

Review of the National Pollutant Inventory

Discussion Paper



NPI Review Steering Committee

June 2018

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List of abbreviations

ABARE	Australian Bureau of Agricultural and Resource Economics	NGERs	National Greenhouse and Energy Reporting scheme
ABS	Australian Bureau of Statistics	NGO	Non-Government Organisation
AGVET	Agricultural and Veterinary Substances	NICNAS	National Industrial Chemicals Notification and Assessment Scheme
ANZSIC	Australian and New Zealand Standard Industrial Classification	NPI	National Pollutant Inventory
APVMA	Australian Pesticides and Veterinary Medicines Authority (Dept of Agriculture)	OECD	Organisation for Economic Co-operation and Development
dL	Deciliter, one tenth of a liter	PFAS	Per- and poly-fluoroalkyl substances – used in firefighting foams
DoE / DoEE	Department of the Environment (and Energy)	pa	per annum
EETM	Emission Estimation Technique (Manuals)	PM10 / PM2.5	Particulates equal to or less than 10 / 2.5 micrometers in diameter
EPA	Environment Protection Authority	POP	Persistent Organic Pollutant
FTE	Full Time Equivalent (Employee)	PRTR	Pollutant Release and Transfer Register
IWG	NPI Intergovernmental Working Group	RIS	Regulatory Impact Statement
MOU	Memorandum of Understanding	SoE	State of the Environment (Reports)
MW / h	Megawatt / hour	TAP	Technical Advisory Panel (NPI)
NEPC	National Environment Protection Council	TVOC / VOC	Total Volatile Organic Compounds
NEPM	National Environment Protection Measure	µg	Microgram, one millionth of a gram

Summary

This discussion paper invites public comment to inform the Review of the National Pollutant Inventory (the Review).

As the Review will have a significant effect on the future operations of the NPI, this paper will be of interest to stakeholders from government, industry, non-government organisations and the public who use data from and/or contribute data to, the NPI. Members of the public or academics who may not directly be involved with the NPI yet have an interest in its operations are also welcome to make submissions.

This paper contains the following sections:

- About the National Pollutant Inventory
- About the NPI Review
- Environmental outcomes
- Performance
- Resourcing.

Following the requirements of the Review's Terms of Reference, the paper describes the formative process, goals and objectives of the NPI, presents case studies of typical uses for NPI data and describes the operations of the NPI throughout, often benchmarking it with similar international programs.

The first two sections introduce the NPI and the Review background and submission process.

The Environmental outcomes section attempts to inform the reader on considerations they might make in determining the extent to which the NPI has achieved its goals and objectives and its potential for doing so in the future.

The Performance section describes how the NPI operates and promotes discussion on areas with potential room for improvement.

The Resourcing section outlines some potential funding reforms, discussing issues with potential to guide any requirement for further, more detailed financial analysis in the Review.

The paper identifies a range of questions relevant to the Review Terms of Reference to help guide submissions. Please note, these questions are for guidance only. Your submission may address any issue relating to the NPI.

About the National Pollutant Inventory

Daily human activity and industry actions can adversely affect the environment, and may contribute emissions to our air, land and water.

The National Pollution Inventory (NPI) has tracked pollution across Australia since 1998, ensuring that the community can access local information about the emission and transfer of potentially polluting or harmful substances which may affect them. The Australian, State and Territory governments, through the [National Environment Protection Council \(NEPC\)](#), agreed to legislation called National Environment Protection Measures (NEPMs), and created a program which helps protect or manage particular aspects of the environment to improve our air and water quality, minimise the impacts of hazardous waste and increase resource sustainability.

Programs like the NPI are known internationally as Pollutant Release Transfer Registers (PRTRs). Increasing community demand to know about potentially polluting substances in their local environment has led to over 50 PRTRs being implemented worldwide.

The NPI contains data on 93 substances identified as having a possible effect on human health and the environment. In making recommendations to NEPC on the scope of the NPI, a Technical Advisory Panel (TAP) takes into account the potential toxicity of the substance, human and environmental health effects and the risk of exposure.

The data includes emissions and transfers from facilities like mines, power stations and factories. It also includes aggregated emissions data from 'diffuse' sources such as households or motor vehicles. Organisations are bound by the NPI NEPM and the relevant State and Territory legislation to report facility emissions and transfers if their facility operates in certain industry sectors described by prescribed Australian and New Zealand Standard Industrial Classification (ANZSIC) codes and if the facility triggers one or more reporting thresholds for fuel or substance use.

Reporting facilities provide yearly data on substance emissions to air, water and land and additional information on fuel use, the facility location, the controlling business, and waste transfers. Facilities may also volunteer details of clean production techniques they implement.

State and Territory governments are responsible under the NPI NEPM to work with facilities to collect and validate the data, ensure they comply with reporting rules and provide it to the responsible Australian Government department, currently the Department of Environment and Energy (DoEE). DoEE is then responsible for storing the data and providing it publicly through the NPI website – www.npi.gov.au

Programs like the NPI acknowledge that citizens and Non-Government Organisations (NGOs) have a 'right-to-know' about chemical use and release that potentially could harm their environment or health. The data also informs government policy and regulatory processes, and provides knowledge and incentives to encourage industry to track progress and reduce their emissions.

The NPI is jointly funded by the Australian Government (through DoEE), and State and Territory governments.

About the NPI Review

The legislative framework underpinning the NPI is the *National Environment Protection (National Pollutant Inventory) Measure 1998* (NPI NEPM). This was Australia's first measure under the *National Environmental Protection Council Act*. NEPMs set out agreed national objectives for protecting or managing particular aspects of the environment.

On 25 November 2016, the [National Environment Protection Council](#) agreed to terms of reference for a review of the National Pollutant Inventory.

The Council noted the importance of robust information to support the management of pollution in Australia and noted the role of the NPI in providing this to governments, industry and the community. The Council acknowledged that the list of 93 substances reported under the scheme had been almost unchanged since its inception. The Council agreed to review the NPI focussing on identifying whether the right substances were being reported, the most valuable information was being collected and whether its collection was cost effective.

The Council also determined the Review would be:

- managed by the Australian Government
- overseen by a steering committee of senior officials from the Australian, State and Territory jurisdictions
- supported by the NPI Intergovernmental Working Group (IWG).

External experts including consultants may be engaged to support the Review where required.

Opportunities to improve the NPI have been identified through previous reviews and other mechanisms, including suggestions from the IWG. Some of these recommendations are yet to be implemented and, if still relevant, will be referred to in this document.

The NPI Review Steering Committee invites submissions in response to this discussion paper from all users or potential users and reporters of NPI data including industry, government agencies, non-government agencies and the community. To guide input, questions are posed throughout the document. Please note these questions are for guidance only, submissions may address any issues relating to the NPI.

Following the receipt of submissions to this discussion paper, a review report will be prepared to submit recommendations to the Meeting of Environment Ministers.

Any recommendations agreed by Ministers that require legislative change will be progressed through the NEPC process, which includes compiling a Regulatory Impact Statement (RIS) and a further public consultation period.

Terms of Reference

The Review will include:

1. An assessment of the extent to which the National Pollutant Inventory contributes, and its potential to contribute, to achievement of the desired **environmental outcomes** specified in the National Environment Protection (National Pollutant Inventory) Measure 1998, and whether those outcomes remain appropriate.
2. The scope for improving the **performance** of the National Pollutant Inventory, considering:
 - user experience, international benchmarks and use of data to meet international reporting needs
 - accuracy of reporting by industry, including any need for strengthened compliance and enforcement measures
 - interaction with other government programs, particularly those that monitor or manage emissions, wastes and hazardous substances
 - potential costs and benefits of alternative delivery models (including alternative legislative frameworks).
3. A comprehensive review of the National Environment Protection (National Pollutant Inventory) Measure 1998, as provided for in subsection 33(1) of the Measure.
4. Consideration of sustainable **resourcing** models for the effective operation of the National Pollutant Inventory, including options for cost recovery.

Submission instructions

Submissions are due by **5:00pm AEST, Friday, 10 August 2018**.

Submissions should be sent, preferably in Microsoft Word or other text-based formats, to the email address listed below.

Submissions can be forwarded to:

Email: NPI@environment.gov.au

For further information, please call 1800 803 772.

Confidentiality statement

All submissions will be treated as public documents, unless the author of the submission clearly indicates the contrary by marking all or part of the submission as 'confidential'. Public submissions, including any personal information of the author(s) and/or other third parties contained in the submission, may be published in full on a DoEE website. If a submission contains the personal information of any third party individuals, please indicate in the submission whether they have provided consent to the publication of their information. Any request made under the *Freedom of Information Act 1982* for access to a submission marked confidential will be determined in accordance with that Act.

Environmental outcomes

Introduction

The initial reasons for recording 'information on the emission of pollutants to air, land and water' in an NPI Measure were summarised in its Impact Statement in 1997.

'Establishing the NPI through the NEPC mechanism will give a national and coordinated picture of these emissions, provide for joint responsibility for the programme and allow effective integration with current environment protection policies and programmes.'

Establishing a Measure for the NPI will impose responsibilities on all jurisdictions: in particular, State, Territory and Commonwealth governments will work together to ensure the effective collection, collation and dissemination of NPI data. Government, industry and the community will also be able to make better informed decisions about their actions that affect the local and national environment.'

(National Environment Protection Council, 1997)

The desired environmental outcomes described in the NPI NEPM are:

(a) the maintenance and improvement of:

(i) ambient air quality; and

(ii) ambient marine, estuarine and fresh water quality;

(b) the minimisation of environmental impacts associated with hazardous wastes; and

(c) an improvement in the sustainable use of resources.

National Environment Protection (National Pollutant Inventory) Measure 1998

The NPI seeks to deliver these outcomes through achieving national environment protection goals, also set down in the NPI NEPM, which are to:

- *collect a broad base of information on emissions and transfers of substances on the reporting list, and*
- *disseminate the information collected to all sectors of the community in a useful, accessible and understandable form.*

National Environment Protection (National Pollutant Inventory) Measure 1998

For the purposes of this discussion paper, the assessment of the NPI's outcomes and goals will be considered through an examination of the extent to which the NPI:

- enhances environmental quality
- increases public and industry understanding of the types and quantities of substances emitted into the environment and transferred as waste
- encourages industry to use cleaner production techniques to reduce emissions and waste
- tracks environmental progress
- meets community right-to-know obligations
- assists governments in identifying priorities for environmental decision-making.

Further background information on the NPI, including the history of its development, the data it has produced, advice for reporters and fact sheets and student resources can be found at www.npi.gov.au.

Appropriateness of the environmental outcomes

The Terms of Reference for the NPI Review ask that it assess if the NPI is contributing to the desired environmental outcomes identified in the NPI NEPM and whether those outcomes remain appropriate. In undertaking such an assessment, it should be noted that the NPI's core function of collecting and providing publicly available information cannot directly maintain and improve environments, minimise environmental impacts or improve the sustainable use of resources. In addition to the NPI being an indirect influencer of these outcomes, there are many other, larger influencers of those outcomes, including other NEPMs and the suite of environmental protection legislation and programs enacted by all levels of government.

Consequently, the Review's assessment of the extent to which the NPI is contributing will be focused on how well it informs, empowers and enables policy and regulatory actions and behaviours in the community that contribute to the achievement of the desired outcomes.

Another consideration is whether the outcomes remain appropriate given changes to the environment, the economy, technology and the environmental regulatory framework since the NPI was instigated.

In regards to this issue, it can be safely stated on face value that the maintenance and improvement of the environment, reductions in emissions of hazardous substances and improvements in sustainability continue to be desirable outcomes for Australia and continue to generate significant interest amongst Australians. The demand for national data on these issues has not declined, with the 2016 State of the Environment Report Overview identifying 'inadequacy of data and long-term monitoring' as one of the 'key challenges to the effective management of the Australian environment' (SoE Authors, 2016).

It may also be noted that the goals and objectives above do not explicitly mention that the NPI should have some influence on the level of emissions of environmentally harmful substances, which is a key goal of other PRTRs (see [Box 1](#)). There is also no explicit reference to land environmental quality, although it is implicitly addressed through the desired outcomes relating to hazardous wastes and sustainable use of resources (land environmental quality is commonly referenced in other countries' PRTRs).

The issues further discussed in the rest of this paper will also provide some background to this topic.

Questions — Appropriateness of environmental outcomes

Do the NPI NEPM outcomes remain relevant?

If not, how might they be changed?

Box 1: Pollutant Release and Transfer Registers (PRTRs)

The NPI is a PRTR. Similar pollutant databases are established in over 50 countries to meet the 'right-to-know' of communities about potentially toxic and environmentally harmful substances. Examples of PRTRs include:

USA – [Toxic Release Inventory \(TRI\)](#)

United Kingdom – [UK PRTR](#)

EU – [E-PRTR](#)

Canada – [National Pollutant Release Inventory](#)

Germany – [Thru.de](#)

In April 2018 the Organisation for Economic Co-Operation and Development (OECD) issued a revised recommendation on PRTR harmonisation, effectively providing a list of desirable attributes for PRTRs. Having regard to the principle that 'each individual shall have appropriate access to information concerning the environment that is held by public authorities, and the opportunity to participate in decision-making processes' and that countries shall 'facilitate and encourage public awareness and participation by making information widely available' (OECD, 2018), the OECD recommended that Adherents (OECD members like Australia):

- a. *Define the following components that trigger reporting:*
 - i. *A list of chemicals, groups of chemicals, and other relevant categories of pollutants that are harmful or potentially pose risks to human health and/or the environment when released or transferred;*
 - ii. *A list of sectors with point sources, including both public and private sectors, from which relevant pollutants might be released or transferred, and a list of diffuse sources taking into account the need for such data in the Adherent concerned; and*
 - iii. *Thresholds for quantities of chemicals that are manufactured, processed, or used in a facility, or for quantities of chemicals that are released or transferred from a facility.*
- b. *Foster enhanced international comparability of PRTR data and cooperation between national PRTRs by promoting harmonised elements as defined in the series of OECD Guidance Documents on PRTRs;*
- c. *Allow, where the reporting sources are defined, the reporting of data by source;*
- d. *Encompass data for all media, including releases to air, water and land, and transfers for treatment, recovery, and disposal;*
- e. *Request reporting on a periodic basis, preferably annually;*
- f. *Include an online or electronic reporting system and integrate such a system where relevant with existing reporting systems, such as licenses or operating permits, to reduce duplicate reporting;*
- g. *Use voluntary and mandatory reporting mechanisms for collecting data where appropriate;*
- h. *Use data management systems which allow for verification of inputs and outputs;*
- i. *Make data accessible to the public on a timely and regular basis and in a user friendly manner, in order to meet the needs of data reporters and the public. This could be done in a variety of forms, including electronic, which should provide appropriate multi-query search criteria or tools to enable better location of information. Data should also be provided in such a manner that it is possible to determine the geographical distribution of relevant releases and transfers;*
- j. *Provide the flexibility to adapt PRTRs to the changing needs of affected and interested parties.*

(OECD, 2018)

The OECD also promotes methods to harmonise substance data lists, thresholds and other elements of PRTR regimes to aid international comparisons. A 'short list' of substances for inclusion within PRTR schemes is discussed in this referenced OECD report (OECD, 2014a).

Enhancing environmental quality

The NPI aims to enhance environmental quality through a better-informed public, industry and government, thereby facilitating behaviours and regulatory approaches to manage and reduce releases and transfers of pollutants.

As discussed under [Appropriateness of the Environmental Outcomes](#), there are many external factors impacting environmental quality. This can make it difficult to isolate the specific contribution of any one factor to improving environmental quality.

A number of commentators and academics have assessed whether PRTRs actually enhance environmental quality. Thorning states;

‘There is general agreement (Anton et al. 2004 p.632; Harrison & Antweiler 2003 p.362; Scorse 2005 p.1; Stephan 2002 p.197; Stephan 2003 p.4; Terry & Yandle 1997 p.433) that publishing pollutant emissions data does influence pollution reduction and that the community has a part to play in this reduction.’

(Thorning, 2009)

In analysing this issue, it may be worthwhile considering whether, as the NPI is the only national, publicly available environmental pollution dataset of non-greenhouse gas pollutants in Australia, there is an acceptable alternative. The NPI may not have direct, identifiable effects on environmental quality, however without the publicly available evidence base provided by the NPI dataset, could NGOs effectively gather public support for environmental issues, could industry effectively benchmark their emission levels, and could jurisdictions draft effective environmental legislation, policies and programs?

The means through which NPI data enhances environmental quality through influencing the public, industry and government are examined in more detail throughout this “Environmental outcomes” section.

Questions — Enhancing environmental quality

Do you think the NPI or other PRTRs enhance environmental quality?

If so, to what extent? Can you provide any examples?

Increasing public and industry understanding of substance emissions and transfers

The NPI is regularly used by the community and industry with users logging over 250,000 sessions per year on the website.

The 2005 NPI review listed the following users.

NPI users include:

- Academic Institutions
- Community and Citizen Groups
- Government Organisations
- Environmental Protection Agencies
- Other Federal Agencies
- State, Territory and Local Governments
- Industry/Financial Firms
- Media/Journalists

Users of NPI data include:

Jurisdictions

- State of Environment Reports: national and state based
- Air Quality Management Plans
- Crosschecking industry-reported emissions for load-based fee calculations.
- Project approval assessments
- Environmental policy development eg air quality exposure scenarios and prioritising air toxics.
- Air modelling and water modelling.
- Load based licensing modelling
- Assessing load based licensing
- Internal water quality reports
- Public policy and strategy development
- Emissions trends
- Tracking the effectiveness of pollutant reduction activities.
- Support for emission reduction programs
- Support for catchment programs
- Support for resolving pollution complaints
- National Oceans Office National Marine Atlas,
- General information about emissions to air, land and water and use of the mapping function

Community and Others

- Curriculum in various universities and schools subjects
- Highlight emissions in particular industrial areas
- Community health information in industrial areas
- State of the Environment Reporting in Local Government Areas
- Air quality management policy for non-point sources
- Air quality assessments by consultants
- Assessment by some auditing, accounting and insurance companies
- Assessing industrial activity within a region

Industry

- Emissions comparisons with competitors and other industries
- Community presentations and public consultation
- Industry performance reviews
- Company presentations to the local community,
- Inclusion in annual Health, Safety, Environment and Social Performance Reports
- Internal reporting and emissions management systems.

(Environment Link, 2005)

A 2014 survey of academic, government and industry NPI users by the University of South Australia found:

- Forty-two per cent of industry users and seventy per cent of government and research users thought data on pollutant emissions and transfers were useful.
- Ninety-five per cent of industry respondents said the major reason for NPI use was that their facilities were required to report to the NPI. Seventeen per cent of industry respondents indicated they use the NPI to obtain information about the environmental performance of similar facilities; six per cent to obtain information about pollution in the local area, and nine per cent in non-local areas. Government and research respondents use the NPI mainly to address a specific research requirement, obtain information about pollution in local and other areas, and to develop and review environmental policies and programs.
- The three major areas for improvement suggested by both groups were: 1) more robust emission estimation methods; 2) consistency with other data; and 3) nationally consistent estimation methods. In addition, the government and research group also suggested some improvement to spatial information.

(Wheeler, Zuo, & Loch, 2014)

Academic studies using NPI data are referred to throughout this paper and a typical example is at [Box 2](#). If you are an academic or researcher who has used NPI data, the NPI Review Steering Committee would welcome any submissions you can make in regards to your experience.

Questions — Increasing public and industry understanding of substance emissions and transfers

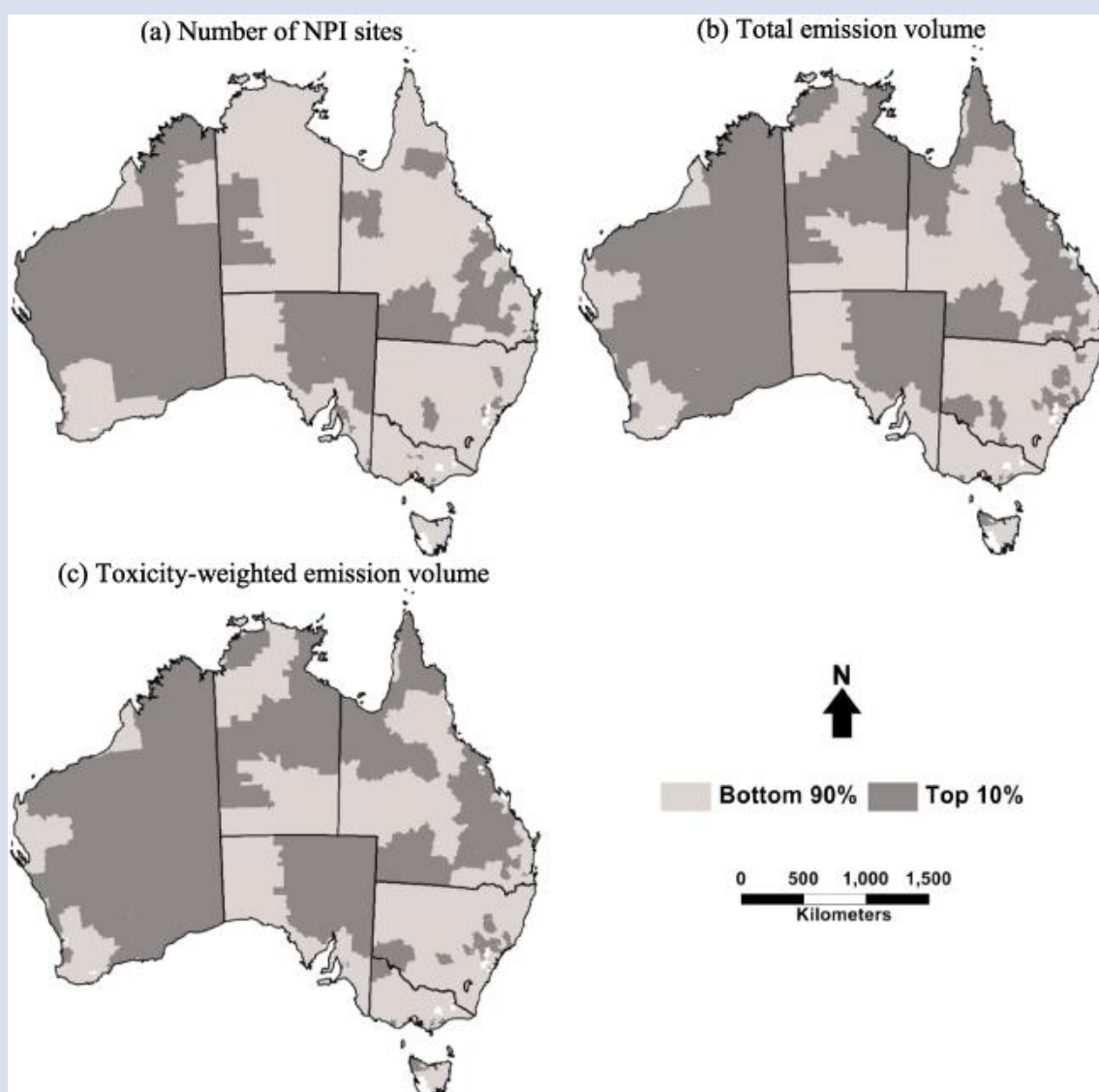
Does the NPI sufficiently raise awareness of and encourage public, industry, government and academic users to engage with and use its data to improve environmental outcomes through greater understanding? If not, why not?

What data could be collected and published through the NPI to make it more useful for you or other users?

Would more interpretation or analysis of the data assist users, and if so in what form?

Box 2: Academic uses of NPI, Environmental Justice Paper

- Jayajit Chakraborty and Donna Green published a paper in Environmental Research Letters in 2014 titled ‘Australia’s first national level quantitative environmental justice assessment of industrial air pollution.’
- The study;
‘links the spatial distribution of sites and emissions associated with industrial pollution sources derived from the NPI, to indigenous status and social disadvantage characteristics of communities derived from Australian Bureau of Statistics Indicators.’
- The following Figure (1) from the study shows ‘Communities falling at, or above, the 90th percentile for NPI air pollution (a) Number of NPI sites, (b) Total emission volume. (c) Toxicity-weighted emission volume’.



(Chakraborty & Green, 2014)

Encouraging industry to use cleaner production techniques to reduce emissions and waste

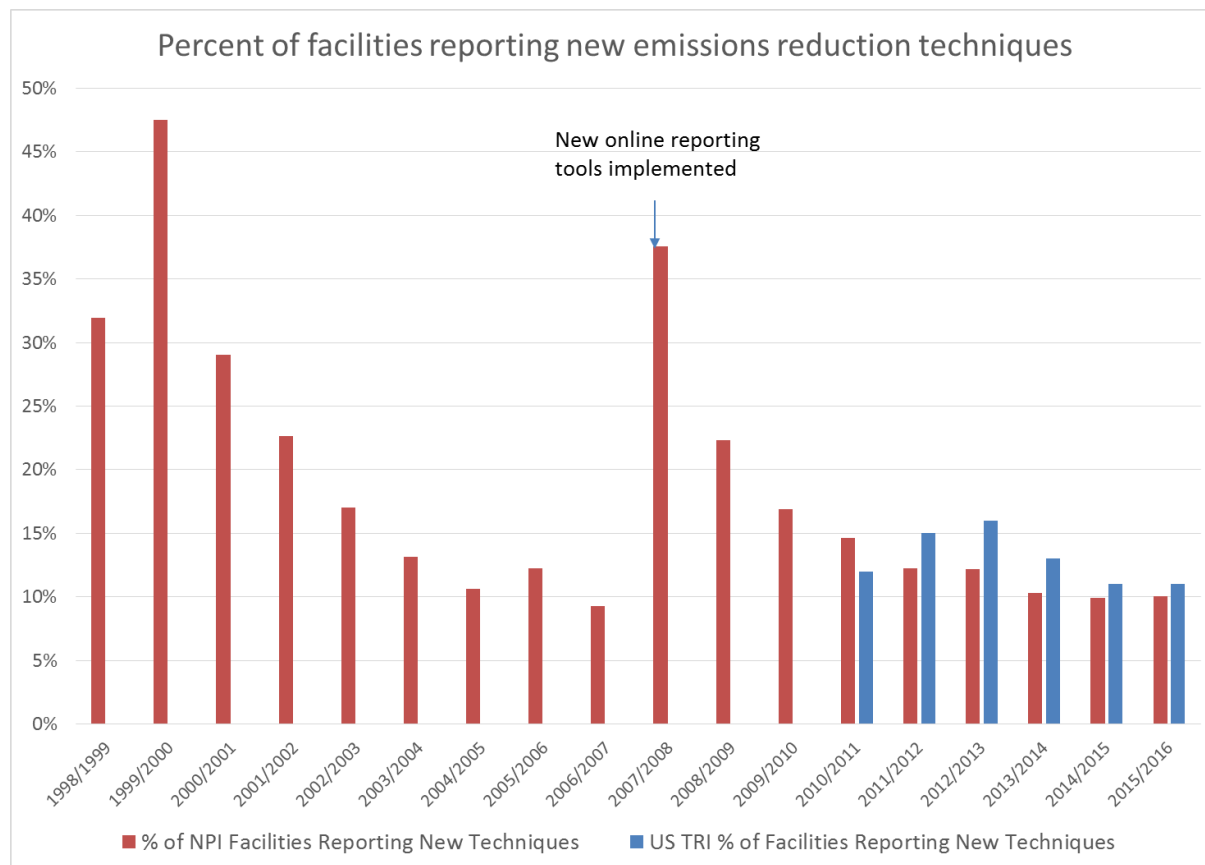
NPI data encourages industry to use cleaner production techniques through:

- allowing companies to benchmark their practices against competitors
- enabling the public and NGOs to bring pressure on sources of emissions in a local area
- helping to understand the potential impact of the release of pollutants in the local area
- reinforcing a continuous improvement culture through the annual reporting process.

Although a mandatory measure, some companies and industry associations use the requirement to collect data for the NPI as a part of their voluntary efforts for continuous improvement to their sustainability practices.

- Nyrstar has worked in partnership with the South Australian Government to reduce emissions of lead from its Point Pirie smelter, identified by the NPI as one of the highest emitting facilities in Australia (See [Box 3](#)) (Dept of the Environment, 2015).
- Kalgoorlie Consolidated Gold Mines has greatly reduced the mercury emissions from its gold roaster at Gidji Operations near Kalgoorlie after NPI data showed it to be Australia's highest emitting facility for mercury (See [Box 4](#)) (Dept of the Environment, 2015).
- Origin Energy use NPI statistics in their emission reports and as a basis for their voluntary reporting programs (Origin Energy, 2015).
- The Cement Industry Association quotes reporting to the NPI as an achievement on their Sustainability Roadmap which aims to reduce resource use and decrease emissions to the environment (Cement Industry Federation, 2018).

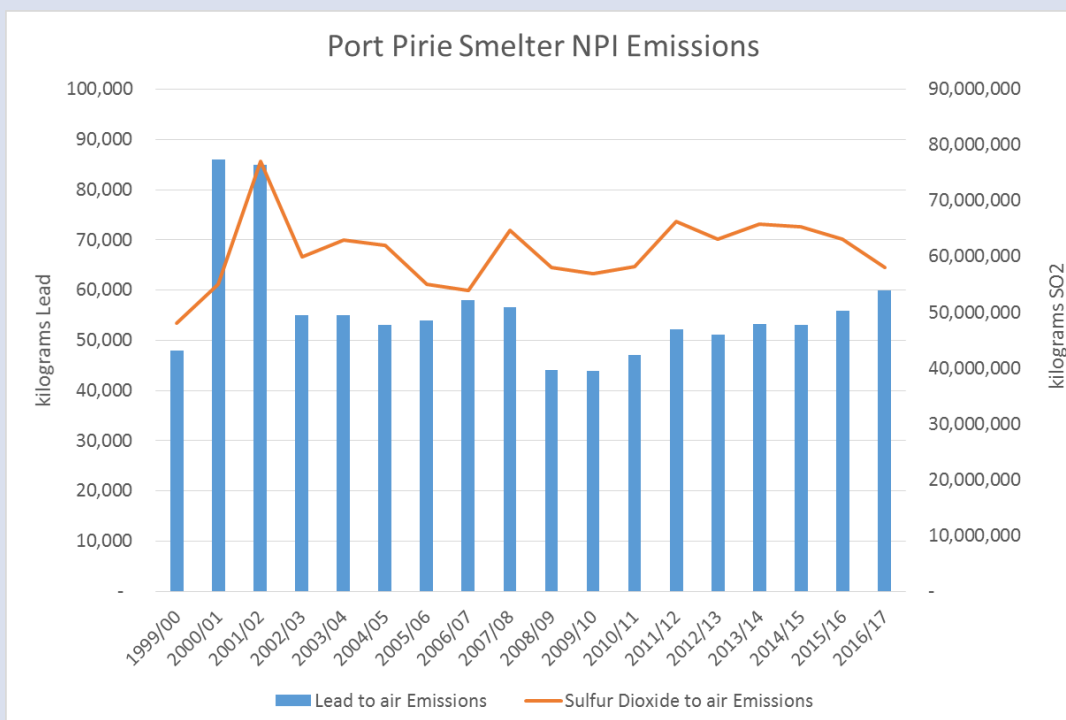
The NPI allows reporters to submit comments on cleaner production techniques (including installation of pollution reduction equipment) they have implemented throughout the reporting year. **Figure 1** shows the percent of reporting facilities in each year reporting implementation of a technique they haven't used before. As stated previously, the influence of the NPI on these activities is indirect, and regulatory measures are likely to have a larger impact. Available data for the US TRI's 'New Source Reduction Activities' is provided for comparison.

Figure 1 – NPI New Emissions Reduction Techniques

Information on the emission reduction techniques (cleaner production or pollution control equipment) used at a facility is provided voluntarily by some reporters (in 2015–16, 58 per cent of facilities voluntarily submitted emission reduction technique information). Making its provision compulsory and more standardised across reporters could produce more authoritative and therefore useful data. The value of this usefulness however would need to be weighed up against the cost to industry of supplying the data, and the cost to administrators of verifying the data.

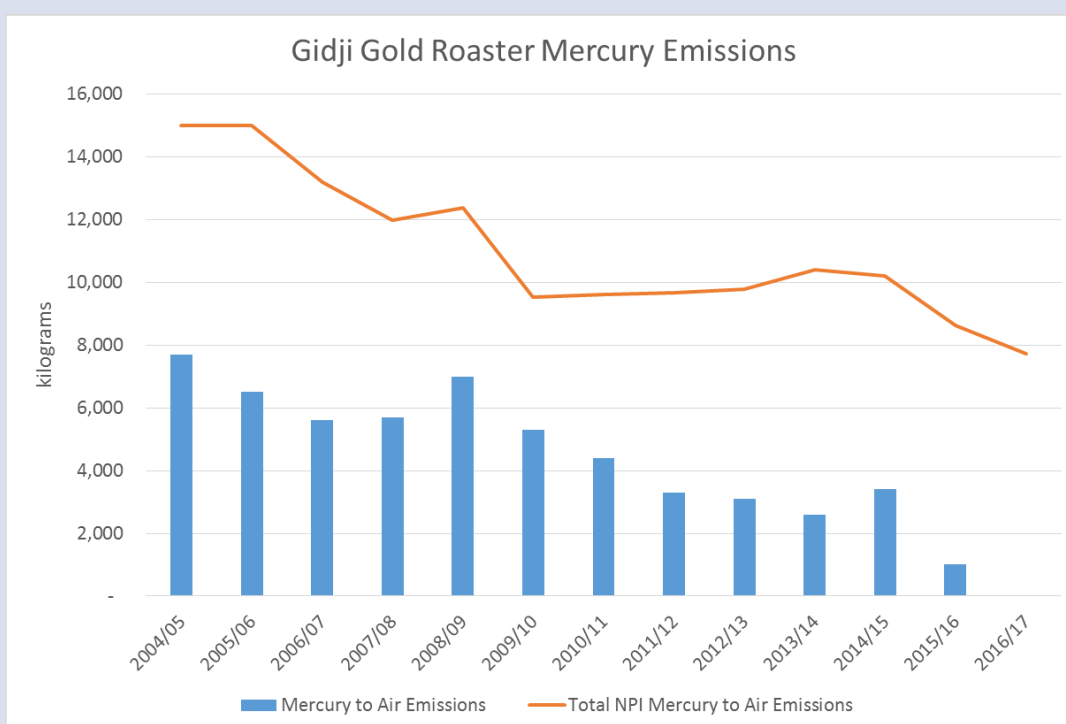
Box3: Nyrstar Lead Smelter case study

- The Nyrstar Lead Smelter has been in continuous operation in Port Pirie South Australia for more than 125 years. It processes a wide range of lead-rich concentrates and smelting industry by-products to produce lead, sulfuric acid, zinc-oxide fume, copper, silver and gold.
- Nyrstar has been working closely with stakeholders for many years to reduce blood lead levels in the Port Pirie community and NPI data has facilitated information flows about these issues since 2000.
- The \$600 million Port Pirie Redevelopment will decrease airborne metal, dust and sulphur dioxide emissions resulting in significant reductions in community blood lead levels. In addition, the South Australian Government and Nyrstar have agreed to further address community health through the establishment of a [Targeted Lead Abatement Program \(TLAP\)](#).
- The NPI should be able to quantify an important ‘before and after’ story once the new plant is operational, and thus continue to play a role in informing the community of emissions issues in Port Pirie into the future.



Box 4: Gidji Operations case study

- The Gidji Processing Plant, operated by Kalgoorlie Consolidated Gold Mines is located approximately 17 km north-west of Kalgoorlie.
- Two roasters at Gidji were used to extract the gold from ore mined at the nearby Fimiston Open Pit. Through the roasting process, where temperatures exceeded 600°C, mercury present in the ore itself was released.
- While the plant operated within air quality guidelines, it was Australia's highest emitter of mercury.
- The NPI recorded the declining emissions of the Gidji Gold Roaster up until it was shut down in 2015 and replaced by a low emission mill.



Questions — Encouraging industry to use cleaner production techniques to reduce emissions and waste

Does your organisation generate emissions? If so, how do you use NPI data?

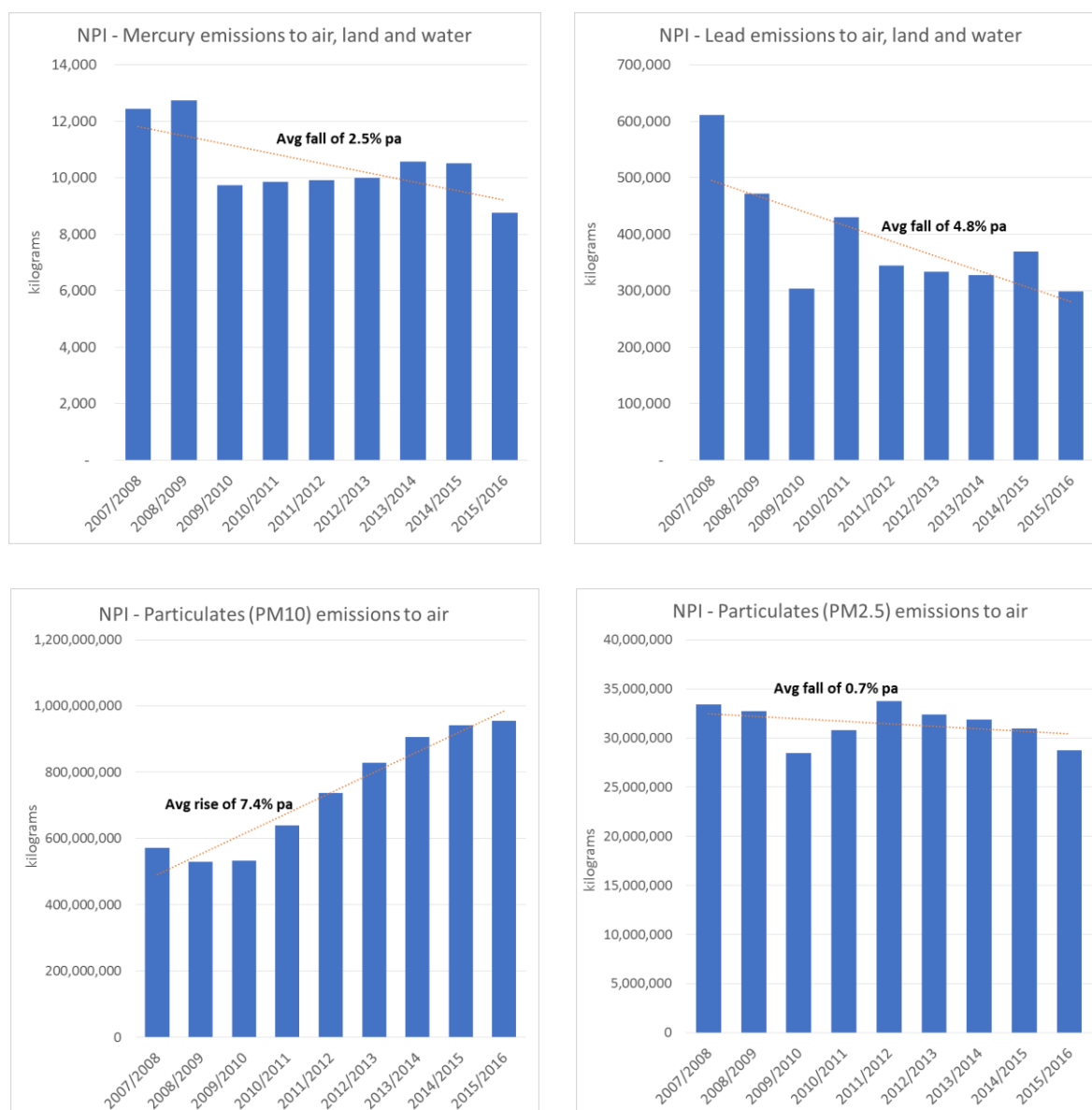
How can NPI data be more useful to you, your organisation or your industry?

Do you/would you use the data on the emission reduction techniques facilities implement? How?

Tracking environmental progress

Tracking environmental progress over time is an important purpose of NPI data, with environmental organisations, policy advisers, regulators, media outlets and other stakeholders commonly showing interest at the time the data is released each year. As demonstrated by the series of charts at **Figure 2**, and the facility case studies in this paper including [Box 5](#), changes in substance emissions over time can be readily identified. Such time-series data can help organisations manage their emissions and identify and promote the benefits of process improvements. Governments can also use NPI emissions data over time to measure the impacts of changed regulations.

Figure 2 – Emissions of Selected NPI Substances, 2007–08 to 2015–16



Authors of the Australian Government's State of the Environment (SoE) Report also use NPI data every five years to make an assessment of progress in relevant areas such as air quality and the environmental health of inland water and urban and coastal areas. State and Territory Environment

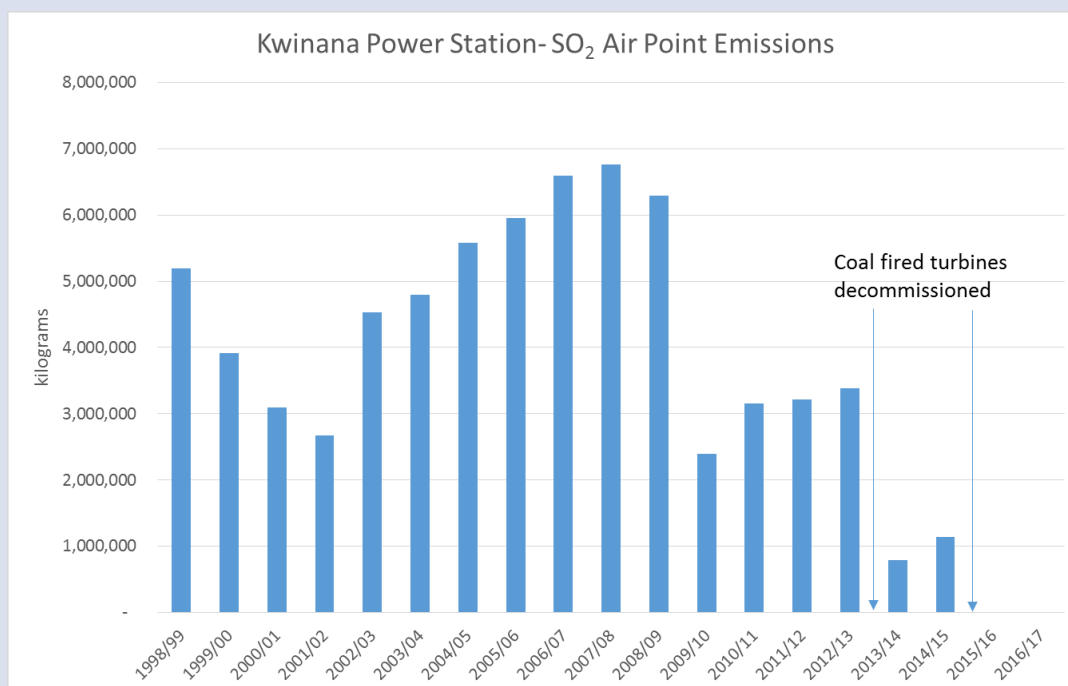
Protection Agencies (EPAs) use NPI data to feed into the air inventories they produce periodically and to help plan compliance and monitoring activities (Victorian Auditor-General's Office, 2018).

A driver of the efforts to achieve international harmonisation of PRTRs is to enable the tracking of progress against the United Nation's Sustainable Development Goals. The OECD anticipates PRTR information can be used to directly track progress against Goals 3 – Good Health and Well Being for People, Goal 6 – Clean Water and Sanitation and Goal 12 – Responsible Consumption and Production. PRTR data may also be useful to a lesser extent in assessing progress against several other goals (OECD, 2017).

User Surveys (Wheeler et al., 2014) and reviews (Environment Link, 2005), have found providing simple on-line tools for graphic and trend analysis could be welcomed in order to make it easier to analyse NPI data over time by. Enhanced promotion in the form of media releases or topical analysis has also been recommended with the tools provided by the US TRI recommended as a benchmark. This issue is further explored in [More Data Explanation, Interpretation and Analysis](#).

Box 5: Kwinana Power Station – Tracking the transition to cleaner technology case study

- The Kwinana Power Station (KPS), located in the Perth suburb of Naval Base, has historically contributed substantially to emissions of sulfur dioxide in the Perth area.
- KPS operated both coal fired and gas turbines until the two coal fired turbines were decommissioned in 2013 and April 2015.
- Sulfur dioxide emissions have since reduced from a height of 6,760 tonnes in 2007–2008 to 1.8 tonnes in 2016–2017.
- Kwinana Power Station's relative contribution of sulfur dioxide has reduced from 25 per cent of all sulfur dioxide in 2011–2012 in the Greater Perth metropolitan region to comparatively negligible emissions in 2016–2017.



Questions — Tracking Environmental Progress

Is the NPI a useful resource for tracking environmental progress?

How can the data it collects or the way the data is presented be more useful for tracking environmental progress?

Meeting community right-to-know obligations

The ‘right-to-know’ principle is a central tenet in the design of PRTRs in general, and the NPI’s goal to ‘disseminate the information collected to all sectors of the community in a useful, accessible and understandable form’ reflects this principle. While user surveys and other studies in PRTRs around the world have indicated governments and industries are the most frequent users of PRTR data (US EPA, 2003), the degree to which a PRTR provides open and effective public access to data about substances that are potentially harmful to the environment is still a key performance indicator.

Non-government organisations (NGOs) actively use NPI data and promote the value of the public’s right-to-know about emissions to the environment and as such are major stakeholders to the program. NGOs who have used NPI data in the past while communicating environmental issues include:

- Environmental Justice Australia
- GetUp!
- Climate and Health Alliance
- National Toxics Network
- Nature Conservation Council
- WWF Australia
- Hunter Community Environment Centre
- Lock the Gate Alliance
- Doctors for the Environment Australia

Practically of course, it is impossible to track every potentially harmful substance released to the environment. A balance must be struck between meeting community expectations for comprehensive data, tracking substances where there is a material benefit for doing so and minimising both regulatory burden on industry and costs to government. These issues are discussed further under the [Substance list](#) and [Reporters and thresholds](#) sections.

Environmental Justice Australia has previously suggested, for accuracy and independence reasons, NPI emissions data should be gathered through independent monitoring rather than through NPI facility estimates (Environmental Justice Australia, 2014). This is another issue requiring a consideration of relative costs and benefits given the costs that would be associated with independent monitoring. Currently States and Territories require some facility self-monitoring (usually relating to concentration of pollutants in air or water) from large emission sources based on known environmental risks. Compliance and data verification issues are discussed later in this paper under [Accuracy of Reporting by Industry / Compliance and Validation](#).

Satisfying the ‘right-to-know’ principle is as much an issue of how the data is presented as it is one of what data is captured. Data unsuitable for analysis because it is not easy to search or interrogate, hard to find or lacking in explanatory material can prevent knowledge transfers and trust in the data just as much as incomplete data.

The OECD benchmarked the functionality of the Australian NPI data dissemination systems in 2014 (see **Table 1**).

Table 1 – Dissemination of information by existing PRTR systems

Option	PRTR Systems Employing Option						
	Australia NPI	Canada NPRI	EU PRTR	E- PRTR	Japan PRTR	Kiev Protocol	US TRI
Level of Aggregation							
• Individual Facilities/Chemicals	✓	✓	✓		✓	✓*	✓
• Aggregate Records	✓	✓	✓		✓	✓*	✓
Format							
• Summary and interpretive reports		✓			✓	✓*	✓
• Raw data files/databases	✓	✓	✓		✓		✓
• Analytical tools	✓	✓	✓		✓	✓*	✓
• Press releases			✓		✓	✓*	✓
• Fact sheets	✓				✓		✓
• Exports for integration with other PRTRs.	✓	✓	✓		✓		✓
Location							
• Stand-alone website for the PRTR	✓		✓			✓**	
• Webpage within environmental agency website		✓			✓	✓**	✓
• Websites providing international PRTR data	✓	✓	✓		✓		✓
• Public libraries						✓***	✓
• Available upon request					✓	✓***	

* Recommended under the Kiev Protocol

** The Kiev Protocol does not distinguish whether a website should stand alone or fit within an environmental agency site.

*** Recommended under the Kiev Protocol if resources are not available for developing a website.

(OECD, 2014b)

Related to ‘right-to-know’ principles is the level of public awareness of the program. Citizens who have a ‘right-to-know’ may be ‘unlikely-to-know’ if they are unaware the program exists. Previous reviews (Environment Link, 2005; Wheeler et al., 2014) have found the level of public awareness of the NPI in Australia to be relatively low. In examining why the NPI has generated less interest and involvement among Australian environment groups than is the case with some overseas inventories, (Thorning, 2009) finds, ‘*The main barrier to knowledge and use of the NPI is lack of promotion and awareness raising activities*’. These issues are discussed further under [User Experience](#).

Questions — Meeting community right-to-know obligations

Do you think the community expects to have emissions and transfer data for potentially harmful substances publicly available?

How can the NPI better satisfy community expectations in this area?

Assisting governments in identifying priorities for environmental decision making

Government agencies use data from PRTR's like the NPI to;

'measure trends in pollutant releases and waste generation; inform environmental policy decisions; evaluate an agency's environmental programmes; assess progress towards sustainable development on a global scale; identify potential human health and environmental risks, and abide with reporting requirements under international agreements and conventions.'

(OECD, 2014b)

Thirty per cent of respondents in the government and research group in the 2014 NPI User Survey claimed their use of the data had made a 'direct or indirect impact on policy' (Wheeler et al., 2014). See [Government User Experience](#) for more discussion on this issue.

The NPI has been selected by the ABS as one of 178 distinct datasets considered to be an Essential Statistical Asset and as such is an 'essential indicator of the State of the Nation' (ABS, 2013).

Environmental regulators in the States and Territories use NPI data to cross reference with their own systems and assist to prioritise facilities for monitoring and audit. The degree to which the NPI is integrated into each jurisdiction's regulatory system varies, but all States and Territories have passed legislation reinforcing the requirement for appropriate facilities to report to the NPI.

NPI data was used in SoE 2016 by the report's independent authors to advise government on environmental priority areas (<https://soe.environment.gov.au>). State, Territory and local governments can also refer to the NPI reported emissions in their geographical area in their various SoE reporting documents.

NPI data is also used by all levels of government to measure the impacts of various environmental legislation and programs over time, with case studies and examples listed in this paper. Being a public database, the review service it provides is relatively independent and transparent.

The NPI substance list contains the following substances listed under international hazardous chemical management agreements.

Table 2 – NPI substances and international chemical conventions

Substance	Convention
Antimony & compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Arsenic & compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Benzene hexachloro - (HCB)	Stockholm Convention on Persistent Organic Pollutants (POPs). Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
Beryllium & compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Cadmium & compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Chromium compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal

Copper & compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Cyanide (inorganic) compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Fluoride compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Lead & compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal and Rotterdam Convention on Hazardous Chemicals
Mercury (& compounds)	Minamata Convention on Mercury (to be considered by the Australian Government for Ratification). Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.
Organo-tin compounds	Rotterdam Convention on Hazardous Chemicals (as Tributyl tin compounds)
Phenol	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Polychlorinated Biphenyls (PCBs)	Stockholm Convention on Persistent Organic Pollutants. Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
Polychlorinated dioxins and furans (PCDD/PCDF)	Stockholm Convention on Persistent Organic Pollutants. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Selenium & compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
Zinc and compounds	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal

In conjunction with other data sources, NPI data has been used by the Australian Government to help ascertain the ramifications of ratifying these conventions and thus complying with their obligations. For example, the Australian Government circulates Minamata Convention on Mercury questionnaires to State and Territory governments who use NPI data to report on the current extent of mercury regulation and use in their jurisdictions. If ratified, NPI data is also likely to be used to abide with on-going reporting requirements and possibly satisfy the following Minamata Convention requirement:

‘Each Party shall establish, as soon as practicable and no later than five years after the date of entry into force of the Convention for it, and maintain thereafter, an inventory of emissions from relevant sources.’

(UN Environment Programme, 2017)

The following case studies are examples of where NPI data is used by government.

Box 6: Black carbon inventory case study

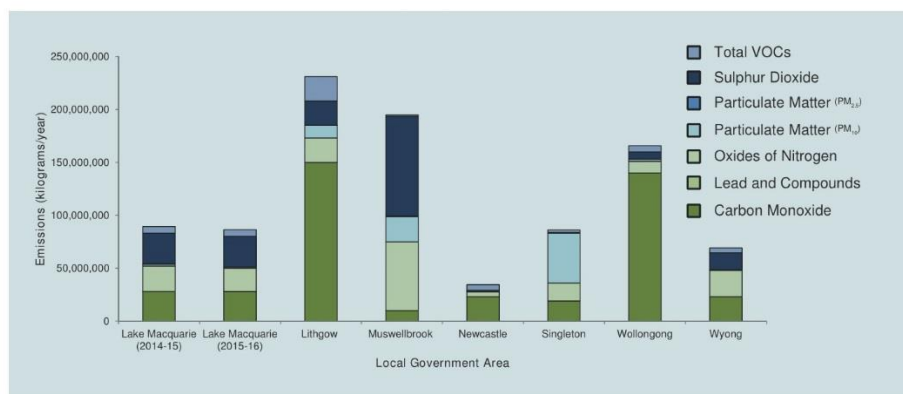
- Black carbon is a short lived, small airborne particle produced by the combustion of fossil fuels linked to both climate warming and adverse health effects.
- There is currently a focus through the United Nations Framework Convention on Climate Change on the development of national inventories of black carbon.
- The Canadian government has used data from their National Pollutant Release Inventory (NPRI) to develop a black carbon inventory (Environment and Climate Change Canada, 2017).
- Should an Australian black carbon inventory be developed, industrial particle emissions data from the NPI will be an important input into estimation methodologies. As a potential repository for diffuse air emissions studies, the NPI also has potential to supply data from non-industrial sources (see [Improved Data to Meet National and Jurisdictional Air Quality Requirements](#)).

Box 7: Lake Macquarie City State of the Environment Report 2016–17 case study

- Lake Macquarie City's State of the Environment Report for 2016–17 used NPI data to compare major air pollutants in Lake Macquarie to the local government areas of Lithgow, Muswellbrook, Newcastle, Singleton, Wollongong and Wyong.

Sources and emission of air pollutants - 2015-2016 (existing available data)

Figure 13 shows emissions of major air pollutants in the City, compared to the local government areas of Lithgow, Muswellbrook, Newcastle, Singleton, Wollongong and Wyong. The City has markedly lower emissions levels compared to some local government areas with significant industry, including Lithgow, Muswellbrook and Wollongong.



Source: NPI (2017)

Figure 13: Comparison of 2015-2016 air emissions – local government areas

(Lake Macquarie City Council, 2017)

Questions — Assisting government in identifying priorities for environmental decision making

Does your Government agency use the NPI in program and policy development?

How can the NPI be more useful in identifying priorities for environmental decision making?

Questions — Environmental outcomes section

On balance, to what extent do you think the NPI contributes, and what is its potential to contribute, to achievement of its desired environmental outcomes?

Performance

Substance list

Introduction

The 93 substances on the NPI substance list were recommended by the NPI's Technical Advisory Panels (TAP) which sat in 1999 and in 2006. The first panel used a formula to rank a preliminary list of 420 substances against environmental and human health effects and exposure risk. The inclusion of exposure risk resulted in the non-inclusion of dangerous chemicals which are not present in Australia (i.e. DDT) due to banning or other regulatory management activities. After the ranking process, 90 substances were chosen for inclusion. The second panel's terms of reference were to look at a range of possible changes to the NPI as well as amendments to the substance list, with the result being the addition of three substances. Both panels noted;

'the need to balance the demands for greater information by community groups with the need to justify any increased reporting burden on industry'.

(National Pollutant Inventory Technical Advisory Panel, 2006)

Recommendations from a TAP requiring change to the legislative instrument, including changes to the substance list, must be agreed by NEPC and subject to a further public consultation and also a RIS process. Any suggestions for such reform from this review will also follow this process.

In 2016–17, 82 of the current 93 substances were reported, which is the same number reported in 2015–16. In 2007–08, the first year to which the current list was applied, 88 substances were reported. There has been a gradual decline in the number of substances reported to the NPI since then.

The 2014 User Survey, which did not include members of the public, found 75 per cent of users agreed the included 93 substances were sufficient. (Wheeler et al., 2014)

Substance list review

The OECD and other international jurisdictions have been working towards harmonisation of international substance lists for some time with the main objective being to improve consistency of information across borders recognising the environment transcends borders, and substances are commonly traded cross them (OECD, 2014a).

The 2006 TAP recommended;

'if another revision of the NPI reporting list is required at some point in the future, then consideration should be given to re-creating and updating the full NPI candidate list from chemicals that meet EU criteria for classification as environmentally hazardous in Annex I of the EU hazardous chemicals system.'

(National Pollutant Inventory Technical Advisory Panel, 2006)

An analysis in 2014 by the OECD demonstrated the NPI has a relatively high level of harmonisation with the OECD's recommended shortlist of chemicals (OECD, 2014a). Despite this, the analysis presented in [Boxes 8](#) and [9](#) indicates there are currently some substance list differences between the NPI and international PRTRs which may imply the need for further investigation by a TAP.

An argument against pursuing harmonisation with international approaches is the fact Australia is relatively geographically isolated and has a different industrial mix than the European or North American economies.

The majority of substances commonly included on international substance lists but not on the NPI list are pesticides, (see [Box 8](#)) which were termed Agricultural and Veterinary Substances (AGVETs) in the initial NPI TAP. AGVET substances were excluded in the original 1999 TAP process because they were already managed through the Department of Agriculture, reporting would be difficult to enforce from relevant small businesses and farms and the panel did not have the resources to examine the entire list. (National Pollutant Inventory Technical Advisory Panel, 1999). In practice, a number of NPI substances including zinc and compounds, copper and compounds, boron and compounds and glutaraldehyde are contained within AGVET products and as such, facilities manufacturing or blending these AGVET products currently report emissions or transfers of these NPI substances.

When considering the examples of substances not in the NPI in [Box 8](#), also note the existence of several substances such as the ozone depleting substances (ODS) and Persistent Organic Pollutants (POPs) which have been banned or are being managed through international agreements which Australia is party to, yet are not in the NPI. This is an outcome of applying the exposure risk principle mentioned above.

Any TAP formed as a result of this Review to examine the substance list could also consider including any substances outside other PRTRs but with potential for environmental harm such as Per and Poly-fluoroalkyl (PFAS) substances currently receiving attention as potential POPs.

A key responsibility of a future TAP would also be to consider whether the NPI substance list and associated reporting thresholds are aligned with other regulatory systems. These may include:

- Existing jurisdictional environment protection licensing regimes. Examples of substances not in the NPI which may be monitored by State and Territory governments include aluminium, molybdenum, vanadium, oil and grease and iron. Water oxygen and quality indicators such as Biological, Chemical and Total Oxygen Demand, (BOD, COD and TOD) and Total Suspended Solids (TSS) may also be considered.
- NEPM and jurisdictional air quality standards.
- International systems such as the World Health Organisation and various chemical conventions.

Such alignment would have the potential to reduce regulator costs and reporter burden through implementing fewer processes to collect a greater proportion of all required data for the various regulatory schemes.

Box 8: International PRTR comparison – Substances not in the NPI

- From a study of current substance lists of four PRTRs, (US, Canada, UK and Europe) and two international conventions Australia has ratified (Stockholm and Basel). Substances not in the NPI but are in any three of the other lists are mentioned here.
- Substance categories are from the OECD harmonisation report (OECD, 2014a).
- The list was compiled only for the purposes of demonstrating the potential scope of international PRTR harmonisation. No comment is made on the appropriateness of each chemical to be listed in the NPI, nor does it attempt to be a complete list of differences.

Active substance of plant protection products	Persistent Organic Pollutants (Stockholm Listed)
Alachlor (Pesticide)	Aldrin (Pesticide)
Atrazine (Pesticide)	Chlordane (Pesticide)
Diuron (Pesticide)	Chlordecone (Pesticide)
Simazine (Pesticide)	DDT (Pesticide)
Trifluralin (Pesticide)	Decabromodiphenyl ether
	Dieldrin (Pesticide)
	Endrin (Pesticide)
	Heptachlor (pesticide)
	Hexabromobiphenyl
	Hexabromocyclododecane
	Hexa & Heptabromodiphenyl ether
	Hexachlorobutadiene (HCBd)
	Lindane (Pesticide)
	Mirex (Pesticide)
	Pentachlorobenzene
	Polychlorinated naphthalenes
	Short-chained chlorinated paraffins
	Tetra and pentabromodiphenyl ether
	Toxaphene (Pesticide)
	Hexachlorocyclohexane (A&B) (Pesticide)
Ozone	
Chlorofluorocarbons (CFCs)	
Hydrochlorofluorocarbons (HCFCs)	
Metals	Persistent Organic Pollutants - NOT Stockholm Listed
Vanadium and its compounds	Isodrin (Pesticide)
Thallium and its compounds	Endosulfan (Pesticide)
Tellurium and its compounds	
Other Organic Substances	
Nonylphenol, (and branched)	
Octylphenols and Octylphenol ethoxylates	
Cyanide (organic) compounds	
Inorganic Substances	
Asbestos (friable) (NPI is the only PRTR to list this under 'Particulates')	

The NPI substance list also contains several substances which are not commonly found in international PRTRs ([Box 9](#)). The 2006 TAP recommended some of these substances be deleted but as respondents to the subsequent NEPC consultation pointed out, the 2006 TAP was given limited terms of reference and did not perform a full review of all eligible substances. As a result, the recommendations to delete substances were not accepted by NEPC.

9: International PRTR comparison – Substances in the NPI, not in International PRTRs

Chlorinated and brominated organic substances	Metal and Metalloids	Other Organic Substances
Chlorophenols (di, tri, tetra)	Boron & compounds	Acetic acid (ethanoic acid)
Dibromoethane (Ethylene dibromide)	Magnesium oxide fume	Acetone
	Nickel carbonyl	Ethanol
	Nickel subsulfide	Ethoxyethanol acetate
		Ethyl acetate
		Ethyl butyl ketone
		Glutaraldehyde
		Methoxyethanol acetate
		Methyl ethyl ketone

Appropriate regulatory framework for NPI substance list

An important consideration of any PRTR substance list is the means through which substances are re-examined for suitability. While the legislative instrument provides for the measure, including the substance list, to be subject to a comprehensive review at least every five years practical experience suggests the resources involved in this task may have been underestimated, especially given the public consultation and RIS requirements of the NEPC Act. A mechanism to allow changes to the NPI substance list and other relevant issues such as thresholds outside of the existing NPI NEPM change process may provide a more streamlined, flexible and efficient program.

Practical examples of where an easier variation process would have been useful include the references to fluoride not fluorine (facilities and jurisdictions have considered it to be a typographic error for many years) and organo-tins (broadly defined so capturing solid organo-tin additives used in plastic credit cards).

Questions — Substance list.

Are there any substances you would like to see on the NPI substance list?

Are there any current substances you would like to see removed?

Do you think a TAP should be formed to re-examine the substance list?

To what extent do you agree the NPI substance list should be further harmonised with international lists, for example through the OECD's recommended harmonisation processes?

Should the NPI substance list be able to be changed more easily than having to change the NPI NEPM legislative instrument?

User experience

Introduction

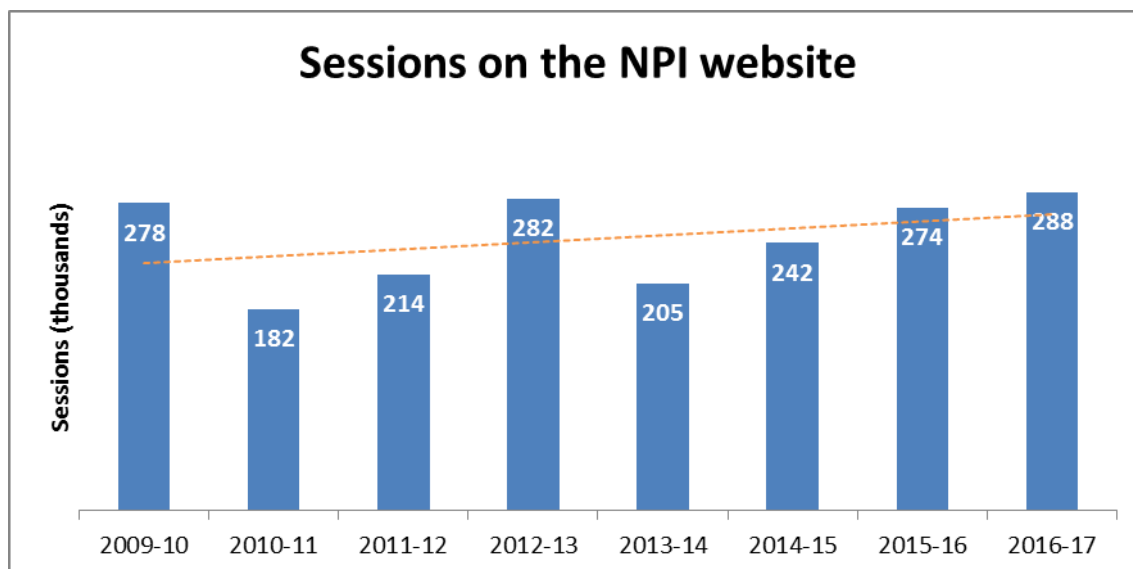
Any positive experiences users have in accessing NPI data or making a report to it enhances overall confidence in the data, decreases the regulatory burden on reporters and enables the NPI to achieve its environmental outcomes.

The majority of users experience the NPI through its website, <http://www.npi.gov.au/>. It provides:

- the legislative history of the NPI NEPM
- data, including spatial data, on facility emissions, facility transfers and diffuse emissions
- fact sheets on the 93 substances covered by the NPI
- reporting guidance, including the substance list, threshold and categories, ANZSIC codes for NPI reporting, calculation tools and Emission Estimation Technique (EET) manuals
- resources for students and teachers.

Figure 3 presents the NPI website sessions statistics since 2009–10. By way of comparison, DoEE's new State of the Environment 2016 website <https://soe.environment.gov.au/> experienced 130 thousand sessions in its first year of operation (March 2016 – March 2017) and www.australia.gov.au experiences around 18 million sessions per year.

Figure 3 – NPI Website unique sessions



In regards to the NPI data.gov.au webpage, it experienced 2,224 sessions in the first year of operation (Apr 2017-Mar 2018) which was the most sessions experienced by any of DoEE's data.gov.au pages. The most popular overall data.gov.au page for the last two years has been the PSMA Geocoded National Address File, which has experienced around 11,000 sessions per year.

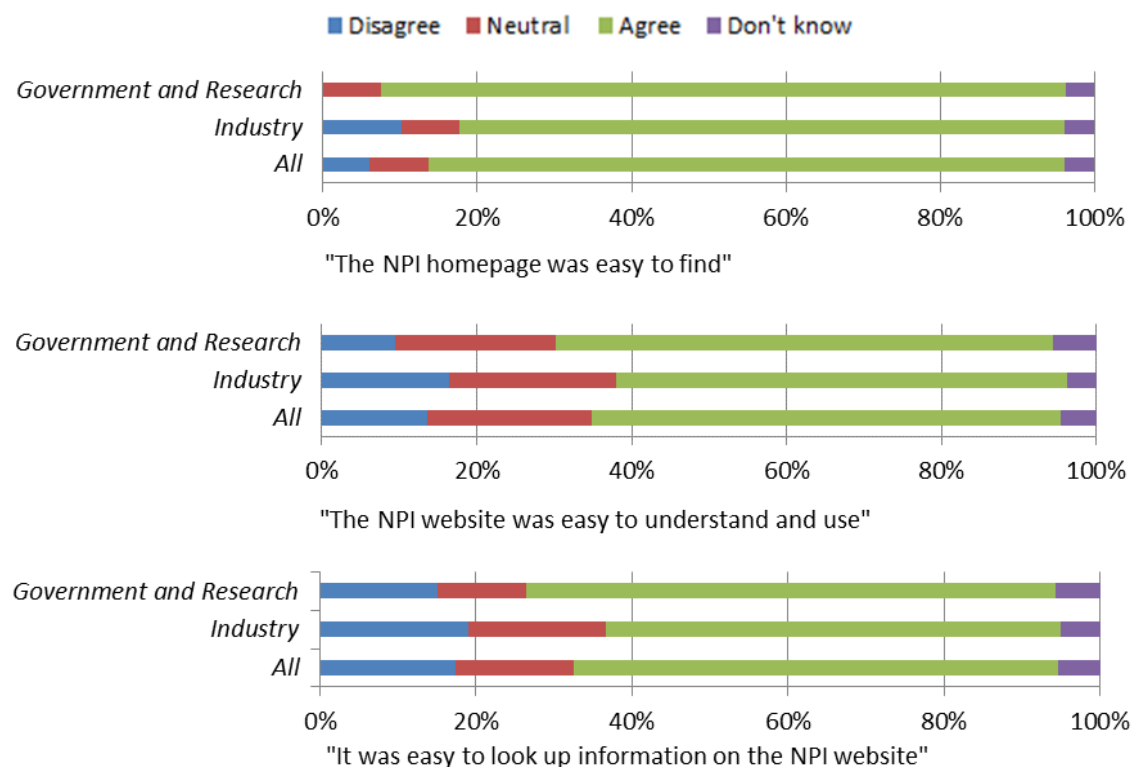
The NPI website hosts:

- the public database, which allows users to search for data in an area of interest, and the
- Online Reporting System (ORS), which enables submission and review of annual emissions and transfers data by facilities and review of the data by jurisdictional EPAs.

The public database was upgraded in 2010 to support the publication of transfers data and address some of the recommendations of the 2005 Environment Link review.

There have been no improvements to the public database since the 2010 upgrade and maintenance has been limited with a serious defect being the inability to update aggregated emissions data studies in the intervening years (see [Diffuse Sources](#)).

In the 2015–16 and 2016–17 NEPC Annual Reports, the Commonwealth reported an increase in the number of complaints related to defects in the behaviour of the NPI public database. User feedback surveys have found the following in regards to perceived 'ease-of-use' of the NPI website. Note the 'All' category is a combination of the responses from the 'Government and Research' and 'Industry' categories.



(Wheeler et al., 2014)

The ORS was launched in 2008 and improved the capability for collecting and managing NPI facility data compared with the systems used at the time of the 2005 review. There has been limited maintenance of the ORS since its launch. While efforts have been made to capture user feedback and ideas for improvement, no improvements have reached its users. Further details are provided at [Online Reporting System](#).

Public user experience

A 2009 survey found the level of NPI awareness to be 23 per cent among the general population, 51 per cent among green group members and 76 per cent among industrial / pollution focussed members (Thorning, 2009). With a lack of promotional activities in the intervening years, it could be assumed this awareness level has not increased significantly.

While the Wheeler user survey mentioned above found the website is relatively easy to find and navigate for academic, government and industry users, the NPI Review Steering Committee invites response from the public regarding their interaction with the website.

NPI App

As with most government websites, the NPI site is designed to be read on a mobile device but the NPI public database does not display well on devices with small screens. The 2014 user survey found only 14 per cent of respondents indicating an NPI App would be useful (Wheeler et al., 2014) and there is currently no plan for an app. The growth in the expectation of mobile accessible government services could indicate this issue be re-visited. Would you use an NPI app if developed?

More data explanation, interpretation and analysis

User guidance for new users of NPI data is currently limited to an 'Understanding NPI data' webpage and the 'Interpretive Guide for the NPI' document developed by the South Australian NPI team. State and Territory NPI officials and previous reviews have suggested these resources could be more predominantly displayed before users search the data and could include more information on possible reasons for variations in emissions.

There is also a view the contributory factors to human exposure and environmental harm other than facility emissions levels could be explained more clearly and with a different emphasis. While industrial emissions are important, population exposure to harmful substances is more likely to occur through diffuse sources such as motor vehicles or domestic heating (Caiazzo, Ashok, Waitz, Yim, & Barrett, 2013). The relationship between emissions and local air quality is complex and dependant on a number of factors such as meteorology, topography and the nature of air pollutant release such as the release height (ground level or elevated stack), velocity and concentration. For example, emissions released from tall stacks greatly reduces the local impact while causing a relatively low impact to the wider region. With the European and North American history of PRTR's being focussed on industrial pollution, and the difficulties experienced by the NPI in gathering accurate diffuse emissions data, (see [Diffuse Sources](#)) the original goal of the NPI to balance the data from industrial sources by presenting it alongside data from non-industrial or diffuse sources may have been diluted.

As mentioned under [Track Environmental Progress](#), while the raw data is freely available from the website and can be accessed in a form easily allowing further analysis, the NPI could do more to promote interest in environmental pollution issues through more in-house analysis. Summary information on interesting NPI data results concerning emerging issues such as fracking, coal seam gas or PFAS could generate interest through special reports and media releases. It could also be an option to re-institute the yearly summary reports which ceased in 2007–08.

Previous reviews have also suggested closer links could be fostered with important users of the data such as academics and NGOs through for example offering annual prizes for the most interesting application of the data. The [GovHack](#) competition is one possible medium for encouraging interesting uses of the data. Readers of this paper are invited to respond if they agree with this or if they know of other initiatives to generate awareness of interesting uses of NPI data.

Closer linkages to State and Territory information

NPI data both competes with and complements pollutant data derived from modelling and monitoring by State and Territory regulators. The current website does not explain the role State and Territory regulators play in managing environmental pollution or provide links to their data. Doing so could clarify the role of the NPI, manage public expectations and provide a better experience for website users. Would the reader benefit from a greater understanding of the distinction between the NPI and State and Territory environmental regulatory measures?

Transfers

Transfers have been defined in the NPI National Environment Protection Measure (NEPM) as the transport or movement, on-site or off-site, of substances to a mandatory reporting transfer destination or a voluntary reporting transfer destination.

Transfers are divided into mandatory and voluntary reporting destinations. If waste is transported to a destination for containment or destruction, reporting is mandatory. Containment destinations include landfill, tailings storage facilities, underground injection or other long term purpose built waste storage structure. It also includes the transport or movement of substances contained in waste to a sewerage system. Reporting may be voluntary if transfers are to a destination for reuse, recycling, reprocessing, purification, partial purification, immobilisation, remediation or energy recovery.

Transfers were included in the NPI in 2008, despite general industry objection, to encourage better environmental behaviour, confer OECD status as a Pollutant Release and Transfer Register (PRTR) and provide the community with information on the fate of pollutants (National Environment Protection Council, 2007). It was decided in this process the reporting of transfers of substances to other than final destinations (eg for recycling, energy recovery) would be made possible (and encouraged) on a voluntary basis only.

'With the exclusion of mandatory reporting of transfers for reuse, the amount of information on transfers is likely to be reduced, although it is likely that many industries will recognise the benefits of reporting the information on a voluntary basis. However, it was considered that the practical difficulties of reporting to other than the 'final destinations' would increase the complexity and cost of reporting beyond what is considered reasonable for the information gained. Expanding the mandatory requirement to include the voluntary aspects may be considered at some point in the future should these practical difficulties be resolved.'

(National Environment Protection Council, 2007)

In 2015–16, 1,209 of 4,165 reporting facilities provided transfer data and 508 of these facilities provided data voluntarily. The categories of data available are the usual business and facility details, including ANZSIC code and location, substance transferred, transfer destination, whether or not the data is of the voluntary type, the total tonnage of the substance transferred and the estimation technique used to devise it. As with emissions data, state regulators often have access to this type of data from their own waste management regulation and other activities but it is rarely made public and its coverage is not consistent across jurisdictions.

In 2016–17 there were 9,922 views of transfer data pages on the NPI website which corresponds to just three per cent of the total NPI page views. For comparison, pages with individual facility details (including location, company, and industry classification) received 30 per cent of total page views, emissions data received 17 per cent of total page views and the summary result page received 12 per cent of total views. These results are partly explained by the design of the navigation in the public database.

NPI page views for data.gov.au from March 2017 to March 2018 told a similar story, with four per cent of all unique page views on the NPI data.gov.au site being on the 'Transfers' pages, with 19 per cent being on the 'Emissions' pages and 12 per cent on the 'Facilities' pages.

Potentially, NPI transfer data could be used to guide industrial waste policy and decisions such as the placement of new waste management facilities. This is a topical issue at the moment with the decision by China to reduce the amount of international waste it accepts for recycling. NPI substances in waste being recycled or reused do not currently need to be reported to the NPI.

To be useful for policy, NPI transfer data on the type and tonnage of the waste stream the substance is found in would be necessary, as would better alignment with government waste tracking programs. Other potential uses for transfer data would be welcomed through responses to this paper.

Reporter user experience

In the 2014 User Survey, 95 per cent of industry respondents said the primary reason for using the NPI website was because their facilities were required to report. Comments from reporters such as those following suggests facility operators generally concentrate on regulatory requirements, rather than analysing NPI data for benchmarking or process improvements.

'NPI is not the main driver in the business for triggering environmental improvements. The business meets internal standards and other government regulations which trigger the development of improvements, new processes and innovation.'

'Environment management plans & environmental monitoring provide the level of management required for our facilities. NPI adds nothing.'

'We are only concerned with emissions from my corporation's facility, all information is therefore accessible through internal systems.'

(Wheeler et al., 2014)

Of the industry group, 42 per cent of respondents agreed with the statement 'reporting to the NPI is an excessive burden on my business' though 67 per cent thought they have become more efficient over time in providing information for the NPI. A popular suggestion to the survey from industry was for either the National Greenhouse Energy Reporting Scheme (NGERs) to take on the NPI reporting function and/or for both programs to be better integrated with State and Territory EPA licence data. This is examined further under [Centralised data collection](#).

'The most complained about issue we hear from facilities is the duplication of effort across different reporting programmes. There should be more collaboration across Government agencies, both Federal and State, to develop a 'one stop shop' for reporting environmental related data. For example: NPI facility definitions, emissions data and reporting processes could be used by state agencies when determining license fees.'

'Do away with NPI and report all emissions in NGERs.'

'NPI and EPA licence data could be the same.'

'Reporting once a year and with staff change over and/or lack of experienced staff creates a burden on my company. This year NPI / EEO / NGERs and ABS reporting all fell within a short period of time and all seem to require more data each year. Efforts to improve reporting by paying consultants for automated spreadsheets and adjusting our financial accounting program to assist have not really provided a good outcome. We are now looking at starting again from scratch to develop a company-specific program to ease the burden on our staff (environmental and accounting / admin staff).'

(Wheeler et al., 2014)

Assessing the cost of reporting is not necessarily straightforward. The regulatory burden will vary substantially from organisation to organisation, as will the ability of each organisation to absorb any extra burden, with the smaller, less technically capable organisations finding it more difficult to report. In addition, the marginal cost of NPI requirements might be lower than expected as a result of the ability to re-use resources used to meet the requirements of other reporting regimes. An analysis of how adjusting substance thresholds may reduce the number of smaller organisations reporting to the NPI and thus reduce the overall reporting burden on industry is at [Reporters and Thresholds](#).

EET manuals and calculation tools are designed to guide and assist reporters. The effectiveness and currency of these manuals and relevance to a facility's particular operating practices can have a large impact on a reporter's user experience. Issues surrounding the effectiveness of EET manuals and tools are discussed further under [Accuracy of Reporting / Compliance and Validation](#).

Government user experience

State and Territory government environmental regulators use the NPI to enhance (for instance for emissions outside metropolitan areas) and verify their own datasets to varying degrees. For example, the South Australian government data collection systems and licensing fee structures are integrated as closely as possible with the NPI. The NSW Government uses NPI data to equitably proportion the cost to industry of air quality monitoring schemes in the Newcastle and Hunter Valley airsheds. As the following collection of quotes from government users in the 2014 User Survey explains;

'We use NPI to augment information about licensees that can be used for regulatory purposes such as establishing air quality monitoring networks and levying industry for the cost. The NPI is collected annually so it fills gaps in the NSW Air Inventory that is only collected every 4 or so years.'

'I use the NPI as part of the development and QA of state-level emissions inventories.'

'I use it to review one licensee's performance against the other.'

'Cross checking NPI data with industry reported emissions for licensing purposes.'

(Wheeler et al., 2014)

Overall, 64 per cent of the government and research respondents used alternative sources to the NPI for pollution data. These sources included NGERs, EPA licence monitoring and emissions inventories, data provided by industry bodies and site contamination databases. The reasons for using the alternative sources include:

- some alternative sources are updated more frequently than annually
- data sources collected by monitoring provide more detailed information at the activity level (e.g. temperature, stack diameter, etc.)
- other data sources offer more contextual information
- the data are more transparent and up to date
- to cross reference data from other sources.

More detailed emissions and transfers data

Government users of NPI data have suggested it might have a more informative role to play in advising government policy work, including the evaluation of environmental legislation and programs if it included more detail on issues concerning how emissions and transfers are produced. For instance reporters might be asked to provide supporting information on:

- The types of activities producing the emissions (e.g. what type of diesel generator?). Some PRTR schemes have classification codes for potential sources so 'emission factors' can be more readily applied and reported. For example the US TRI's Source Classification Code for an internal combustion engine using diesel would be 2102004002.
- The local conditions at the emission point, (e.g. stack height, diameter, temperature, exact location).
- The different types, volumes and weights of waste transferred to support policy and market decisions on the sustainable management of industrial wastes.
- Site storage of substances, including the treating of waste rock and tailings similarly to monitor possible acid mine drainage.

- Emissions per unit of product – thus giving industry a way to showcase efficiencies and cleaner processes despite production increases.

Questions — User experience

Have you used the NPI public website, ORS or data.gov.au web pages? How would you describe your experience?

What opportunities are there for the NPI to improve the user experience for the public, industry and government users?

Would you use an NPI app if developed?

Would the users of the NPI website benefit from a greater understanding of the distinction between the NPI and the State and Territory environmental regulatory measures?

Do you think public awareness of the NPI should be increased? If so, how? Would you support greater promotional activities including new measures to promote interesting uses of NPI data?

Is transfer data providing sufficient value to stakeholders? How can its usefulness be improved?

Do you report to the NPI? How could your overall user experience be improved?

How can NPI data be made more useful for State and Territory environmental regulators? Are there any opportunities to reduce duplications of effort in data collection?

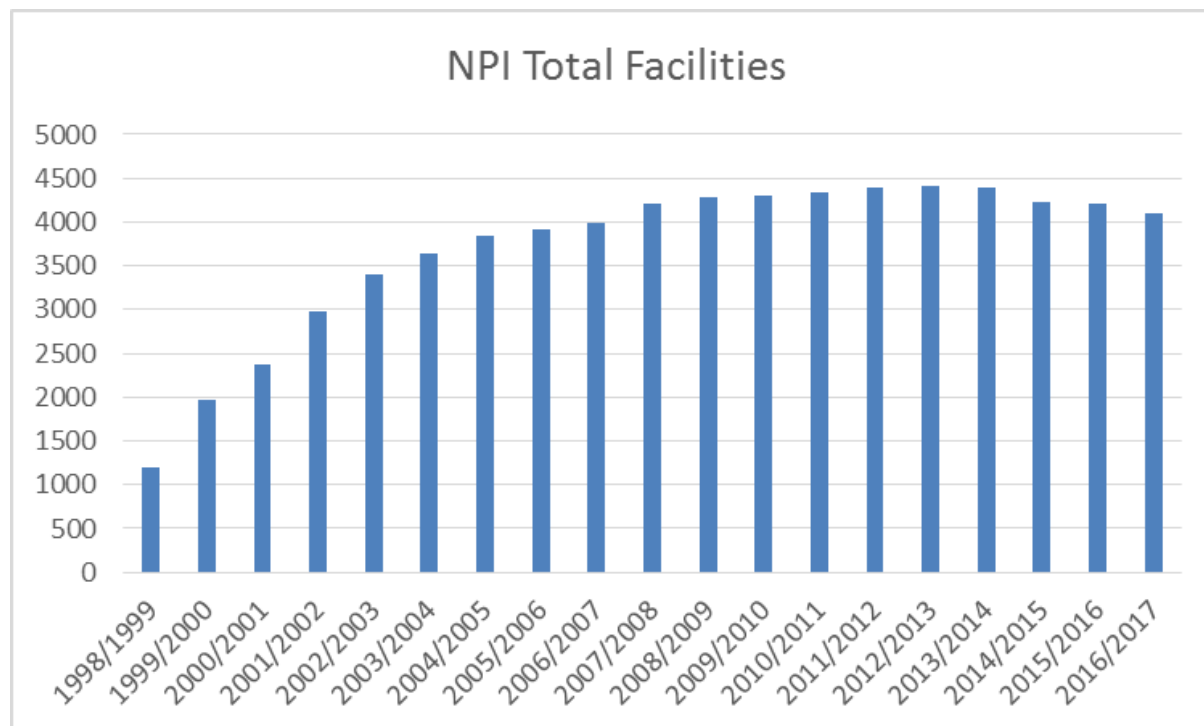
What additional supporting information if any would you like to see the NPI collect?

Reporters and thresholds

Introduction

As shown in **Figure 4**, a little over 4,000 facilities report to the NPI each year.

Figure 4 – Numbers of Facilities Reporting to the NPI



The requirement to report under the NPI is triggered if two criteria are satisfied. Firstly, a facility must be operating in an industry sector described by one of the prescribed ANSZIC codes. Secondly, the facility must 'use' (including emissions) amounts of a substance, or tonnages of fuel, above defined thresholds.

The ANZSIC lists and thresholds have been unchanged since they were implemented in 1998 with one exception – in 2008 Crematoria was added to the list and mercury and TVOC thresholds were changed.

Review of ANZSIC sectors and facilities required to report

Given the passage of time and technology since the last review of ANZSIC sectors, changes have occurred in many industries and their activities. Re-examining the industry sectors required to report to the NPI could:

- release the burden of reporting on industries now considered to present a sufficiently low risk to the environment
- ensure sectors presenting an increased environmental risk since the last review are captured
- ensure the reporting burden is appropriately allocated across industries according to the level of environmental risk they represent
- allow reduced industry burden for some industries through collection of data by aggregated emissions channels such as industry associations.

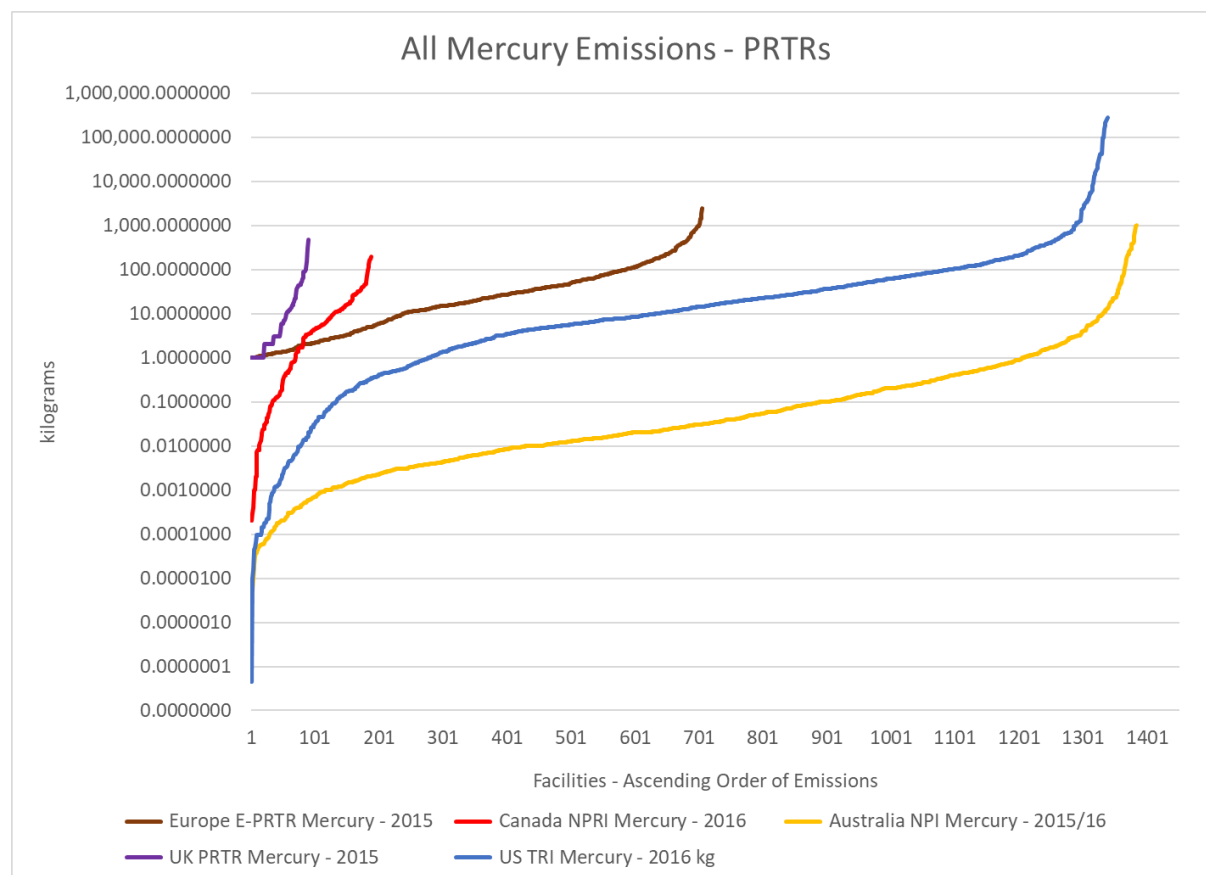
The NPI NEPM legislative instrument does not specifically require a TAP to review ANZSIC sectors. However given the close relationship between environmental risk and the activities performed by industry sectors and given previous panels have examined ANZSIC codes, there may be a case for the expert panel considering the substance list to also consider the industry sectors required to report. Under NEPC rules, any recommendations would trigger further public (and industry) consultation and a RIS. For more information on this process, see <http://www.nepc.gov.au/resource/ephc-archive-national-pollutant-inventory-nepm>, in particular the 2007 process (where the recommendation to remove the exemption for the aquaculture industry to report was examined and subsequently declined).

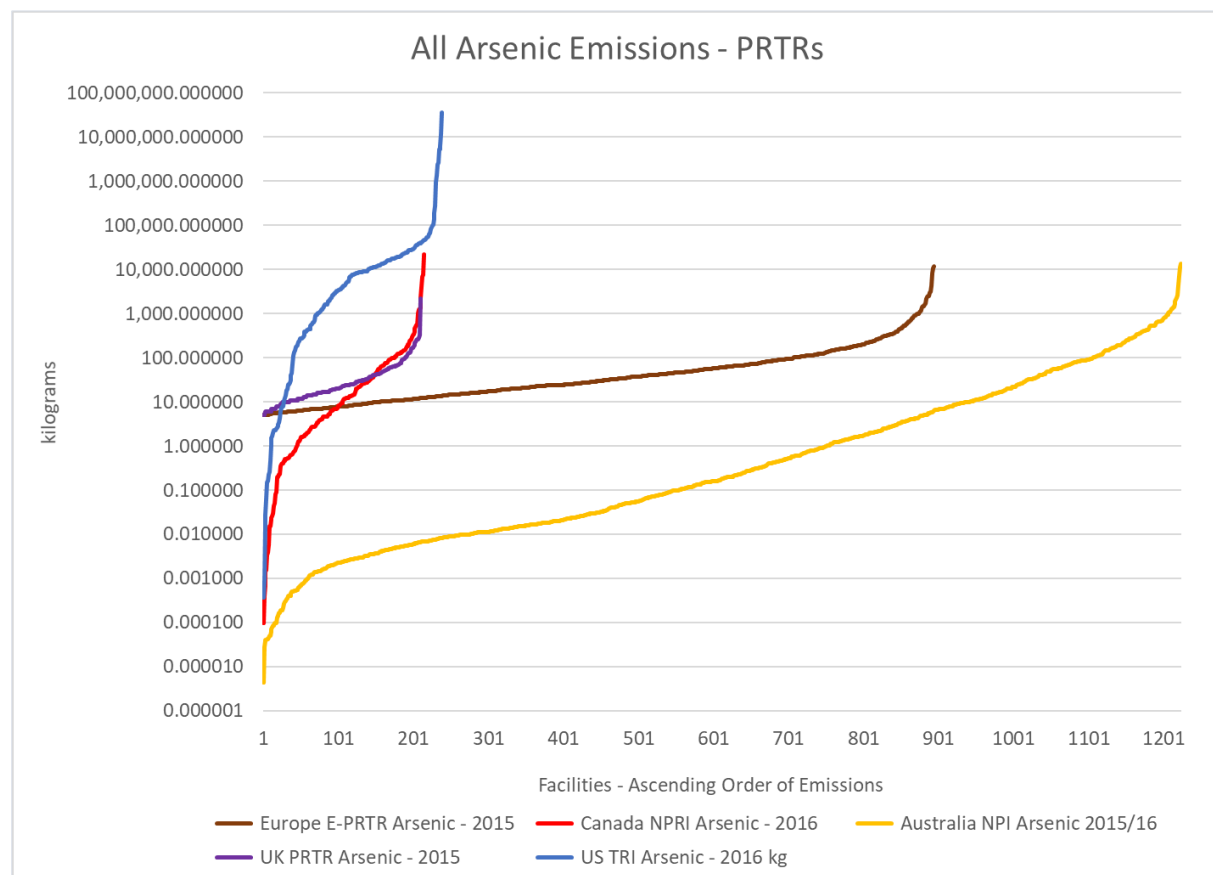
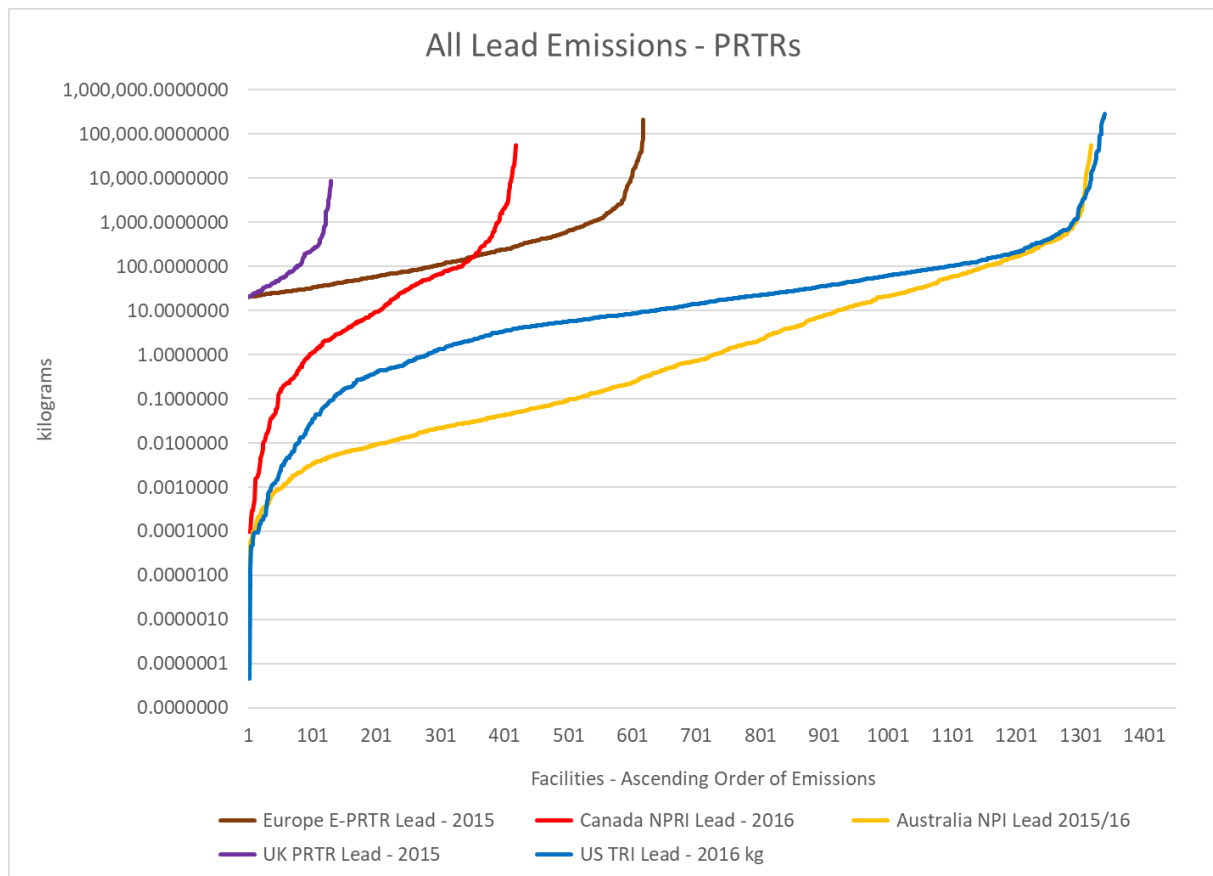
Substance reporting thresholds

Along with the ANZSIC sectors, the levels and methods used in the threshold regimes determine which facilities are required to report point source (or industrial) emissions and transfers to the NPI. Unlike when the NPI commenced, twenty years of reporter-provided data is now available for analysis to determine if thresholds are optimal to produce the maximum value for users of NPI data without placing an excessive reporting burden on industry.

The curves in the series of charts in **Figure 5** show emissions to air, land and water (logarithmic scale) per facility (in ascending order) for selected OECD PRTRs. Some systems, like the UK and Europe have relatively high 'emission release' thresholds leading to relatively less facilities with smaller amounts of data captured overall. The US, Australian and Canadian schemes generally rely on 'usage' reporting thresholds and capture a wider range of data from many more facilities.

Figure 5 – Scope of selected substance emissions for various PRTRs





The substance reporting thresholds are written into the NPI NEPM legislative instrument along with the substance list and thus subject to the NEPC amendment process. Subsequently, this paper intends to only briefly raise some threshold options for potential discussion, with the full details of any recommended regime changes only to be developed after relevant expert analysis by a TAP.

Current Regime – ‘Fuel Combustion’, ‘Substance ‘Usage’’ and ‘Selected Emissions’ triggers

Please note the following description of the current regime paraphrases the actual legislation. Please see the [National Environment Protection \(National Pollutant Inventory\) Measure 1998](#) for the exact threshold requirements.

The substance reporting thresholds in NPI are mainly substance ‘usage’ based.¹

- ‘Usage’ of 25 tonnes per year for Total Volatile Organic Compounds (TVOC) – category 1a.
- ‘Usage’ of 5 kg per year for mercury and compounds – category 1b.
- ‘Usage’ of 10 tonnes per year for listed category 1 substances, representing the majority of other substances.

The exceptions are the total nitrogen and total phosphorus substances which have their own category of thresholds based on emissions to water and transfers in waste – category 3.

There are also two categories of substances (containing up to 20 substances in total that may also belong to the other categories) that must be reported upon if one of the following fuel combustion thresholds are breached.

- Burning 400 tonnes or more of fuel or waste in the year OR Burning 1 tonne or more of fuel or waste in any hour in the year – category 2a.
- Burning 2,000 tonnes or more of fuel or waste in the year OR *consuming 60,000 MWh or more of electricity OR having a facility maximum potential power consumption of 20MW or more.....* – category 2b.²

By using fuel thresholds, the current regime is designed to avoid the complex calculation of emission estimations with relatively easily obtained data, the tonnage of fuel used.

One of the implications of the current NPI fuel threshold regime is when the fuel thresholds are exceeded, the emissions of all substances in the category must be reported no matter how small. This has resulted in many facilities reporting very small emission amounts to the NPI.

Table 3 shows most countries in the OECD don’t use fuel thresholds but they do use other thresholds related to the scale of the reporter’s operations, such as employee numbers and/or sector specific production capacities.

¹ NPI NEPM clause 10 (3) states “*In this clause, **use** of a substance means the handling, manufacture, import, processing, coincidental production or other use of the substance.*”

² *Based on analysis carried out in February 2014, the NPI IWG recommended the schedules in the legislative instrument relating to the wording in italics above be removed at the next opportunity since the facilities it applies to already exceed the 2,000 tonne fuel use threshold and the electricity thresholds have often been misinterpreted by reporters.*

Table 3 – Summary of activity thresholds employed by existing PRTR systems

PRTR	Employee Thresholds	Activity Thresholds	Sector-Specific Thresholds
Australia NPI	• No employee threshold	<ul style="list-style-type: none"> • Chemical usage^A (5 to 25 000 kg/yr)^B • Annual fuel combustion^A (400 000 to 2 000 000 kg/yr)^B • Hourly fuel combustion^A (1 000 kg/hour)^B • Energy use^A (60 MWh) • Power rating^A (20 MW) • Emissions/transfers^A (3 000 to 15 000 kg)^B 	<ul style="list-style-type: none"> • Employee threshold applies to certain sectors.
Canada NPRI	• 20 000 employee hours	<ul style="list-style-type: none"> • Manufacture, process, or otherwise use^A (5 to 10 000 kg/yr)^B • Release, disposal, or transfer for recycling^A (50 kg/yr) • Activity^C • Air releases^A (300 to 20 000 kg/yr)^B 	<ul style="list-style-type: none"> • Facilities in certain sectors must report regardless of employee threshold. • Facilities in certain sectors are exempt from reporting if annual production falls below a threshold.
EU E-PRTR	• No employee threshold	<ul style="list-style-type: none"> • Air releases^A (0.0001 – 100 000 000 kg/yr)^B • Water releases^A (0.0001 – 2 000 000 kg/yr)^B • Land releases^A (0.0001 – 2 000 000 kg/yr)^B • Offsite transfers of waste^D 	<ul style="list-style-type: none"> • Facilities in certain sectors are exempt from reporting if production capacity falls below a threshold. • Facilities in certain sectors are exempt from reporting annual production falls below a threshold.
Kiev Protocol (Two Options) ^E	<ul style="list-style-type: none"> • No employee threshold • 10 full-time employees 	<ul style="list-style-type: none"> • Air releases^A (0.001 – 100 000 000 kg/yr)^B • Water releases^A (0.001 – 2 000 000 kg/yr)^B • Land releases^A (0.001 – 2 000 000 kg/yr)^B • Offsite transfers of waste^F • Manufacture, process, or use (0.0001 – 10 000 kg/yr)^B 	<ul style="list-style-type: none"> • Facilities in certain sectors are exempt from reporting if production capacity falls below a threshold. • Facilities in certain sectors are exempt from reporting annual production falls below a threshold.
Japan PRTR	• 21 regular employees	<ul style="list-style-type: none"> • Annual amount handled (1 ton or 0.5 tons)^B 	<ul style="list-style-type: none"> • Facilities in certain sectors must report regardless of annual amount handled threshold. • Additional capacity and activity thresholds apply to facilities in certain sectors.
US TRI	• 10 full-time equivalent employees	<ul style="list-style-type: none"> • Manufacture (0.1 g to 25 000 lbs)^B • Process (0.1 g to 25 000 lbs)^B • Otherwise use (0.1 g to 10 000 lbs)^B 	-

(OECD, 2014b)

Emissions Thresholds

A number of other OECD countries use ‘emissions’ based thresholds; that is facilities in eligible sectors must report based on crossing prescribed threshold emissions to air, land or water. One benefit of this method is the public’s relative affinity with and intuitive understanding of the level of environmental risk emissions present as compared to the less intuitive substance use or fuel thresholds. A significant disadvantage of emissions thresholds, especially compared to fuel thresholds, is the complexity of the calculations required to ascertain if a facility triggers them.

Since they are applied at specific levels for each substance, triggering an emissions threshold will not require reporters to calculate emissions for other substances in the same fuel category even though they may be small as described previously. As an indication only of the potential for a reduction in the number of reporters to the NPI, if emission thresholds were set at a level securing 95 per cent of all data (emission mass) provided for every substance previously in the NPI, analysis undertaken for this discussion paper indicates that only 45 per cent of facilities currently reporting would be required to report. There are several factors that could be taken into account in the setting of each substance’s emissions thresholds, including individual substance toxicity, persistence in the environment,

allowance for regions particularly susceptible to concentrations, industry sector issues and any international and other regulatory regime harmonisation issues. Nonetheless, the analysis suggests adoption of an emissions threshold regime could result in significantly fewer facilities being required to report to the NPI, for a relatively small reduction in the volume of emissions reported.

In considering changes to industry burden it is also important to note that just reducing the number of reporters does not necessarily reduce the overall burden of reporting to industry. Many reporters may still have to perform calculations to establish if they have triggered the threshold even if there are less facilities required to report due to changed thresholds.

Emissions thresholds set specifically for each substance can also better reflect the specific exposure and toxicity risk of the relevant substance. PM10 and PM2.5 particulates for instance currently are only reported if a fuel threshold is triggered in the NPI, whereas their importance to air quality measures and health impacts might require a more specific emissions threshold and the ability to capture facilities emitting a substance other than by fuel use (eg through dust).

Harmonise fuel thresholds with NGERs

With over 200 organisations commonly reporting to both NPI and NGERs, equalising fuel threshold reporting requirements could simplify the calculations for facilities under the two programs.

One NGERs fuel related threshold requires facilities to report if they produce at least 100 TJ of energy. Once converted to tonnages of different fuels used as is required under the NPI fuel thresholds, this is a higher threshold than any of the relevant fuel thresholds in the NPI. In examining the ramifications of equalising these thresholds, a TAP would need to consider the numbers and types of facilities that would no longer be required to report. Another consideration is that the NGERs definition of a facility includes activities outside a facility, such as transportation activities 'under the facility's control', whereas the NPI is more interested in the point emissions.

Other threshold considerations

Sector specific production thresholds are used in North American and European PRTRs. These enable thresholds to be adjusted according to the level of environmental risk inherent in an industry's typical activities. They are also potentially easier to calculate compliance against than fuel or emissions thresholds, as they are based on production capacity, which typically would change only with major upgrades to facilities and could generally be relatively similar year on year. In European PRTRs, substance emission thresholds are overlaid on the sector specific production thresholds, which may act as protection if a facility uses production techniques not typical of its industry or emits substances which should be reported despite not triggering an industry production threshold.

Like the industry sector a facility belongs to, another factor influencing the risk of harm to human health or the environment is the geographical location of a facility. For the same level of emissions, metropolitan areas inherently present a higher risk of human exposure to many harmful substances and with a higher likelihood of many facilities in a smaller area, can also produce higher concentrations of harmful substances from smaller, possibly sub-threshold facilities. A particularly sensitive or pristine environmental region such as a world heritage area or national park may also call for lower thresholds for any facilities in the area. Previously this targeting of reporters according to specific environmental risks has been performed by State and Territory regulators but there may still be some benefit for the NPI to do so as well, despite the administrative complications different thresholds for different locations would present.

Use existing reporting mechanisms to collate some industry sector reporting

Some industry sectors contain on average smaller businesses, or businesses and facilities with less technical skills or other resources required to report accurately. In some sectors, industry associations already collect some data with potential to be used to estimate emissions for the NPI. There may be opportunities for industry associations (such as the Australian Lot Feeders Association) or other data collection agencies like the Australian Bureau of Agricultural and Resource Economics (ABARE) to reduce the burden on, and improve the data collected from, smaller reporting entities.

Reporting periods and frequency

The NPI allows calendar year and financial year reporting and some jurisdictions go further to also allow reporting on non-standard periods (i.e. October to September) in order to harmonise with reporters' existing arrangements such as environment protection licensing periods. The data from these non-standard or calendar reporting periods is allocated in the NPI database to the financial year in which the non-standard period in question finishes. While the calendar and non-standard period actually used by a facility can be found in the data listed on the NPI website, the existence of facilities using these periods may not commonly be expected by NPI data users. There has been at least one instance of the NPI and facilities coming under criticism in the media due to users misinterpreting data because of this issue.

Another potential reporting period issue for discussion is the closing of the NGERs reporting period in October and release of data in February each year as compared to the NPI's September reporting closure and March data release. Alignment of these dates may present efficiencies for reporters and administrators. In response to previous reviews, some jurisdictions (and some industry stakeholders) said allowing flexible reporting cycles is more efficient as it spreads the workload of collecting and reviewing the data.

Online reporting system

The Online Reporting System (ORS) was introduced in 2008. The 2014 internal review recommended a list of improvements to the ORS to streamline reporting and reduce the reporting support services provided by jurisdictions, including:

- Undertake planned maintenance of the ORS, fixing known priority bugs and user issues, and enabling dependent enhancements to be undertaken in 2015–16.
- Remove some jurisdictional access restrictions within ORS to further enhance and streamline data validation and the overall operation of the NPI programme, including providing business access across multiple jurisdictions with a streamlined service.
- Improve the ORS download/upload speed issue and automate ORS workflow to reduce workload on the Australian Government database administrator and increase operational efficiency for jurisdictions.
- Commence integration of validation tools into the ORS to reduce ongoing maintenance and development costs, improve facility reporter experience and improve the reliability of NPI data.

To date, these recommendations have not been implemented.

Further potential improvements to the ORS identified by NPI administrators include the addition of integrated and efficient calculation tools and a streamlined advisory message system.

Questions — Reporters and thresholds

Is there a sufficient basis to form a TAP to investigate ANZSIC industry sector inclusion codes and reporting thresholds?

What changes could be made to the substance reporting threshold regime? Why?

What changes could be made to the ANZIC industry sectors required to report or be excluded from reporting? Why?

Could NPI data from industry sectors containing smaller facilities be collected through industry associations?

Do you support the current approach to allowing reporting outside the financial year reporting periods? Are there any changes to reporting periods you would recommend?

Are you a reporter to the NPI? What are your experiences with the ORS? Are there any improvements to the NPI reporting process you would suggest?

Interaction with other government programs

Introduction

As discussed at [Assist Government in Identifying Priorities for Environmental Decision Making](#), NPI data is used by a wide range of government agencies from a number of jurisdictions. Many of the programs run by these agencies also have operations which like the NPI, have an interest in data concerning emissions, wastes and hazardous substances.

Government organisations known to interact with the NPI include:

- State and Territory EPAs
- Local Government
- Australian Pesticides and Veterinary Medicines Authority (APVMA)
- National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
- ABS
- ABARE
- Clean Energy Regulator
- Department of Infrastructure, Regional Development and Cities
- DoEE – Environmental Standards Division.

Improved linkages between these organisations could enhance the efficiency of the delivery of the NPI and provide greater value to these organisations from their interactions.

Commonwealth / State partnership delivery model

Also as discussed at [Assist Government in Identifying Priorities for Environmental Decision Making](#), States and Territories interact to varying degrees with the NPI through their other environmental monitoring and management programs. These different jurisdictions and programs can regulate many of the same facilities and organisations and collect and release data providing similar information to data released by the NPI. In addition, the multiple jurisdictions model can lead to different approaches across jurisdictions. Areas where it has been noticed States and Territories have differing approaches include compliance (see [Strengthened and Nationally Consistent Regulatory Powers](#)) and reporter training.

The 2005 review noted:

‘there is no reason why requirements for NPI and State reporting cannot be harmonised. Some states have aligned their state reporting requirements with NPI reporting requirements and it appears that other states could do likewise. This would require substantive expenditure up front but would generate ongoing reporting cost savings for both industry and jurisdictions....’

(Environment Link, 2005)

The experience in the 13 years since the 2005 review is that some jurisdictions have reduced duplication by integrating the NPI into many of their own processes while other State and Territory governments saw less benefits and significant difficulties in bringing together the reporting requirements. To a large degree, this is to be expected given there are as many similarities as differences amongst the various reporting regimes in the nine jurisdictions and there can be significant up-front costs and administrative and legislative difficulties in harmonising.

A possible alternative to the partnership delivery model is to centralise the collection of NPI data. Preferably this would be through a central agency and program which has some experience in the collection of this type of data. States and Territories would still have full access to the data under this

model and could have an agreed level of governance responsibility. Costs and benefits of this approach are outlined in [Centralised data collection](#).

Improved data to meet national and jurisdictional air quality requirements

The aggregated emissions data for airsheds in the NPI is collected and prepared by States and Territories primarily for their own regulatory responsibilities and policy development. In doing so, they often use methods and data sources which vary across jurisdiction, making it difficult to compare the resultant air quality information. The experience has also been that the inventories have been delivered over irregular and infrequent time periods and even when available, mostly not uploaded to the NPI website. These issues are discussed under [Diffuse Sources](#).

In Australia, about 3,000 premature deaths per year occur earlier than they otherwise would have in the absence of air pollution, equating to about 28,000 years of life lost (Australian Institute of Health and Welfare, 2016; Keywood MD, 2016). Given these figures, an up-to-date, nationally consistent air emissions inventory suitable for regional modelling purposes would be especially useful as a base for studies on the national health impacts of poor air quality. A national air emissions inventory could also be useful to improve the comparability of jurisdictions' achievements against standards set by national measures such as the National Clean Air Agreement and the Ambient Air Quality NEPM. To some extent this gap was planned to have been filled by the proposed National Air Quality Data Service but the program was discontinued (Bureau of Meteorology, 2016).

The NPI is not intended to be an air inventory because its temporal time scale (a year) is too coarse for useful analysis, it doesn't include all non-anthropogenic sources and it doesn't have the exposure information, (e.g. the weather, topography, stack height or pollutant chemistry) required to be useful to model local air quality. However, the NPI could contribute in the following ways:

- Providing facility emissions data for inclusion in the air inventory models.
- Providing some level of nationally consistent standards in the estimation techniques used by the models
- Providing a national repository to present air emissions data from aggregated sources next to other sources of emissions.

As described in [Box 10](#), NPI data has been used to some extent to develop air quality measures in the past. A proposal to develop a National Air Emissions Inventory is currently being developed to address many of the issues discussed above. Ideally, the NPI's data relating to air emissions could be improved to integrate with and thus be more useful to the preparation of such an inventory to meet national and jurisdictional air quality requirements.

Box 10: Air Toxics NEPM case study

- Following on from the making of the Air Toxics NEPM, NEPC determined further air toxics (Tier 2) might require a national management response.
- The NPI was used as the key data source to prioritise T2 air toxics:
 - NPI emissions data was used as a proxy for exposure.
 - Emissions data was combined with toxicity data to develop an overall risk score for pollutants of interest.
 - A priority list of pollutants was developed reflecting the relative risks associated with each pollutant.
- The priority list can be used as the basis for future targeted management action, including development of air quality standards and abatement actions.

Questions — Interaction with other government programs

Does your government program interact with the NPI? Could the NPI be changed to improve the usefulness of these interactions? How?

How would the performance of the NPI's activities be affected if reporting under the NPI was centralised?

Is there merit in examining ways in which the NPI could be made more relevant for State and Territory and National air quality measures? How might the NPI's relevance be enhanced?

Accuracy of reporting / compliance and validation

Introduction

Ensuring that NPI data is accurate and reliable provides for confidence in the use of the data and ensures that decision-making by NPI users is well informed, thereby maximising the prospects of the objectives of the NPI NEPM being achieved.

As with most PRTRs, for practical cost reasons, the NPI largely relies on facilities estimating their release data rather than facility monitoring (OECD, 2014b). The techniques used to estimate and report emissions is made available to the public via the NPI or the data.gov.au websites.

It is an ongoing process for the jurisdictions through the NPI IWG to improve and encourage common validation standards and processes. In essence States and Territories investigate anomalies after comparing the data provided against industry sector averages and to those provided in previous periods. The Australian Government NPI section also applies its own checks and may ask jurisdictions to explain any anomalies, which if an issue is deemed serious enough, may result in a State and Territory performing an on-site audit of a facility or undertaking other actions like requiring emission estimates to be recalculated.

The number of on-site audits routinely undertaken varies amongst jurisdictions according to the resources available to them, with some jurisdictions performing them only on rare occasions.

Table 4 – NPI reports from 2015–16 audited in 2016–17

State or Territory	Reports 2015–16	Desktop Audits 2016–17	On-site Audits 2016–17
New South Wales	904	904	–
Victoria	837	200	9
Queensland	892	518	–
Western Australia	811	811	10
South Australia	468	468	5
Tasmania	154	140	–
Aust. Capital Territory	22	22	–
Northern Territory	110	–	–

(National Environment Protection Council, 2018)

Enhanced focus on the accuracy of estimation methodology

A number of academic papers have raised potential concerns regarding the accuracy and reliability of NPI data with a common finding being the estimations methods are out of date or inconsistently applied. (Cooper, Green, & Meissner, 2017), (Richardson, Rutherford, & Agranovski, 2018).

Recognising this issue, the 2005 review made the following high priority recommendation:

‘That a 4-5 year schedule be developed, with an annual budget allocation of \$200,000 for reviewing each of the Emission Estimation Technique Manuals.’

(Environment Link, 2005)

Post the 2005 review, a risk analysis was applied to the process used to choose which EET manual to update first. Twenty-eight of the ninety-four manuals have been updated to varying degrees since 2005, with the most recent being updated in August 2016 and with only six benefitting from some minor updates in the last five years.

The process often required to improve the NPI EET manuals is demonstrated by the changes to the mercury estimates of the 2012 Fossil Fuel Electricity EET Manual. In 2007, a paper ‘*Atmospheric emissions of mercury from Australian point sources*’ by Peter Nelson and funded by the Australian Government (Nelson, 2007) identified large international over-estimates of Australia’s mercury emissions to air and in particular, the need to improve emission estimates for mercury releases from brown coal fired power-stations. Subsequent field-based programs developed ‘emission factors’ based on actual measurements and these were included in the Fossil Fuel Electricity EET manual update of 2012.

More recently, following media commentary regarding the reliability of power station emission results from 2015–16 data, NSW EPA reviewed the accuracy of both the licensing emissions reports (which includes concentrations) and NPI emissions reports (annual emission totals) for the States’ five coal fired power stations. The review found there is potential for improvements in the NPI estimation techniques, and the ability to change the EET used for reporting, (direct measurement or calculated flue gas volume) was not ideal for intertemporal and inter-facility comparison.

One potential method for reducing the variations in estimation techniques able to be used by larger emission reporters such as found by the NSW EPA above, is to produce a hierarchy of techniques according to their accuracy, with facilities unable to ‘go back’ to a simpler technique. Another is to require the use of specific EETs for reporting a limited number of NPI substances from specific sector sources (e.g. diffuse dust emissions from open cut mines).

Overall though;

‘The review found no evidence of deliberate misreporting. The calculation errors found appear to be human error and a result of potentially inadequate quality assurance procedures. The errors displayed no bias towards lower reporting, and where the emissions of a substance was estimated by two methods (e.g. direct measurement and the NPI emission factor method for metals) the reported emission was more often the larger. The impact of the calculation errors was often relatively minor (~±10%). Some of the largest errors resulted in significant over-estimation of annual emissions. (eg. incorrectly doubling stack test concentrations).’

(EPA NSW, 2018)

Given the sensitivity and high levels of emissions from power stations it is to be expected reports for these facilities are reviewed and considerable effort on the part of the reporters and regulators to go towards ensuring accuracy. It can also be expected reporting by smaller, less high-profile reporters will generally be less accurate and will vary considerably according to the resources available to States and Territories to guide reporters and verify reports.

In addition to more regular EET manual updates, there may be value in more often requesting independent experts to validate the accuracy and consistency of the data produced by the manuals with real world situations. This process may also be used to analyse the variability of results and thus produce confidence interval data.

Improved validation procedures

While validation processes have been improved since the 2005 review and 2014 internal review, they are still relatively labour intensive and subjective and inconsistently applied across jurisdictions. Improved automated tools to automatically flag unusual data and prevent entry of invalid data by

reporters at the initial data entry stage may improve the effectiveness and reduce the resources required to complete the validation process. Improved and nationally consistent validation tools in the post data entry stage could also streamline and improve the effectiveness of validation by jurisdictions.

The US TRI and Canadian NPRI releases PRTR data to the public before it is validated with the premise being that reporters will be incentivised to provide more accurate data.

Require reporters to 'Report Accurately' – not just 'Report'

The NPI NEPM legislative instrument currently requires a facility to assert it has 'exercised due diligence in gathering and providing the information' and goes on to apply the responsibility for assessing the integrity of data to the State or Territory collecting it.

Another possible method for improving the accuracy of the data could be to change the legislative onus for 'reporting accurately' back to the reporter to some degree. For more information on enforcing compliance, see [Strengthened and Nationally Consistent Regulatory Powers](#).

Strengthened and nationally consistent enforcement powers

During the formation of the NPI, it was initially thought;

'the most common form of enforcement may be the naming of non-reporting facilities in annual reports regarding the implementation of the measure. This action is expected to lead to community pressure on those facilities to comply with their reporting requirements.'

(National Environment Protection Council, 1997)

Under the NPI NEPM legislative instrument, 'appropriate penalties may be prescribed' by the relevant participating jurisdiction in relation to failure of a reporting facility to provide information required under the NPI or for providing false or misleading information. This has resulted in varying penalties in the different jurisdictions.

Implementing enforcement actions has been a relatively rare occurrence for the NPI. One jurisdiction has named an organisation in the annual NEPM reports for failing to submit reports. The majority of jurisdictions have never issued an infringement notice for failing to report to the NPI. One jurisdiction had issued a penalty infringement notice for failing to submit a report on-time. The subject of the notice had been formally warned previously about the need to submit the annual NPI report on-time. The reporter did not appear when called upon by the Local Court and court costs were awarded to the regulator.

Table 5 highlights the different penalties faced by reporters for not reporting in the various jurisdictions.

Table 5 – Penalties for NPI non-reporting

State or Territory	Description	Max. Penalty for non-reporting
ACT	<i>Environment Protection Act 1997</i> , maximum penalty is 10 penalty units	\$1,100 (Individual) \$7,500 (Company)
NSW	<i>Protection of the Environment (General) Regulation 2009</i> 65-(2) <i>Maximum penalty (subclause (2)):</i> <i>(a) in the case of a corporation—40 penalty units, or</i> <i>(b) in the case of an individual—20 penalty units.</i>	\$2,200 (Individual) \$4,400 (Company)
QLD	<i>Environmental Protection Regulation 2008 (EP Regulation)</i>	\$2,000 (Company)
SA	<i>Environment Protection (National Pollutant Inventory) Policy 2008</i>	\$4,000 – \$30,000 (Fine) \$360 (expiation)
TAS	<i>State Policies and Projects Act 1993</i> provides for a penalty of up to 500 penalty units for a contravention of or failure to comply with a State Policy. NEPM is taken to be a State policy	\$65,000
VIC	<i>Waste Management Policy (National Pollutant Inventory) 2012 (WMP-NPI)</i> . Failing to comply with a Pollution Abatement Notice	\$1,500 (Non-corporate) \$5,000 (Corporate)
WA	The <i>Environment Protection (NEPM-NPI) Regulations 1998</i> . A recent amendment of Schedule 6 of the <i>Environmental Protection Regulations 1987</i> provides the option of issuing an infringement notice with modified penalties of \$250 for the first offence and \$500 for the second offence for the late submission of a report and failing to retain or provide emission and transfer data for verification for 3 years.	\$5,000 (Non-corporate) \$25,000 (Corporate)
NT	<i>Environment Protection (National Pollutant Inventory) Objective – Environmental Offence Level 4</i>	\$11,858 (Non-corporate) \$59,290 (Corporate)

Diffuse sources

The NPI database contains aggregated emissions estimates from diffuse sources such as mobile sources (motor vehicles, ships, aircraft), non-industrial sources (e.g. household activities, bushfires, windblown dust) and commercial sector sources (e.g. small printers or bakeries). Estimating emissions from these diffuse sources as well as those from NPI reporting facilities was an important requirement of the initial design of the NPI, demonstrating not all emissions in the Australian environment are from industrial and large commercial sources.

The 2005 independent consultant's review of the NPI made several recommendations to improve the consistency and comparability of the data from diffuse emissions studies (many of which have yet to be implemented).

These recommendations were:

- *That all jurisdictions agree on the relevant set of emissions that must be reported for each diffuse source category.*

- That manuals of diffuse source emission estimation techniques be updated and cost effective techniques for estimating emission changes in critical sources such as motor vehicles incorporated.
- That airshed emissions be updated to an agreed base year.
- That a set of agreed triggers for upgrading the diffuse source emissions based on parameters such as population increases, increases in vehicle registrations and vehicle turnover to new emission standards be established.
- That standard methodologies, including agreed emission factors, be used to estimate diffuse source air emissions.
- That the list of water catchment emission sources be standardised and rationalised.
- That consideration be given to providing water catchment data on a sub-catchment level where available.

(Environment Link, 2005)

It can take years to collect and model emissions from the wide range of diffuse data sources required to develop emissions inventories and consequently, inventories have not been released as often as scheduled in most jurisdictions, and in the smaller jurisdiction and regional areas, not at all. In March 2018, the Victorian Auditor General found;

Another consequence of EPA's 12-year old air emissions inventory is that Victoria's aggregated air emissions data on the Commonwealth Government's NPI website has not changed since 2006.

(Victorian Auditor-General's Office, 2018)

Delays in updating air emissions inventories are not limited to Victoria. The status of air emissions inventories around Australia is summarised in **Table 6**.

Table 6 – Air inventories status

Jurisdiction	Most Recent Air Inventory	Base Year
ACT	–	–
NSW	2008 Calendar Year Air Emissions Inventory for the Greater Metropolitan Region in NSW (A new study with 2013 as the base year is aiming for a 2018 release)	2008
NT	–	–
QLD	Air Emissions Inventory – South East Queensland Region	2004
SA	Air Emissions Study 1998–99 – Adelaide and Regional Airsheds updated in 2003	1998–99
Tas	–	–
VIC	Port Phillip Region Air Emissions Inventory (and several other regional inventories) (A new State-wide inventory is due for completion Sep 2018)	2006
WA	Perth Air Emissions Study 2011–12 (A new study with 2011–12 as the base year is anticipated to be released in 2018)	1998–99
Cwlth	Australian Motor Vehicle Emission Inventory for the National Pollutant Inventory (NPI) (Released 2014) (A proposal is being developed to implement a National Air Emissions Inventory)	2010

The water catchment aggregated emissions data in the NPI provides nitrogen and phosphorus emissions estimates from 32 catchment studies completed in 1999. It could be argued the NPI data on emissions to water from diffuse sources is in even more need of an update than the data from diffuse air sources.

Exacerbating the situation of infrequent aggregated emissions data studies, system limitations have prevented the data from the majority of these studies being loaded effectively onto the NPI database so that the data can be displayed on the website. The result is that the NPI diffuse data is mostly out-of-date and is presented on the website in a way as to make it difficult for the public to determine the base year to which it relates.

Improving aggregated emissions data in the NPI at least up to the standard originally envisaged, could contribute to improving the management of emissions (see [Improved Data to Meet National and Jurisdictional Air Quality Requirements](#)). More recent NPI data from diffuse sources could especially assist policy work into areas requiring regulation at the national level, such as maritime emissions or air and fuel quality standards. Accurate and current aggregated emissions data would also provide improved context for the assessment of facility data by community and environmental groups.

Box 11: Gladstone emissions inventory case study

- The QLD Department of State Development commissioned the QLD Department of Science, Information Technology and Innovation (DSITI) to develop an emissions inventory for Gladstone.
- DSITI used NPI industry emissions data, and estimated emissions from other sources (e.g. transport).
- Air monitoring data were used in a validation exercise, the results of which suggested the NPI emissions data was generally robust.



Bulk carrier anchored alongside the loading terminal at Gladstone

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Questions — Accuracy of reporting / compliance and validation

How accurate and reliable do you expect NPI data to be? What processes should be improved or introduced to make NPI data more reliable?

Would data accuracy be helped or hindered through methods to more explicitly place the onus on reporters? Such methods may include having reporters publicly release yet-to-be validated data or changing the relevant reporting clauses in the NPI NEPM.

Have you found the NPI Emission Estimation Technique (EET) manuals difficult to use or producing inaccurate, unreliable or variable estimates? Are there any in particular needing urgent attention?

What measures are most effective to ensure compliance with NPI reporting legislative framework? Could enforcement of non-reporting and false reporting to the NPI be more effective? How?

Should regulatory penalties for facilities not reporting or providing poor quality data to the NPI be standardised across Australia? Why?

Is the diffuse source data (or aggregated emissions data) sufficiently accurate and current to be reliable? Could it potentially be more so? Should improving the quality of such data through for example, more regularly updated studies, be given a higher priority? Why?

Resourcing

Current funding model

Introduction

Implicit in the terms of reference of this Review is an examination of the public value of NPI activities. This requires a comparison of the benefits provided to NPI stakeholders against the cost of providing those benefits.

Australian Government funding for the NPI to date has been through allocations to DoEE, a portion of which is distributed to States and Territories under Memorandums of Understanding. The funding distributed to the States and Territories is at least matched by their own contributions.

Operational funding post the initial set up period of the NPI has been falling in real and nominal terms since 2001–02.

The 2005 review recommended more funding for the NPI to meet the needs of its stakeholders.

‘The NPI does have potential to better meet these needs and deliver greater benefit to jurisdictions and their constituents than have ensued to date.

In order to achieve these, the NPI will require either more efficient use of resources, a higher level of funding or both.’

(Environment Link, 2005)

International benchmarking of costs to government

The United Nations analysed a range of possible cost scenarios for PRTRs in 2002. The results for fifth year operating costs for a PRTR with 8,000 facilities (representing initial fixed costs of US\$400,000 and 15 FTE) converted to 2016 Australian dollars are presented below (UN Economic and Social Council, 2002).

The Canadian National Pollutant Release Inventory had annual operating costs in 2008 of \$6.3 million \$CA (\$7.372 million in 2016 \$A) for 8,500 facilities (Office of the Auditor-General of Canada, 2009).

The US EPA budget has the US TRI's annual operating costs for 2016 as US\$13.883 million for 21,629 facilities. (US EPA, 2016)

Table 8 – PRTR estimated cost comparison

PRTR	Total Costs to regulator 2016 A\$ '000 pa	No. of Facilities	Costs per facility 2016 A\$ pa
Canada NPRI (Actual 2008)	7,372	8,500	867
US TRI (2016)	18,671	21,629	863
UN Modelled	4,904	8,000	613
NPI (Actual 2016)	1,500 ³	4,189	358

³ Includes Commonwealth expenditure \$0.7 mil (\$0.5 mil to States and Territories under MOU), plus State and Territory expenditure of \$0.8 mil (matching contributions plus \$0.3 mil)

Questions — Current funding model

Do you think more or less public funds should be spent on the NPI?

What areas would more funds deliver more value for NPI users and stakeholders in your opinion?

What areas of the NPI could be discontinued or allocated reduced funding?

Sustainable resourcing models

Introduction

Recognising the funding experience of the NPI program, the NEPC required this Review investigate sustainable resourcing models for its effective operation, including potential cost recovery options.

Cost recovery models

Cost recovery models may allow revenue to be generated which in turn could fund program improvements to streamline reporting and provide more valuable data and an enhanced data user experience.

It is not common for international PRTRs to include fees to report. However as with the State and Territory environmental regulatory systems, fees for an environmental licence or to emit substances are common internationally and to some extent may subsidise PRTR costs where the environmental protection agency is the same as the PRTR administrator. Canada's NPRI, the US TRI and the European PRTRs do not charge fees to report or to use data.

Potential cost recovery models and some of their advantages and disadvantages are listed in Table 9.

Table 9 – Cost Recovery Models

Model	Advantages	Disadvantages
'Per facility' fee Reporters pay when they submit report. Fees could be scaled to reflect size of reporting facility.	Simple to administer and collect. Incentivises collecting organisations to chase up reporters.	Doesn't incentivise reporters to report. Extra burden on industry/reporters who already pay state fees.
'Per Emissions' fees Charge a per weight fee for all substances emitted or transferred in the NPI.	Incentivises organisations to reduce emissions.	Complex structure to apply fairly for all substances / types of facilities. NPI is not a regulatory program, States and Territories already do this. Extra burden on facility reporters who already pay state fees.
'Data Use' Fees Charge for data downloads. May apply to all data or more likely some of the more detailed data as long as it is still relatively popular.	Fee payer gets direct benefit for payment. Program gets better information on uses for the data.	Would require NEPM 31(2) variation. Contradicts 'right-to-know' and 'open government' principles. Disadvantages public data users who may not have resources to pay. Is the data of high enough quality and value to attract enough users prepared to pay? Liability issues?

States and Territories have different fee structures for their environmental licencing operations. South Australia for example uses a combination cost recovery and 'per emission' model and in doing so has devised a 'per emissions' license fee structure for key pollutants which are also NPI pollutants. While this is used for cost recovery purposes against the State's regulatory structure, the principle has potential to guide an NPI cost recovery model if required (EPA SA, 2006).

It should be noted any cost recovery models will require a variation to the *National Environment Protection (National Pollutant Inventory) Measure 1998*, in particular it currently contravenes Clause 31 (2);

'The Commonwealth may seek to recover dissemination costs of information derived from the National Pollutant Inventory data but notes that this does not allow the Commonwealth to recover costs for the provision of the emission data, mandatory and voluntary transfer data, supporting data, substance information, aggregated emission data or aggregated transfer data specified in this Measure.'

(National Environment Protection (National Pollutant Inventory) Measure 1998)

The Australian Government cost recovery guidelines lists the following key processes to achieve policy approval to implement cost recovery activities.

1. *Identify an opportunity to cost recover a government activity or a need to amend an existing cost recovered activity.*
2. *Develop a policy case and broad implementation strategy for cost recovering a government activity or amending an existing cost recovered activity.*
3. *Develop a high-level cost recovery model.*
4. *Engage with stakeholders.*
5. *Undertake a cost recovery risk assessment (CRRRA) and agree on a risk rating with Finance.*
6. *Prepare a policy proposal for the Australian Government that also meets other relevant requirements (e.g. a regulation impact statement).*
7. *Seek policy approval from the Australian Government to cost recover the specific activity.*

(Dept of Finance, 2014)

Centralised data collection

During the formation of the NPI, consideration was given to the possibility of the Commonwealth enacting its own legislation rather than the current model of delivering the NPI in partnership with the States and Territories.

'Such an approach would have the benefit of only one jurisdiction having to enact legislation, would provide for easier administration, and streamline decision making processes.'

The impact statement goes on to say;

'In practice, this approach is not considered feasible. Advice indicates that it may not be possible for the Commonwealth to give legislative effect to all aspects of an NPI given its powers under the Constitution. In addition, the Commonwealth would not be likely to pursue such goals, given the co-operative approach being taken at present in relation to environmental issues. Unilateral Commonwealth action could very well alienate State and Territory environment agencies. Another key issue is that the Commonwealth is not well placed to take on such a hands-on role in data collection and management of facility based and aggregate data. Also, the Commonwealth would need to invest in significant resources, duplicating those already in place at State and Territory level, in order to administer the programme.'

(National Environment Protection Council, 1997)

It could be argued that in the intervening period, co-operative federalism has evolved, with many national environment programmes solely enacted by the Commonwealth and some, such as NGERs, having a data collection focus like the NPI. While the resource duplication issue mentioned in the NEPC impact statement above still exists to some extent, it is possible the returns to scale of centralisation could offset those costs.

The ongoing efficiencies and benefits in centralising data collection could be:

- Reduced duplication of functions amongst the States and Territories.
- Standardisation of collection processes for organisations with facilities in multiple States or Territories.
- Simplified governance structure better able to respond to emerging issues and implement program improvements (i.e. not nine different structures).
- Economies of scale through applying data validation activities to only one set of data.
- Potential of merging collection activities with another centrally managed data collection program such as NGERs.

Ongoing costs and disadvantages in centralising data collection could include:

- Lack of technical expertise required to understand reporters and their industries due to separation from licensing and regulation function.
- Reporter disadvantage due to the loss of established relationships with State and Territory agencies.
- Lack of access to various jurisdictional datasets to perform validation during compliance activities such as audits.
- Jurisdictional separation from data, possibly leading to loss of insight in analysis of NPI data.
- Travel costs due to physical separation between reporters and data collectors (if Commonwealth staff are to be co-housed and not in the regions).

Transitional costs in centralising data collection could include:

- Legislative change, both State and Federal.
- Systems and process change.
- New staff training costs and/or State and Territory staff relocation costs.

Questions — Sustainable resourcing models

Should NPI facility reporters and/or NPI data users be asked to contribute to improvements to the NPI through a cost recovery model?

If a user pays system were introduced, would you still access the data? Why/why not?

Would the centralisation of data collection activities currently performed by the States and Territories result in the NPI delivering program efficiencies? Or false economies? Are there any costs or benefits not listed?

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