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### **Submission to the Inquiry into Metrological Forecasting Standing Committee on Industry, Science and Innovation**

#### **Summary**

The following is a submission to the Inquiry into Metrological Forecasting that points out the obvious fact that relying on 19<sup>th</sup> century bushfire detection systems in a rapidly changing 21<sup>st</sup> century climate is prone to failure.

The current system which relies upon good Samaritans reporting outbreaks of bushfires and random aerial surveillance is no longer good enough. Allowing fires to burn out of control in remote locations is no longer good enough. We must change the way we think about fire detection as part of the overall strategy for dealing with an every dryer climate.

Other countries throughout the world are embracing new technology to support the fire management effort. Our emergency services organisations must investigate and trial this new technology and not continue with existing systems and procedures just because they is an historical or an organisational legacy.

#### **21<sup>st</sup> Century Bushfire Detection**

Firewatch is based upon technology developed by the German Aerospace Institute (DLR) as part of the NASA Mars Pathfinder Mission. The Europeans were charged with the responsibility of surveying the surface of Mars prior to the Pathfinder vehicle landing there, and it is this patented scanning technology that is at the core of Firewatch.

IQ Wireless, a German technology company obtained the exclusive license from the German Aerospace Institute (DLR) for the purposes of applying it for the purposes of the early detection of bushfires or forest fires as they are known in Europe.

In summary the Firewatch system is made up of three components. Firstly there is a sophisticated sensor/camera which collects data as it rotates on top of a mast or fire tower. Each camera/sensor can monitor an area of 400-700 square kilometres (depending upon the topography) 24 hours a day. The second component is the sophisticated software which takes the data feed and interprets it. It is able to detect the difference between 16,384 shades of the colour grey and as such can detect the difference between smoke, cloud, mist, fog and automatically alerts the emergency services command centre when smoke from a fire is detected.

The third element is the independent power system which is a combination of solar and hydrogen fuel cell technology which means the cameras can operate in even the most remote locations off the power grid.

The Firewatch system thus provides real-time information and analysis of all fires within the camera's range, the exact location to an accuracy of 1.0 meter, and using

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meteorological data feeds like wind speed and direction, humidity etc, can advise in which direction the fire is moving. Firewatch has been proven to be able to detect smoke from bushfires before the human eye can see it.

The Firewatch system is not new. It has been used in Germany for the past 7-8 years and in this time it has reduced the area of forest burned each year by over 92%. The benefits to human life, property and carbon dioxide emissions are immense. Firewatch systems are now either installed or in the final stages of commissioning in the United States, Mexico, Portugal, France, Holland, Greece, Estonia and the Czech Republic.

The headline of the Spectator article attached is incorrect. Satellite technology is always thought to be the gold standard in terms of bush fire detection, when in reality it is far from it. Satellites only pass over every 6-8 hours and they are horrendously expensive to operate. Satellite systems also do not work when cloud cover is present. Firewatch is the only bushfire detection technology that has a scalable range (radius of 15km) and works day and night. Firewatch is proven to be three times more sensitive than any other bushfire detection technology including infra-red and CCTV.

The tragic events in Victoria on Black Saturday underscore the need to bring Australia's fire detection systems into the 21<sup>st</sup> century. It is unbelievable in this day and age that we still depend upon good Samaritans phoning in reports of fires, volunteers in fire towers with binoculars and random aircraft surveillance. Firewatch is the state-of-the-art bushfire detection system and in today's ever more extreme climatic conditions we must embrace new ways of thinking and adapt to a new paradigm of climate in our country.

As shown below, the German Chancellor Angela Merkel and Californian Governor Arnold Schwarzenegger at the 2009 CEBIT Technology Exhibition in Germany inspected the Firewatch system. Firewatch has the highest possible reputation for technological excellence and is highly respected internationally. The people in the photos from left to right are: Mr. Reiter, Member of the board of Directors of German Aerospace Institute (DLR), Mr. Holger Vogel, Managing Director of IQ Wireless, Angela Merkel the German Chancellor and Mr Arnold Schwarzenegger the Governor of California.



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This submission does not mean to imply that Firewatch is the total solution however is certainly an important part of the new paradigm of fire management in Australia. Firewatch is not a fire fighting tool like a helicopter or water tanker. It is a fire detection solution and one that works 24 hours day, everyday, giving the most immediate and accurate information possible to fire fighting authorities.

Whilst the system has been successfully operating in Germany (where there are 156 cameras installed) for the past 8 years, and has reduced the area of forest burnt by 92% per annum, surely it is something that deserves thorough investigation by a team of people not just comprised of emergency services personnel. The fact is that the emergency services agencies in NSW and the ACT will not be the likely leaders in terms of embracing new technology.

This challenge will fall to our political leaders and those who will not accept bushfire detection has to be done the way it has always been done.

Finally it was recently reported in the Australian newspaper (13<sup>th</sup> February 2009) that the Victorian bushfires released an amount of carbon dioxide almost equal to Australia's national industrial emissions for an entire year. Although these emissions are currently not counted under the Kyoto protocol, it is widely agreed that at some stage, these emissions will become costed and thus it is obvious that extinguishing bushfires early not only is the right thing to do to save lives and property but it will become of paramount importance to meeting our global greenhouse commitments.



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Firewatch is the system that can deliver real time information about fire outbreaks over broad acre landscapes in a cost effective and efficient manner. This information makes it possible for them to be extinguished before the fire front gets away and turns into an out of control inferno. As a bonus, the Firewatch system has the ability to give the nation an easy free kick in terms of meeting future carbon dioxide emissions obligations by gaining control over out of control wildfires.

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