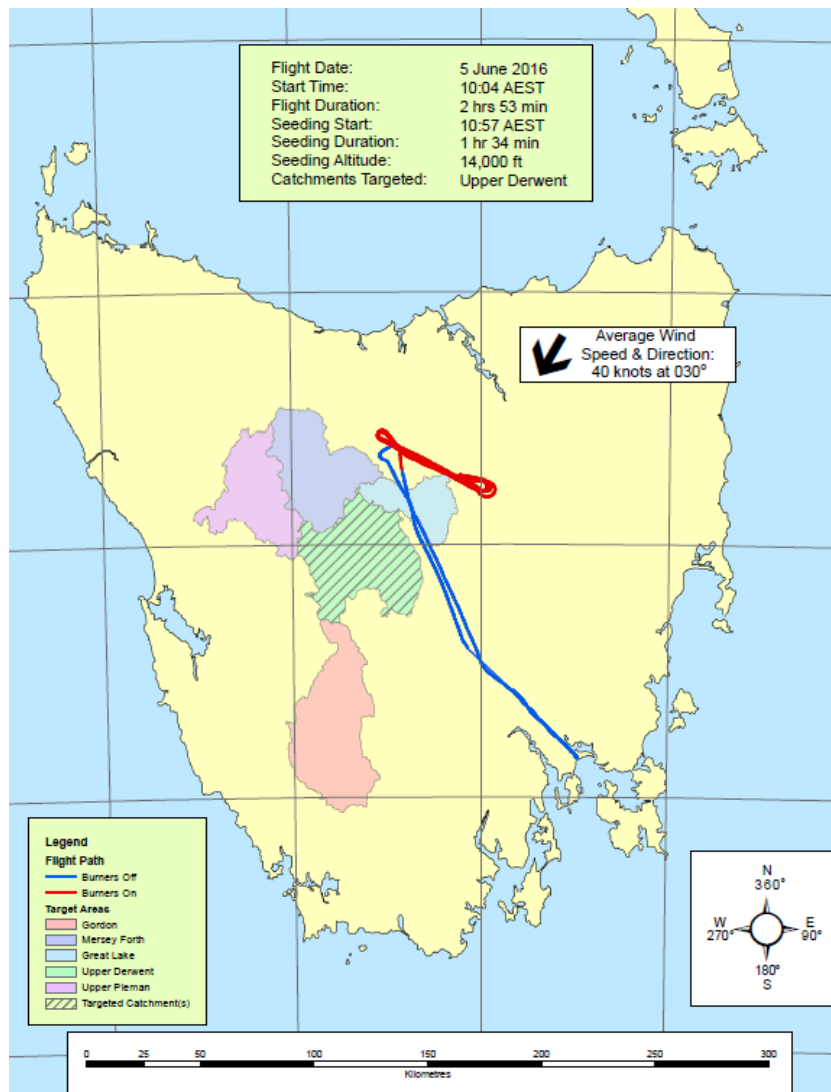
- I can confirm that Hydro Tasmania undertook a cloud seeding operation on Sunday 5 June, as per the information on its website.
- Currently there is no further cloud seeding activity planned.
- Hydro Tasmania is aware of the devastating impact of the recent floods and extends its sympathies to all who have been affected.

Background:

- As there had been no flood warning issued, Hydro Tasmania conducted a cloud seeding flight over the catchment areas of Lakes Echo and King William (i.e. the Upper Derwent cloud seeding target area) on Sunday 5 June 2016 between 10:57am and 12:31pm.

- The River Ouse catchment includes Lake Augusta and Great Lake which are outside the Upper Derwent cloud seeding target area.

Flight Map



7 June 2016

Prepared by:
 Position:
 Email:
 Phone:

Cleared by:
 Position:
 Email:
 Phone:

From: [mailto: @hydro.com.au]
Sent: Monday, 4 July 2016 3:33 PM
To: (DPaC)
Cc: @dpac.tas.gov.au;
Subject: Media lines on cloud seeding

Hi

As discussed.

p +61 3 6230 **f** +61 3 6230
e @hydro.com.au
w www.hydro.com.au
4 Elizabeth Street, Hobart TAS 7000

Please consider the environment before printing my email

This e-mail and any attachments may contain confidential, proprietary or legally privileged information. If you are not the intended recipient, you must not keep, forward, disclose, adapt or copy the material and any such action is unauthorised and prohibited. If you have received this e-mail in error, please immediately advise *the sender* by return email and delete this e-mail and any attachments from your system.

Media lines – cloud seeding July 2016

Hydro Tasmania has provided an initial report to the Tasmanian Government on the cloud seeding flight undertaken on Sunday 5 June 2016.

Hydro Tasmania understands the community concerns about the possibility that this cloud seeding flight may have contributed to the recent flood event. We are aware of the devastating impact of the flooding and extend our sympathies to all who have been affected.

The 5 June flight undertook cloud seeding for one hour and 34 minutes, aiming to enhance rainfall in the Upper Derwent, in conditions such that cloud seeding was expected to have a limited impact on rainfall.

The decision to conduct a cloud seeding flight is based on current and forecast weather conditions, including flood warnings and risk of lightning. There were no flood warnings in effect for the Upper Derwent at the time of the flight.

Hydro Tasmania is currently investigating what impact, if any, the cloud seeding flight may have had on the flood events of 5 June 2016. This analysis relies upon a range of data which is not normally collected in the routine course of cloud seeding flights and we are continuing to collect and analyse that information.

In addition to completing the above analysis we are undertaking a comprehensive end-to-end process improvement exercise to ensure that Hydro Tasmania's processes for cloud seeding are appropriate.

Hydro Tasmania's cloud seeding program remains on hold pending completion of a full internal review of the program.

Ends

From: @hydro.com.au]
Sent: Tuesday, 5 July 2016 12:58 PM
To: (DPaC); (DPaC)
Cc:
Subject: FW: cloud seeding
Importance: High

Not relevant
to request.

Hi

Has come back to you today re cloud seeding / have you given her any lines?

Cheers,

From: @hydro.com.au]
Sent: Tuesday, 5 July 2016 1:01 PM
To (DPaC); (DPaC); (DPaC)
Cc:
Subject: RE: cloud seeding

Not relevant
to request.

Thanks – will likewise share our lines with you

From: @hydro.com.au]
Sent: Friday, 29 July 2016 10:06 AM
To: (DPaC);
Subject: RE: HI

Ok. Just spoke to about report. Am about to go into a meeting on same.

Will get back to you!

From: @hydro.com.au]
Sent: Friday, 29 July 2016 3:01 PM
To: (DPaC)
Cc:
Subject: Analysis shows no impact from cloud seeding flight FINAL.docx

Hi

Media release attached, report on its way.

Will not release the attached until you hold the report.

Cheers,

Analysis shows no impact from cloud seeding flight

Analysis of data from a cloud seeding flight undertaken on 5 June 2016 shows the operation had no measurable impact on rainfall on that day.

The June floods had a devastating impact. Hydro Tasmania extends its sympathies to all who have been affected. Hydro Tasmania understands community concern about the possibility that the 5 June flight may have contributed to the flood event. A preliminary report on the flight was provided to the Tasmanian Government on 4 July and significant analysis has been undertaken since that time, resulting in a final report being delivered to government today.

Key points:

- Hydro Tasmania brought forward the start of its cloud seeding season this year as part of efforts to rebuild storages after an unprecedented dry Spring and Summer.
- The cloud seeding operation on 5 June took account of current flood warnings and the Bureau of Meteorology's forecasts.
- The operation was undertaken with the intent of enhancing rainfall into hydro storages in the Upper Derwent catchment (including Lake Echo). Had the seeding flight been successful it was possible there would also have been an effect in the Great Lake catchment, Arthurs Lake and Woods Lake.
- There were no flood warnings in place in the Upper Derwent or Great Lake catchments at the time of the flight.
- Cloud seeding began at 10:57am, in seeding conditions that were described on the Flight Log as "marginal", and continued for 1 hour and 34 minutes to 12:31pm.
- Post-flight analysis of data has demonstrated that the cloud seeding operation had no measurable effect on rainfall on 5 June because the cloud that was seeded already contained significant ice and was already precipitating freely.

The 5 June flight was undertaken both as part of Hydro Tasmania's usual practice of seeking to enhance rainfall and also having regard to the need for storage recovery following drought and the then current Basslink outage.

"Cloud seeding works by using silver iodide to introduce ice nuclei to clouds with high levels of super-cooled liquid water and low or no ice content," said Hydro Tasmania CEO, Steve Davy.

"The process aims to convert the super-cooled liquid water droplets to ice, which will then fall as precipitation – rainfall or ice crystals. If a cloud has high levels of ice content and is already readily precipitating, introducing further ice nuclei will not enhance this process."

Data collected by the aircraft's instruments and data obtained from the Bureau of Meteorology, and analysed post-flight, show the cloud that was seeded on 5 June 2016 already contained significant ice and was already precipitating freely, meaning that any seeding effort to initiate precipitation was redundant.

"We appreciate there has been a high level of community concern that we undertook a cloud seeding flight on that date," said Mr Davy.

"We will now review the cloud seeding program to make improvements in our processes, including in relation to seeding when there is a risk of floods, so that future decisions about cloud seeding are more in line with community expectations.

"Hydro Tasmania's cloud seeding program remains on hold and will not resume until a full internal review of the program has been completed and any appropriate improvements have been implemented.

"We will also be engaging with stakeholders prior to any resumption of the program."

Mr Davy said it is not expected that cloud seeding will be undertaken again this season.

"Given the unfortunate loss of life during the floods, we anticipate that there may be formal inquiries in the future in relation to the floods, including the cloud seeding flight, and we look forward to co-operating with any such processes and explaining our conclusions further at that point."

Ends.

From: @hydro.com.au]
Sent: Monday, 1 August 2016 3:57 PM
To: (DPaC)
Subject: RE: Hydro review

Hi – will call you

From: @hydro.com.au]
Sent: Monday, 1 August 2016 3:59 PM
To: (DPaC)
Cc: (DPaC)
Subject: RE: Hydro review

[Suggest this amendment:](#)

“That’s a matter for Hydro. Hydro Tasmania will review the program to determine whether any process improvements should be made. We understand that Hydro Tasmania intends to hold extensive stakeholder consultation before any resumption of the program.”

From: @hydro.com.au]
Sent: Wednesday, 10 August 2016 12:08 PM
To: (DPaC)
Cc:
Subject: RE: Cloud seeding

Hi - am in workshop all day. Have referred this on.

Information
exempt
under
Section
35(1)(a) of
the RTI Act
2009

From:
Sent: Wednesday, 10 August 2016 12:53 PM
To: @dpac.tas.gov.au'
Cc:
Subject: RE: Cloud seeding

Hi

is in a long meeting and asked me to reply on her and behalf.

Cheers,

p +61 3 6230 **f** +61 3 6230
e @hydro.com.au
w www.hydro.com.au
4 Elizabeth Street, Hobart TAS 7000

Information
exempt
under
Section
35(1)(a) of
the RTI Act
2009

From: @hydro.com.au]
Sent: Thursday, 11 August 2016 9:07 AM
To: (DPaC)
Cc:
Subject: RE: qtb

Hi

Please find attached QTBs as outlined below.

I will get the cloud seeding one to you later today.

Cheers

Information
exempt
under
Section
35(1)(a)
of the
RTI Act
2009

On 11 Aug 2016, at 4:38 PM,

@hydro.com.au> wrote:

Hi

The cloud seeding QTB is still with the legal team, would tomorrow morning be ok?

Cheers

From: @hydro.com.au]
Sent: Friday, 12 August 2016 11:38 AM
To: (DPaC)
Cc:
Subject: RE: qtb

Hi

Please see attached cloud seeding QTB

Cheers

Hydro Tasmania



Question Time Briefing Minister for State Growth and Energy

Subject: CLOUD SEEDING

Date prepared: 8 AUG 2016

Speaking points

- Madam Speaker, a preliminary report on the cloud seeding flight of Sunday 5 June 2016 was provided to the Tasmanian Government on 4 July. Significant analysis has been undertaken since that time, resulting in a final report being delivered to government on 29 July.
- Analysis of data from the flight shows the operation had no measurable impact on rainfall on that day because the cloud that was seeded already contained significant ice and was already precipitating freely.
- Hydro Tasmania will review its cloud seeding program to make improvements in processes, including in relation to seeding when there is a risk of floods.
- It is not expected that cloud seeding will be undertaken again this season.

Background

- Hydro Tasmania brought forward the start of its cloud seeding season this year as part of efforts to rebuild storages after an unprecedented dry Spring and Summer.
- The cloud seeding operation on 5 June took account of current flood warnings and the Bureau of Meteorology's forecasts.
- The operation was undertaken with the intent of enhancing rainfall into hydro storages in the Upper Derwent catchment (including Lake Echo). Had the seeding flight been successful it was possible there would also have been an effect in the Great Lake catchment, Arthurs Lake and Woods Lake.
- There were no flood warnings in place in the Upper Derwent or Great Lake catchments at the time of the flight.
- Cloud seeding began at 10:57am, in seeding conditions that were described on the Flight Log as "marginal", and continued for 1 hour and 34 minutes to 12:31pm.
- Post-flight analysis of data has demonstrated that the cloud seeding operation had no measurable effect on rainfall on 5 June because the cloud that was seeded already contained significant ice and was already precipitating freely.

Prepared by: _____
Position: _____
Document reference: _____

Cleared by: _____
Position: _____
Telephone: _____