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Department of Agriculture, Water and the Environment

# National Pollutant Inventory Review Report 2021

**National Pollutant Inventory Review Steering Committee**

**Cataloguing data**

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# Summary and recommendations

The National Pollutant Inventory (NPI) provides information about the emission and transfer of potentially polluting or harmful substances that have been reported annually by facilities that exceed reporting thresholds for those substances. The NPI was established through the National Environment Protection (National Pollutant Inventory) Measure 1998 (NPI NEPM) and is required to be reviewed periodically.

This report presents the findings of the third NPI review completed in 2021 in accordance with subsection 33(1) of the NPI NEPM. In 2018 the review called for public submissions from industry, government organisations, non-government organisations and the general community. Apart from the submissions, this review report takes account of more recent whole of government reforms that affect the delivery and operation of the NPI.

The key findings from the review relate broadly to outcomes, performance, and delivery. There is general agreement that the NPI model should remain consistent with the current arrangements, where the Commonwealth and jurisdictions jointly operate the program and oversee its policy. The review findings look to an enhanced value proposition for the future NPI that operates within a nimbler legislative arrangement, uses improved tools and processes to streamline operations, and provides an enhanced user experience.

The review affirmed that the NPI was largely meeting its intended outcomes and goals, that these remain relevant and broadly supported by stakeholders. The NPI's intended purpose and commitment to fundamental principles such as the 'right to know' continue to be recognised and valued. The data reported via the NPI is essentially an estimate of emissions and waste transfers from over 4,000 Australian facilities – the data set as a whole is nationally recognised for its utility and importance. Authorities across jurisdictions use this data for various purposes, including to help administer local environmental regulations.

The review identified that elements of the community place a high value on air quality. In this context, there are opportunities to focus more on human health policy as a driver for the collection and analysis of pollutant data. The Organisation for Economic Co-operation and Development (OECD) defines a pollutant as a substance that may harm organisms (humans, plants and animals) or exceed an environmental quality standard (OECD 2001).

There is an appetite to improve accessibility of the NPI data across the user base. This would contribute to better understanding in the community, a greater potential for well-informed trend analyses including the capacity to monitor environmental progress, and greater versatility of the data set to best support decision-making across jurisdictions.

Submissions to the review noted that the structure and usability of the NPI website had fallen behind minimum expectations of most users. Contributors and users of data across industry, government and the community expressed a strong desire for the NPI to be more accessible and user-friendly. There were many suggestions to modernise and improve the NPI and the website. Taking a modern, human-centred design approach there are a range of potential improvements including features and tools consistent with other publicly available Pollutant Release and Transfer Registers (PRTRs).

To maximise the likelihood of delivering the desired environmental outcomes specified in the NPI NEPM, the data within the NPI should be as accurate, relevant and as useful as possible. The review identified some ongoing issues around data accuracy and data completeness and a requirement to analyse and update the current substance list, emission estimation techniques (EETs) and EET manuals. Improvements to usability and efficiency of data collection tools, guidance, and resourcing are essential to mitigate the ongoing cost implications of any changes, such as expanding the substance list. Adjusting reporting thresholds could be considered as an additional way to help balance reasonable costs on industry with data completeness.

Adequate resourcing of the NPI will be key to improving and maintaining the quality of NPI data, its utility to users, and maintaining appropriate regulatory burden on reporters.

There is also a perception among reporters of duplication in reporting efforts across jurisdictions, and environmental programs administered by the Commonwealth. This can be addressed in part through greater public awareness and understanding of the role and purpose of the NPI relative to other reporting obligations. An examination of the potential for streamlining reporting requirements across environmental programs and jurisdictions could be worthwhile and would be a useful way to validate claims of duplication.

While the design and intent of the NPI benchmarks well against PRTRs in other countries, there are clear opportunities for optimising its operations and increasing its utility. OECD recommendations made in 2018 on the operation and harmonisation of PRTRs provide a useful guide in this regard.

The review considered 3 alternative service delivery models: termed ‘centralised’, ‘federated’ and ‘outsourced’. While the centralised approach was preferred by some stakeholders, a successful future model could be expected to leverage the current collaborative approach between the Commonwealth and jurisdictions. The optimal delivery model would be nimbler and more streamlined, aligning with other whole of government legislative and administrative reforms underway. Implementation of typical elements of a service charter in the memoranda of understanding (MOU) between the Commonwealth and the jurisdictions is consistent with the recommendations of the review of the National Environmental Protection Council Acts and could strengthen the governance arrangements and efficiency of the NPI.

Review submissions highlighted opportunities to increase the NPI's utility and functionality for informing environmental policy development and decision-making. This could be achieved through reform of specific legislative and governance arrangements, improved sustainability and reliability of the resourcing model, new initiatives to improve the quality and richness of the data collected, new data streams that help build nationally consistent emissions inventories for use in air quality management, and more effective procedures to track specific industrial wastes.

To modernise the NPI in relation to the substances listed and the appropriateness of reporting thresholds, the NPI NEPM requires the formation of a panel of technical experts to review and advise on these changes. The panel could also advise on updates to the EET manuals and the list of industry activities required to report.

Many of the elements in the modernisation program suggested for the NPI are long-standing and require a short to medium term injection of resources to progress. A cost benefit assessment of proposed reforms will need to be undertaken but the suggested improvements could be

expected to increase the value-add of the NPI and its capacity to deliver on intended outcomes. A detailed plan to modernise and improve the NPI based on the findings from this review will help ensure its future relevance and utility.

# Recommendations

In the context of the NPI NEPM and its role in achieving environmental outcomes, the review has 7 recommendations for improving the NPI's operation and administration.

## Outcomes of the NPI

The review recommendation in relation to NPI outcomes is to:

**Recommendation 1**: Examine opportunities to increase the NPI's focus on human health outcomes and air quality

## Performance of the NPI

The review recommendations in relation to NPI performance are to:

**Recommendation 2:** Develop ongoing initiatives to increase program awareness among stakeholders and the community

**Recommendation 3:** Improve the NPI online interface by

- enhancing the website functionality through human-centred design
- upgrading the online reporting system to streamline industry data submission and government administration
- using modern tools and approaches that meet government standards for accessibility, data validation, data quality and data management

**Recommendation 4**: Undertake modernisation projects to

- review and update the substance list, EET and EET manuals
- investigate options for modelling and presentation of other data relevant to the NPI (such as aggregated data on emissions and substance transfers)
- identify improved mechanisms for data collection and appropriate thresholds for reporting that focus administrative efforts on activities of interest with reasonable costs on NPI reporting facilities, for example, investigate the use of minimum reporting quantities for both emissions and waste transfers to simplify reporting requirements and potentially, to substantially reduce the number of facilities required to report. (Consistent with the 2005 Recommendation 26)
- consider validating NPI performance in relation to the OECD PRTR operation and harmonisation recommendations.

## Delivery of the NPI

The review recommendations in relation to NPI delivery are to:

**Recommendation 5:** Investigate the NPI delivery approach, including opportunities to

- reform the legislative governance arrangements
- streamline data collection and improve data quality

- undertake a cost benefit analysis to better articulate the value proposition for the NPI's proposed modernisation program and to assist in securing sustainable co-partnering and resourcing under the current (and/or revised) NPI NEPM framework

**Recommendation 6:** Form a technical advisory panel to deliver recommendations on technical matters identified in relation to the NPI's performance.

**Recommendation 7:** Consider a service charter and a staged action plan consistent with the modernisations program identified in this review to build capacity and to ensure appropriate program design, consultation and governance can be put in place.

# Introduction

The National Pollutant Inventory (NPI) has tracked pollution across Australia since 1998, ensuring that the community can access local information about the emission and waste transfer of potentially polluting or harmful substances which may affect them, from over 4,000 Australian facilities. The Australian, state and territory governments, through the National Environment Protection Council (NEPC), agreed to legislation called the National Environment Protection Measures (NEPMs), and created a program which helps protect or manage aspects of the environment to improve air and water quality, minimise the impacts of hazardous waste and increase resource sustainability.

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 1994*.

The NPI contains data on up to 93 substances present in emissions or waste transfers that are identified as having a possible effect on human health and the environment. In making recommendations to the 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 such as mines, power stations, poultry farms and factories. It also includes aggregated emissions data from 'diffuse' sources such as households or motor vehicles, however this data does not cover the whole of Australia. Organisations are bound by the NPI NEPM and relevant state and territory legislation to report facility emissions and transfers if their facility operates in a NEPC-agreed industry sector from the Australian and New Zealand Standard Industrial Classification (ANZSIC) codes, and if the facility exceeds one or more reporting thresholds for fuel use, substance use, substance emissions or the number of employees. Reporting facilities provide data annually and may 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 Agriculture, Water and the Environment (DAWE). DAWE is responsible for storing the data and providing it publicly through the NPI website. DAWE is also responsible for the guidance documents used by staff at reporting facilities to estimate and report emissions or waste transfers.

Programs like the NPI acknowledge that citizens and non-government organisations (NGOs) have a right to know about chemical use and releases that could harm their environment or health. The data provided informs government policy and regulatory processes and provides knowledge and incentives to encourage industry to track progress and reduce emissions.

The NPI is jointly funded by the Australian Government and state and territory governments.

This report relates to the third review of the NPI undertaken in accordance with section 33(1) of the NPI NEPM, following earlier reviews in 2000 and 2005.

# 1 Scope

The scope of the NPI review was set out on 25 November 2016 by the National Environment Protection Council. Section 33(1) of the NPI NEPM requires the NPI to be reviewed periodically with regard to its effectiveness, resourcing, and potential amendment.

## 1.1 Terms of reference

The terms of reference (ToR) for the review were:

- an assessment of the extent to which the NPI contributes, and its potential to contribute, to the achievement of the desired environmental outcomes specified in the NPI NEPM, and whether those outcomes remain appropriate
- the scope for improving the performance of the NPI considering

user experience, international benchmarks and the 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)

- a comprehensive review of the NPI NEPM as provided for in subsection 33(1) of the Measure
- consideration of sustainable resourcing models for the effective operation of the NPI, including options for cost recovery.

# 2 Methodology

Arrangements for the NPI review were specified by the council and overseen by the NPI review steering committee.

## 2.1 Conduct of the review

The council determined that the NPI 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 inter-governmental working group.

## 2.2 NPI steering committee

The NPI review steering committee provided oversight of the review as well as preparation of the discussion paper and the review report. The steering committee contributed expertise and perspectives from jurisdictions as the report was finalised.

## 2.3 Discussion paper

The NPI review steering committee prepared a discussion paper about the NPI, which posed a series of questions for consideration. The discussion paper was available from May 2018.

## 2.4 Public consultation

The NPI review steering committee invited submissions from current and potential users and reporters of NPI data including industry, government agencies, non-government agencies, and the community.

Submissions closed on Friday 10 August 2018. All submissions were treated as public documents unless there was a clear statement from the submission author that all or part of the submission was to be treated as confidential.

## 2.5 Analysis of submissions

The review received 59 direct submissions, 54 of which were later made available on the NPI website. Five submissions were received where the author indicated a desire for confidentiality. One anonymous submission was received. There were also 319 campaign form submissions. An example of a campaign form submission was included in the public submissions placed on the NPI website. A list of public submissions is at Appendix A. The list of those who made a form submission is at Appendix B. This report draws on an analysis of views presented in the submissions made to the review.

## 2.6 Literature scan

A brief scan was undertaken of literature, including previous review reports, Organisation for Economic Co-operation and Development (OECD) information, and information on pollutant inventory websites maintained by comparator countries.

# 3 Past section 33(1) reviews of the NPI

This review is the third formal review of the NPI since it came into effect in 1998. Two previous reviews in accordance with section 33(1) were published in 2000 and 2005.

## 3.1 2000 review

The first review, undertaken by Professor Ian Rae, reported in 2000 (ARTD 2000). The Rae review made a number of recommendations, some of which would require a variation to the NPI NEPM for them to be implemented (Environment and Heritage 2005).

## 3.2 2005 review

The second review, completed in 2005, concluded that while the NPI had delivered benefits to, and met the needs of, a range of groups and provided information for a wide variety of purposes, further work could be done to better meet these needs and deliver greater benefits to jurisdictions.

Areas for priority attention identified in the 2005 review were:

- database systems improvements to facilitate greater and easier access to data
- resource material for industry and jurisdictions to improve consistency and data quality
- improvements to data quality assurance programs to increase confidence in the data leading to greater and wider variety of uses
- changes to NEPM parameters such as the inclusion of transfers and greenhouse gases to make the NPI more relevant and increase public awareness
- improvements in operational issues for more efficient and effective use of staff resources
- public awareness programs that promote use of the NPI to a wider audience and better serve the community right-to-know objective (Environment and Heritage 2005).

A summary of the recommendations from these previous section 33(1) reviews is at Appendix C.

# 4 Achievement of desired outcomes

The terms of reference for this review included an assessment of the extent to which the NPI contributes, and its potential to contribute, to the achievement of the desired environmental outcomes specified in the NPI NEPM, and whether those outcomes remain appropriate.

## 4.1 Desired environmental outcomes

The desired environmental outcomes described in section 5 of the NPI NEPM are:

a) the maintenance and improvement of
   i) ambient air quality
   ii) ambient marine, estuarine and freshwater quality
b) the minimisation of environmental impacts associated with hazardous wastes, and
c) an improvement in the sustainable use of resources.

The NPI seeks to deliver these outcomes through achieving national environment protection goals, set down in section 6 of the NPI NEPM, which are to:

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

## 4.2 Assessment

In undertaking an assessment of the extent to which the NPI is successful in achieving the desired outcomes, it is important to note that the NPI is only an indirect influencer of these outcomes. 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. There are many other larger influencers of outcomes, including other NEPMs and the suite of environmental protection legislation and programs enacted by all levels of government.

The assessment of the NPI's outcomes and goals was 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.

### 4.2.1 Enhances environmental quality

The NPI aims to enhance environmental quality through better-informed users and stakeholders across the community, industry and government sectors, thereby facilitating behaviours and regulatory approaches to manage and reduce releases and transfers of pollutants. This includes industry benchmarking, regulation, research, and community environmental management initiatives. The case studies in the discussion paper and various submissions indicated that the NPI continues to play an enabling role in achieving environmental outcomes.

Most public submissions were from individuals or organisations that reported under the NPI, and who were aware of the intended environmental outcomes. While 46 addressed environmental outcomes, 15 commented directly on the appropriateness of them. For example, the Minerals Council of Australia called for references to 'improvement of the environment' to be removed and replaced with 'collection and dissemination of data, including non-industry sources data', while the joint submission from Centre for Air Pollution, Energy and Health Research and Clean Air and Urban Landscapes recommended that 'desired environmental outcomes be reframed in a way that strengthens calls for regulation of pollutant emissions to ensure that human health, well-being, the environment and the health of the economy are maintained'.

Overall, as the NPI is the only national, publicly available environmental pollution data set of non-greenhouse gas pollutants in Australia, it has an accepted place in contributing to enhanced environmental quality.

### 4.2.2 Increases public and industry understanding

The NPI aims to provide information that increases understanding about the types and quantities of substances emitted into the environment and transferred as waste. The discussion paper identified that NPI data is regularly used by the community and industry with users logging over 250,000 sessions per year on the website in the period prior to 2018.

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

- 42% of industry users and 70% of government and research users thought data on pollutant emissions and transfers were useful
- 95% of industry respondents said the major reason for NPI use was that their facilities were required to report to the NPI
- 17% indicated they use the NPI to obtain information about the environmental performance of similar facilities, 6% to obtain information about pollution in the local area and 9% 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 develop and review environmental policies and programs (Wheeler, Zuo, & Loch 2014).

The 2005 NPI review identified academic institutions, community groups, government organisations, environmental protection authorities, industry, financial firms and the media as users of the NPI information (Environment and Heritage 2005).

Submissions to the current review confirmed that the community and industry continued to access the NPI website for information, with perspectives being provided from:

- individuals
- industry associations
- large companies (>199 employees)
- non-government organisations and interest groups
- researchers/thinktanks
- service providers (for example auditors)
- small to medium enterprises (<200)
- state governments
- unions.

Further submission metrics are provided in Appendix D.

There was an acknowledgement in many submissions that the NPI assisted in enhancing the general level of knowledge about emissions. The Australian Conservation Foundation stated that, 'NPI data is of immense value to the Australian public, civil society and academia,' and they saw value in the data set being 'preserved and improved so it may continue to enable important work on Australian air pollution moving forward'. The WA Water Corporation noted that the NPI 'remains relevant as a source of information for society on industrial emissions', while Australian Pork indicated it appreciated the role of NPI in 'tracking emissions and making this information publicly available'.

Many of the review submissions noted potential improvements for the way information was presented and made comment on the list of substances and methodologies for collection that could potentially improve understanding of emissions. These matters are discussed later in this report. Despite the performance issues identified, there is a clear appetite for NPI information that better informs understanding of the types and quality of substances emitted.

### 4.2.3 Encourages industry to use cleaner production techniques to reduce emissions and waste

An aim of the NPI data is to encourage 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.

The review discussion paper identified that 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. Examples included:

- Nyrstar working 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 (Environment 2015)
- Kalgoorlie Consolidated Gold Mines greatly reducing 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 (Environment 2015)
- Origin Energy using NPI statistics in their emission reports and as a basis for their voluntary reporting programs (Origin Energy 2015)
- Cement Industry Association identifying 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).

Submissions to the review suggested that industry, particularly those larger organisations with a footprint across more than one jurisdiction, now routinely rely on a range of other data sources or drivers to identify waste emissions and develop strategies to reduce those emissions including:

- environmental protection licensing and/or regulation requirements in one or more jurisdictions
- organisational quality assurance requirements
- organisational/national or international benchmarking
- productivity improvement and cost reduction goals
- requirements within planning approval processes
- the desire to improve community relationships.

Some organisations pointed to the limitations of NPI data quality and collection methodology (such as the use of estimates rather than actuals) as reasons why the NPI process is not necessarily a primary driver for them to reduce emissions.

### 4.2.4 Tracks 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.

Authors of the Australian Government's State of the Environment (SoE) Report use NPI data every 5 years to assess 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 authorities (EPAs) use NPI data to feed into the air inventories and to help plan compliance and monitoring activities (Victorian Auditor-General's Office 2018).

Efforts to achieve international harmonisation of PRTRs are in part, undertaken to help track progress against the United Nations' 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).

Many submissions to the review indicated a desire to be able to track and compare NPI data over time. These included the Australian Conservation Council, the joint submission from the Centre for Air Pollution, Energy and Health Research and Clean Air and Urban Landscapes, Environmental Justice Australia, Kwinana Industries Council, AGL, Public Health Association of Australia, South Australian government agencies and WA Water Corporation.

The NPI website structure and performance capacity was identified as a critical determinant of data accessibility and utility including the use of comparative NPI data to identify trends and progress over time. This matter is discussed later in the report in relation to performance.

### 4.2.5 Meets community right-to-know obligations

The right-to-know principle is a central tenet of the NPI's goal to disseminate the information collected to all sectors of the community in a useful, accessible, and understandable form. Section 29 of the NPI NEPM sets out the requirement for NPI information to be made available to the public consistent with this principle.

Over time the OECD has reviewed the success of PRTRs internationally, commenting favourably on Australia's commitment to making NPI data available (OECD 2000), and acknowledging Australia's efforts to actively educate users and the public about the NPI (OECD 2015). An international comparison of the NPI's mechanisms to support the right-to-know principle was published by the OECD (Table 1).

**Table 1 Dissemination of information by existing PRTR systems**

| Category | Option | Australia NPI | Canada NPRI | EU E-PRTR | Japan PRTR | Kiev Protocol | US TRI |
|---|---|---|---|---|---|---|---|
| **Level of aggregation** | Individual facilities/chemicals | Yes | Yes | Yes | Yes | Yes **b** | Yes |
| | Aggregate records **a** | Yes | Yes | Yes | Yes | Yes **b** | Yes |
| **Format** | Summary and interpretive reports | n/a | Yes | n/a | Yes | Yes **b** | Yes |
| | Raw data files/databases | Yes | Yes | Yes | Yes | n/a | Yes |
| | Analytical tools | Yes | Yes | Yes | Yes | Yes **b** | Yes |
| | Press releases | n/a | n/a | Yes | Yes | Yes **b** | Yes |
| | Fact sheets | Yes | n/a | n/a | Yes | n/a | Yes |
| | Exports for integration with other PRTRs | Yes | Yes | Yes | Yes | n/a | Yes |
| **Location** | Stand-alone website for the PRTR | Yes | n/a | Yes | n/a | Yes **c** | n/a |
| | Webpage with environmental agency website | n/a | Yes | n/a | Yes | Yes **c** | Yes |
| | Website providing international PRTR data | Yes | Yes | Yes | Yes | n/a | Yes |
| | Public libraries | n/a | n/a | n/a | n/a | Yes **d** | Yes |
| | Available upon request | n/a | n/a | n/a | Yes | Yes **d** | n/a |

**a** Aggregate records refers to the sum of total emissions/waste transfers from facilities in an area (suburb, local government area or state/territory) or an industry sector. The NPI scheme refers to aggregate emissions as the emissions from non-facility sources. **b** Recommended under the Kiev protocol. **c** The Kiev protocol does not distinguish whether a website should stand

alone or fit within an environmental agency site. **d** Recommended under the Kiev protocol if resources are not available for developing a website.
Source: OECD 2014

Most submissions to the review commented on the expectation that NPI data would be available and accessible. Community groups, individuals and peak industry bodies all support the right-to-know principle. For example, the Australian Asphalt Pavers Association identified that the community expected the NPI data and reports to be freely accessible, while the Australian Conservation Foundation stated that since its inception, the NPI, 'has been Australia's most comprehensive annual report on toxic pollution to air, water and land, providing the community with access to data on toxic pollution as a right, that would be otherwise unavailable'.

The degree to which a PRTR provides open and effective public access to data about NPI substances released as an emission or in waste transfers that are potentially harmful to the environment is a key performance indicator. 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. Accessibility issues identified in relation to the NPI data and website are discussed later in this report.

### 4.2.6 Assists governments in identifying priorities for environmental decision-making

Environmental regulators in the states and territories use NPI data to cross reference with their own systems and to help 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. Facilities located on Commonwealth land, external territories or offshore oil rigs in the exclusive economic zone (for example, Inpex Operations LNG facility located 210 kilometres off the WA coastline in the Timor Sea) are not subject to state and territory legislation.

The NPI has been selected by the ABS as a distinct data set considered to be an essential statistical asset and as such is an essential indicator of the State of the Nation (ABS 2013). Submissions to the review identified that the NPI data was linked to environmental decision-making in jurisdictions. For example, the submission from South Australian government agencies indicated NPI data was used to inform that state's load-based licensing system. The Queensland Department of Environment and Science stated that the Queensland Government uses NPI data for:

- validating other emission data provided by industry
- air quality modelling
- water quality modelling
- state of the environment reports
- air quality management plans
- project approval assessments
- environmental policy development

- support for resolving pollution complaints
- benchmarking facilities within an industry sector
- tracking the effectiveness of pollution reduction activities
- checking compliance with environmental licenses.

Apart from the nexus between NPI reporting data and licensing and regulatory practice in jurisdictions, submissions to the review identified human health connected to air pollution as an area of government decision-making for which the NPI data was particularly relevant. Many submissions from NGOs, research institutions and regulators pointed to the policy connection between air quality and health.

Twelve submissions commented directly on the relationship between the NPI and air quality, supporting the concept that the NPI data interfaces effectively with the tools used to assess air quality measures and air quality management/policies.

The NPI's relevance would be enhanced by updating the diffuse inventories (aggregate emissions data (AED)) to provide a more complete picture of the total emissions occurring in our environment. Air emissions inventories are generally used for identifying sources of air pollution for targeted policy actions and as input into air dispersion models to identify health impacts on the population. For this, detailed spatial and temporal information for major air emission sources are required. However, most international PRTR schemes do not publish detailed spatial or temporal information on air emission sources within an NPI reporting facility.

In light of the links identified, it is worth considering a stronger focus on NPI data in the development of human health policy. The NPI NEPM requires health considerations be incorporated in the selection of the substance list and dissemination of substance related health impacts information. Section 7(a) of the NPI NEPM also refers to a database that contains information about emissions and transfers of specified substances, on a geographical basis, including those of a hazardous nature or involving significant impact. Human health could therefore, be considered implicit in the program goals.

## 4.3 Findings in relation to NPI outcomes

The review affirmed that the NPI was largely meeting its intended outcomes and goals, and that these remain relevant and broadly supported by stakeholders. The NPI's intended purpose and commitment to fundamental principles such as the 'right to know' continue to be recognised and valued. The data reported via the NPI is an estimate of emissions and waste transfers from over 4,000 Australian facilities. Authorities across jurisdictions use NPI data in various ways to help administer local environmental regulations. The data set as a whole has national recognition for its utility and importance.

The review identified that elements of the community place a high value on air quality. In this context, there are opportunities to focus more on human health policy as a driver for the collection and analysis of pollutant data. The OECD defines a pollutant as a substance that may harm organisms (humans, plants, and animals) or exceed an environmental quality standard (OECD 2001).

There is an appetite to improve accessibility of the NPI data across the user base. This would contribute to better understanding in the community, a greater potential for well-informed

trend analyses including the capacity to monitor environmental progress, and greater versatility of the data set to best support decision-making across jurisdictions.

Specific aspects of accessibility are considered in relation to performance later in this report.

## 4.4 Recommendation in relation to NPI outcomes

The review recommendation in relation to NPI outcomes is:

**Recommendation 1**: Examine opportunities to increase the NPI's focus on human health outcomes and air quality

# 5 Performance of NPI

How well the NPI performs was a key consideration of the review with the ToR specifically requiring consideration of whether there is scope for improving the NPI's performance.

## 5.1 Performance considerations

Current performance considerations for the review had the following 4 areas of focus:

- user experience, international benchmarks, and the 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).

## 5.2 Assessment

The performance of the NPI in relation to the criteria identified in the ToR considers its past and current operation. Opportunities for changes and improvements to the NPI's future operation are discussed in the chapter on delivery later in this report.

### 5.2.1 User experience, international benchmarks, and reporting

The discussion paper recognised that any positive experiences users have in accessing NPI data or making a report to it enhances overall confidence in the data and supports achievement of NPI outcomes.

The majority of users experience the NPI through its website, which contains:

- 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, thresholds, and categories, ANZSIC codes for NPI reporting, calculation tools and emission estimation technique (EET) manuals
- resources for students and teachers.

There have been no upgrades to the website for several years. Since 2017 however, NPI data has been made available for bulk download from data.gov.au.

The NEPC *Annual Report 2015–16* first reported an increase in the number of complaints to the Commonwealth related to defects in the behaviour of the NPI public database (NEPC 2016). These complaints included the continued inability to upload new aggregated emissions data, which is a serious defect that undermines confidence in the NPI. Aggregating data from different substances, facilities or reporting years is relatively difficult and necessitates downloading sometimes much larger data sets than is required.

Since the NPI was established, there have been significant changes to user expectations about the nature of publicly available information and the mechanisms through which this information is presented.

**User experience of reporting data**

Users involved in NPI reporting include individual facilities, companies and organisations with multiple facilities that meet reporting thresholds, consultants and technical experts undertaking the specific data collection, as well as administrative staff in industry and government.

In the 2014 User Survey, 95% of industry respondents said the primary reason for using the NPI website was because their facilities were required to report into the NPI. This is a view shared by those reporting users who made submissions to the review.

Almost all reporting users who had input to the review identified areas of improvement to the online reporting system (ORS) and the NPI website. They suggested that the current tools, information technology platform and processes required to either report, or seek an exemption from reporting, were antiquated, difficult to use, overly bureaucratic, and no longer consistent with best practice.

A prolonged compatibility issue of the ORS in 2020 and 2021 has contributed to a degraded user experience for reporters. For several years, many reporters were similarly affected by a compatibility issue in the Excel-based calculation tools until the NPI released a new tool in 2021.

The review identified that there is a high level of engagement on possible improvements from all stakeholders involved in the reporting process. By using a modern, human-centred design approach, and by drawing on the many suggestions contained within the submissions to the review, it would be possible to consolidate the business requirements to enable NPI reporting technology to be improved significantly.

**User experience of accessing data**

Submissions from community members seeking to access NPI data via the website identified that this data was not always easy to understand, interpret or compare, and was not always reliable, timely or accurate. Some of these issues appear to be longstanding, causing a degree of frustration among users.

The discussion paper posed the question of whether development of an app would be a viable or useful addition to the public interface for the NPI data. Few submissions to the review directly addressed this question, and it was not expressed as a high priority by those commenting on this issue.

Many users suggested general improvements to website functionality such as inclusion of an interpretive guide, a range of maps, graphs and interactive features that would improve access to contextual information by jurisdiction, industry and pollutant. Users also sought the option to make more year-on-year comparisons – rather than snapshots – and to be able to interrogate the data to obtain a time series.

While the NPI website contains some of these features, PRTR websites for other countries such as the United States (TRI Program), Canada (Canada NPRI), the EU (EIEP) and the United Kingdom (UK PRTR) provide alternative examples of presentation and functionality.

**User experience for jurisdictions**

State and territory government environmental regulators use the NPI to enhance and verify their own data sets 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 can reference NPI data to equitably proportion and validate the cost to industry of air quality monitoring schemes in the Newcastle and Hunter Valley airsheds. The 2014 user survey confirmed that jurisdictions used the NPI data for regulatory purposes, air quality monitoring, setting levies, comparisons between facilities, and validation of reported emissions for licensing purposes (Wheeler, Zuo, & Loch 2014). This survey also found that a significant proportion (64%), used alternative sources of information for pollution data. The reasons for this included:

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

In relation to the current review, jurisdictions indicated similar accessibility and security issues as those identified by reporters and community users of the NPI data. Additionally, because jurisdictions provide day to day support to other users and must also fulfil their legislative responsibilities for data validation and quality, there is an added driver for improving the operation and accessibility of the NPI data and its user interface.

**International benchmarking and reporting**

The most recent OECD paper providing international comparisons on the operation of PRTRs was published in 2017. In consideration of Australia, the OECD noted that the NPI required reporting in relation to 93 substances across facilities in 215 industrial sectors. The United States (US), meanwhile, reported on 683 substances, and the EU covered facilities in only 65 industrial sectors. Compared to other countries, Australia permits voluntary reporting while reporting on transfers to recycling is mandatory in the US (OECD 2017). Other factors such as reporting thresholds linked to the number of employees in a facility, the amount of a pollutant (and the description of that pollutant), the measurement units, and agreed standards and industry codes also varied among OECD nations (OECD 2017). Australia, like Canada, the EU, Japan and the US, required annual reporting (OECD 2017).

In April 2018 the OECD issued a revised recommendation on PRTR harmonisation, effectively providing a list of desirable attributes for PRTRs, and recommended that OECD members, such as Australia, adhere to them. They included:

- define the following components that trigger reporting
    - 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
    - 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 (note that 'diffuse' air emission sources from a facility are reported as fugitive air emissions in the NPI scheme)

- 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

- 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
- allow, where the reporting sources are defined, the reporting of data by source
- encompass data for all media, including releases to air, water and land, and transfers for treatment, recovery, and disposal
- request reporting on a periodic basis, preferably annually
- 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
- use voluntary and mandatory reporting mechanisms for collecting data where appropriate
- use data management systems which allow for verification of inputs and outputs
- make data accessible to the public on a timely and regular basis and in a user-friendly manner 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
- provide the flexibility to adapt PRTRs to the changing needs of affected and interested parties (OECD 2018).

While the NPI already meets most of these requirements, others, particularly the useability and accessibility requirements, are aspirational.

### 5.2.2 Accuracy of reporting, compliance, and enforcement

The NPI NEPM requires reporters to exercise due diligence in gathering and providing information to the program (clause 9). The NPI NEPM also requires each participating state and territory to undertake any reasonable action within its powers which it considers necessary to confirm the accuracy of the emissions and waste transfer data for each reporting facility within its jurisdiction (clauses 16 and 17). This is a requirement for all NPI data provided to the Commonwealth unless exceptional circumstances arise (clause 18).

Facilities that meet a threshold for NPI reporting are required to report annually in accordance with methodologies set out in emission estimation technique (EET) manuals.

Submissions to the review had the following insight in relation to the accuracy of NPI data:

- the data is based on estimates rather than actual emissions
- the EET were not necessarily current and/or not relevant to the Australian context

- the EET manuals had not been updated for many years
- the reporting is not comprehensive because some substances are omitted from the methodologies published in EET manuals
- the reporting did not adequately address diffuse sources of pollution
- identified errors in publicly available data were not easily amended and, in some cases, had been incorrect for extended periods of time.

The discussion paper considered whether it would be appropriate or possible to publish unvalidated NPI data. This was not supported by submissions to the review by industry, government, or the community. A clear preference is for improved tools and functionality to enable data validation as data is entered into the ORS, for revised EET manuals and supporting tools to enable easier reporting, and for the data available via the NPI to be as accurate and contemporaneous as possible when published.

In relation to the question of whether the substance list and the reporting thresholds should be expanded or amended to improve harmonisation as suggested by the OECD, the review identified that there are competing views. In general, the community submissions seek to have a more detailed and complete suite of NPI information, while industry submissions (such as from Mobil Oil, the Cement Industry Federation and the Australian Sustainable Business Group) agreed in principle with international harmonisation but pointed to the regulatory and cost burden of reporting. Both the community and industry would be interested to have diffuse pollutant emissions included. For example, the Australian Energy Council would like to see all PM2.5 emissions included, and the Australian Sustainable Business Group supports better contextual information for pollutants, including diffuse and natural sources. Submissions from Environmental Justice Australia argued for reliable and accurate data on an expanded list of toxic pollutants.

Action against non-compliant organisations was supported by community submissions such as that from Les Johnston, a former regulator, who suggested compliance could be focused on larger enterprises. Many of the larger companies, such as Mobil Oil, noted that penalties operated on a strict regulatory basis, and that their own quality assurance and licensing requirements meant that their compliance was high. Policing of non-compliance was not broadly supported as the NPI data represents estimates and the actual emissions data is reported through jurisdictional regulatory processes.

### 5.2.3 Interaction with other government programs

One of the issues facing the NPI is the general lack of public awareness about the program and about how, and to what extent, it interacts with other government programs at a Commonwealth and state and territory level.

The 2005 NPI review found the level of public awareness of the NPI in Australia was relatively low. A 2009 survey found the level of NPI awareness to be 23% among the general population, 51% among green group members and 76% among industrial/pollution focused members (Thorning 2009). Thorning found that, ‘the main barrier to knowledge and use of the NPI is lack of promotion and awareness raising activities’ (Thorning 2009). Submissions to this review from both industry and community groups also suggested that general community awareness of the NPI remained low.

Regardless of the reasons for not fully understanding the role and intent of the NPI, there is a perception among many who made submissions to the review that there is an overlap or duplication of reporting effort between the NPI and other Commonwealth programs such as the National Greenhouse and Energy Reporting (NGER) scheme. The *National Greenhouse and Energy Reporting Act 2007* established the NGER scheme after the NPI had been operational for some time. The NGER scheme is a national framework for reporting greenhouse gas emissions, greenhouse gas projects and energy consumption and production by corporations in Australia (Clean Energy Regulator 2021).

Some submissions from NPI reporters identified a perception that there is a reporting duplication between the NPI data and the types of information required by environmental protection reporting in jurisdictions. For example, the NSW Minerals Council, Queensland Water Directorate, Wesfarmers Chemicals, Energy and Fertilisers, Australian Asphalt Pavers Association, Australian Industry Greenhouse Network and the Chamber of Minerals and Energy WA all pointed to various aspects of duplicated reporting effort.

This report has noted that jurisdictions do rely on NPI data for a range of regulatory and licensing matters under local environmental legislation and processes. NPI data is used by a wide range of government agencies with an interest in emissions, wastes and hazardous substances. Government organisations known to interact with the NPI include:

- state and territory environment protection authorities
- local government
- Australian Pesticides and Veterinary Medicines Authority (APVMA)
- Australian Industrial Chemicals Introduction Scheme (AICIS) (which replaced the National Industrial Chemicals Notification and Assessment Scheme in 2020)
- Australian Bureau of Statistics (ABS)
- Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)
- Department of Industry, Science, Energy and Resources
- Clean Energy Regulator.

Given these many government agency touchpoints, and the views from submissions, there may be opportunities to clarify the role and purpose of the NPI and to look for ways to streamline data reporting where there are common reporting requirements.

### 5.2.4 Potential costs and benefits of alternative delivery models

While there is no specific recommendation for the future delivery model, 3 alternate delivery models were considered as part of this review:

- a centralised model
- a federated model
- an outsourced model.

The costs, benefits and risks of these models are explored here. Options for a sustainable delivery model into the future are discussed in the final section of this report.

**Centralised model**

Some submissions to the review were in favour of a centralised model, particularly if that model included better alignment of the NPI with other Commonwealth schemes, reduced duplication of reporting effort, standardised methodologies, nationally consistent data quality controls, improved accessibility, overall administrative streamlining, and a greater quantum of funds provided via government. For example, some (Southern Meats, Energetics) suggested a centralised model should include a consolidation of the data collection across government programs. Others (Australian Institute of Petroleum) agreed in principle with a centralised approach but were concerned about potential loss of knowledge and support at a local level.

The specific nature of a centralised model for the NPI could have a range of features, but for the purposes of the current assessment, it is assumed that the Commonwealth becomes the policy and administrative agency responsible for all aspects of the NPI. The model assumes that amendments to the NEPC Act and the NPI NEPM enable nimbler policy and operational decisions. Options could also be explored to create an NPI Act, or to amend the NGER Act to enable NPI reporting in a more centralised fashion direct to the Commonwealth. Support to users could be provided by the Commonwealth, in a similar manner as the NGER scheme. Table 2 provides a summary of the costs, benefits, and risks of a centralised delivery model.

Another variation for a less centralised model would be to retain the role of jurisdictions in collecting and reviewing facility data, while the Commonwealth becomes responsible for developing and maintaining Aggregated Emissions Data. This would result in a mix of the costs, benefits, and risks from Table 2 and Table 3.

**Federated model**

As noted, submissions to the review preferred a centralised model. Those that pointed to the relationships between the Commonwealth and other jurisdictions highlighted the need for improved coordination, streamlining and reduction of duplication (particularly in relation to data collection and reporting).

A fully federated model would retain governance by environment ministers and build on the current collaboration between the Commonwealth and jurisdictions. In addition to the current collaboration, it could require states and territories taking the lead on parts of the NPI modernisation and improvements identified in this review. Agreement to the changed roles and resourcing arrangements would need to be reached to enable the fully federated model to be achieved. Like the centralised delivery model, the fully federated model would benefit from amendments to the NEPC Act and the NPI NEPM to enable nimbler policy development and day to day operation of the NPI. Project management capability would need to be identified and/or developed within jurisdictions to enable the model to progress, as would specific service-level agreements and resourcing for project components. Any funding provided to jurisdictions would be maintained via the current mechanisms. Table 3 provides a summary of the costs, benefits, and risks of a fully federated delivery model.

**Outsourced model**

Outsourced delivery is an option open to government where there are clear benefits from establishing an external professional organisation to handle high volume, transactional or specialised aspects of public administration. No submissions suggested an outsourced delivery model for the NPI although the Australian Institute of Environmental Accounting proposed establishment of an NPI service bureau.

An outsourced model for the NPI would involve a tender to select a third party to undertake operational elements of the NPI. In this model the Commonwealth would have responsibility for policy and provide oversight of the technical advisory panel. Modernisation and improvement projects would be overseen by a steering committee comprised of the Commonwealth and the service provider. The Commonwealth would be responsible for the ongoing contract management with the service provider. To avoid potential conflicts of interest, the service provider may need to be excluded from being able to provide services to estimate and report emissions and waste transfers from NPI facility reporters. Table 4 provides a summary of the costs, benefits, and risks of an outsourced delivery model.

## Table 2 Centralised model – summary of likely key benefits, costs and risks

| Features | Benefits | Costs | Risks |
|---|---|---|---|
| • Policy and direct oversight by the Commonwealth<br>• Commonwealth would provide technical and administrative support to users.<br>• Single data validation process<br>• Commonwealth would be responsible for aggregated emissions data. | • Outcomes:<br>– Governance by Commonwealth<br>– Potential to amend legislation to improve outcomes and delivery<br>• Performance:<br>– Modernisation to the user interface, public data presentation, tools and manuals can be overseen to ensure legislative and project requirements are met<br>– Single point of oversight of OECD requirements for PRTRs<br>– Messaging around NPI can be managed and consistent<br>• Delivery:<br>– Potential to better harmonise touchpoints between various Commonwealth government reporting processes relating to emissions<br>– Potential for economies of scale<br>– Nationally consistent data quality controls<br>– Central oversight of administrative and technical support provided to all users<br>– Clear oversight of a technical advisory panel<br>– Potential amendments to the NPI NEPM to enable nationally consistent enforcement for not reporting, late reporting, incomplete data, unreliable data. | • Commonwealth has centralised control to:<br>– enable nimbler operational decisions to be taken<br>– enable nimbler amendments to substances list and related mechanisms<br>• Participation in amendment to NEPC Act, NPI NEPM and other Commonwealth legislation and regulations to give effect to any streamlined environmental reporting arrangements across programs<br>• Amendment to legislation and regulations within jurisdictions to give effect to any changes to the current frameworks that may flow from a centralised model<br>• Review of NPI touchpoints with other environmental reporting processes<br>• Development and implementation of information technology modernisation projects for the NPI user interface and NPI public data presentation<br>• Establishment of a technical advisory panel<br>• Review of substances and thresholds<br>• Modernisation of tools and manuals<br>• Implementation of changes to administrative and technical | • Resourcing availability limits the necessary review projects and modernisation processes<br>• Amendments to the NEPC Act and NPI NEPM are not progressed at all, or not progressed in a timely manner, limiting opportunities for improvement<br>• Related legislative and regulatory amendments in jurisdictions to support any changed responsibilities may impact on delivery<br>• Inability to achieve Commonwealth whole of government improvements to environmental reporting may reduce streamlining opportunities<br>• Failure to implement the information technology modernisation projects contributes to poor data quality and user experience<br>• Data quality deteriorates due to the inability of the Commonwealth to use jurisdictional data for the NPI report validation<br>• Failure to engage a technical advisory panel limits improvement<br>• Failure to establish an appropriate user support |

| Features | Benefits | Costs | Risks |
|---|---|---|---|
| | | support (in conjunction with implementation of IT projects)<br>• Communication and awareness strategy. | arrangement limits the useability of the user interface<br>• May reduce opportunities to address perceived duplication of NPI reporting with state/territory reporting. |

**Table 3 Federated model – summary of likely key benefits, costs and risks**

| Features | Benefits | Costs | Risks |
|---|---|---|---|
| • Policy oversight shared by Commonwealth and the jurisdictions<br>• Administered jointly by the jurisdictions via service agreements<br>• Jurisdictions could be asked to take on responsibility for specific modernisation projects<br>• Single data validation process<br>• Technical and administrative support to users provided locally by jurisdictions. | • Outcomes:<br>– Governance by environment ministers is retained<br>– Potential to amend legislation to improve outcomes and delivery<br>– Current collaborative arrangements can be retained but requires amendment to the NEPC Act and NPI NEPM to clarify roles and any changed relationships between Commonwealth and jurisdictions<br>• Performance:<br>– Modernisation to the user interface, public data presentation, tools and manuals can occur to ensure legislative and project requirements are met but requires jurisdictions to take the lead<br>– Oversight of OECD requirements for PRTRs can be undertaken by the Commonwealth<br>– Messaging around NPI can be managed but could require coordination between jurisdictions<br>• Delivery: | • Participation in amendment to NEPC Act and NPI NEPM to:<br>– enable more nimble operational decisions to be taken<br>– reflect changed roles between the Commonwealth and other jurisdictions<br>– enable more nimble amendments to substances list and related mechanisms<br>• Participation in amendment to NEPC Act, NPI NEPM and other Commonwealth legislation and regulations to give effect to any streamlined environmental reporting arrangements across programs<br>• Amendment to legislation and regulations within jurisdictions to give effect to any changes to the current frameworks that may flow from a federated model<br>• Review of NPI touchpoints with other environmental reporting processes<br>• Development and implementation of information technology modernisation | • Agreements and resourcing arrangements to support any changed responsibilities may not be reached leading to an inability to achieve modernisation and improvements<br>• Resourcing quantum and coordination limits the necessary review projects and modernisation processes<br>• Amendments to the NEPC Act and NPI NEPM are not progressed at all, or not progressed in a timely manner, limiting opportunities for improvement<br>• Lags in related legislative and regulatory amendments in jurisdictions to support any changed responsibilities may impact on delivery<br>• Inability to achieve Commonwealth whole of government improvements to environmental reporting may reduce streamlining opportunities<br>• Failure to implement the information technology modernisation projects contributes to poor data quality and user experience<br>• Failure to engage and manage a technical advisory panel limits |

| Features | Benefits | Costs | Risks |
|---|---|---|---|
| | – Potential to better harmonise touchpoints between various government reporting processes relating to emissions<br>– Administrative and technical support is provided locally (under existing arrangements)<br>– A technical advisory panel can be established under Commonwealth oversight. | projects for the NPI user interface and NPI public data presentation<br>• Establishment of a technical advisory panel<br>• Review of substances and thresholds<br>• Modernisation of tools and manuals<br>• Implementation technical support in conjunction with implementation of IT projects<br>• Create service level agreement with jurisdictions<br>• Communication and awareness strategy. | improvements consistent with OECD requirements for PRTRs<br>• Failure to agree service levels with jurisdictions limits improvements<br>• Failure to adequately coordinate projects and operations being delivered across jurisdictions leads to poor governance and outcomes for NPI<br>• The approach to communication and awareness may be fragmented or ineffective<br>• Failure of the Commonwealth to enforce NPI reporting requirements when facilities are not covered by jurisdictional responsibility of state/territory<br>• Failure of jurisdictions to address perceived duplication of NPI reporting with state/territory reporting. |

## Table 4 Outsourced model – summary of likely key benefits, costs and risks

| Features | Benefits | Costs | Risks |
|---|---|---|---|
| • Policy managed by the Commonwealth<br>• Modernisation and improvement projects overseen by a steering committee<br>• Operations administered by a third party<br>• Single data validation process | • Outcomes:<br>– Governance by Commonwealth<br>– Potential to amend legislation to improve outcomes and delivery (including to enable outsourced delivery by a third party)<br>• Performance:<br>– Modernisation to the user interface, public data presentation, tools and manuals can be undertaken to ensure legislative and project requirements are met, but would require collaboration with an outsourced third party | • Participation in amendment to NEPC Act and NPI NEPM to:<br>– enable more nimble operational decisions to be taken<br>– reflect changed roles for the Commonwealth and jurisdictions<br>– enable outsourced arrangements<br>– enable more nimble amendments to substances list and related mechanisms<br>• Participation in amendment to NEPC Act, NPI NEPM and other Commonwealth legislation and regulations to give effect to any | • Resourcing availability limits the necessary review projects and modernisation processes<br>• Ongoing resourcing to manage the outsourced service delivery model may not be available leading to degraded outcomes for NPI<br>• Amendments to the NEPC Act and NPI NEPM are not progressed at all, or not progressed in a timely manner, limiting opportunities for improvement |

| Features | Benefits | Costs | Risks |
|---|---|---|---|
| • Outsourced technical and administrative support to users | – Oversight of OECD requirements for PRTRs can be provided, but may require collaboration with an outsourced third party<br>– Messaging around NPI can be managed and consistent but may require collaboration with an outsourced third party<br>– Key performance indicators and service requirements can be included in any outsourced agreement with a third party<br>• Delivery:<br>– Potential to better harmonise touchpoints between various government reporting processes relating to emissions<br>– Consistent administrative and technical support provided to all users via the outsourced third party<br>– Oversight of a technical advisory panel could be undertaken by the Commonwealth. | streamlined environmental reporting arrangements across programs<br>• Amendment to legislation and regulations within jurisdictions to give effect to any changes that may flow from an outsourced model<br>• Review of NPI touchpoints with other environmental reporting processes<br>• Development and implementation of information technology modernisation projects for the NPI user interface and NPI public data presentation<br>• Establishment of a technical advisory panel<br>• Review of substances and thresholds<br>• Modernisation of tools and manuals<br>• Implementation of changes to administrative and technical support (in conjunction with implementation of IT projects and outsourced arrangements)<br>• Conduct a tender for outsourced delivery arrangements<br>• Ongoing management of contract with service provider<br>• Create service level agreement with jurisdictions<br>• Communication and awareness strategy. | • Inability to achieve Commonwealth whole of government improvements to environmental reporting may reduce streamlining opportunities<br>• Failure to implement the information technology modernisation projects contribute to poor data quality and user experience<br>• Failure to engage a technical advisory panel limits improvements consistent with OECD requirements for PRTRs<br>• Failure to successfully conduct a tender and engage a service provider limits opportunities for improvement<br>• Failure to establish appropriate contract management results in poor contract governance, potential poor delivery outcomes and potential fraud against the Commonwealth<br>• Data quality deteriorates due to the inability of the Commonwealth to use jurisdictional data for the NPI report validation<br>• Failure of the Commonwealth to enforce NPI reporting requirements<br>• May reduce opportunities to address perceived duplication of NPI reporting with state/territory reporting. |

## 5.3 Findings in relation to NPI performance

Overall, submissions to the review identified that the performance of the NPI could be modernised and improved.

Submissions to the review noted that the structure and usability of the NPI website had fallen behind minimum expectations of most users. Contributors and users of data across industry, government and the community expressed a strong desire for the NPI to be more accessible and user-friendly. There were many suggestions to modernise and improve the NPI and the website. Taking a modern, human-centred design approach there are a range of potential improvements including features and tools consistent with other Pollutant Release and Transfer Registers (PRTRs).

To maximise the likelihood of delivering the desired environmental outcomes specified in the NPI NEPM, the data within the NPI should be as accurate, relevant and useful as possible. The review identified some ongoing issues around data accuracy and data completeness and a requirement to analyse and update the current substance list, emission estimation techniques (EETs) and EET manuals. Improvements to usability and efficiency of data collection tools, guidance, and resourcing are essential to mitigate the ongoing cost implications of any changes, such as expanding the substance list. Adjusting reporting thresholds could also be considered as a way to help balance reasonable costs on industry with data completeness.

There is also a perception among reporters of duplication in reporting efforts across jurisdictions, and environmental programs administered by the Commonwealth. This can be addressed in part through greater public awareness and understanding of the role and purpose of the NPI relative to other reporting obligations. An examination of the potential for streamlining reporting requirements across environmental programs and jurisdictions could be worthwhile and would be a useful way to validate claims of duplication.

While the design and intent of the NPI benchmarks well against PRTRs in other countries, there are clear opportunities for optimising its operations and increasing its potential utility. OECD recommendations made in 2018 on the operation and harmonisation of PRTRS provide a useful guide in this regard.

There is an appetite to improve accessibility of the NPI data across the entire user base. This would contribute to better understanding in the community, a greater potential for well-informed trend analyses such as monitoring environmental progress, and greater versatility in the data to support decision-making across jurisdictions.

The review considered 3 alternative service delivery models: centralised, federated and outsourced. A centralised approach is generally preferred by stakeholders. While a centralised model may deliver some economies of scale, the range of costs to implement would remain high for the Commonwealth and substantially lower for jurisdictions. Substantial changes to legislation would be required and the move to such a model would still involve risks without necessarily addressing the issues identified by stakeholders such as better alignment with other Commonwealth legislation/schemes, reduced duplication through standardisation, and allocation of more resources. For most jurisdictions, it is important to maintain their policy oversight of any future model for the NPI. An outsourced model is not supported by

stakeholders and would require ongoing operating costs. Additional costs and risks associated with managing an outsourced model make it less attractive as an alternative.

While a fully federated model in which jurisdictions are asked to take the lead on various NPI modernisation projects would be ambitious, there is scope to build on the current federated approach. Without changing the fundamentals of the current arrangement, it would be possible to make the NPI nimbler and more streamlined, building on other whole of government legislative and administrative reforms underway. Implementation of typical elements of a service charter in the MOU between the Commonwealth and the jurisdictions is consistent with the recommendations of the national environmental protection councils acts review and could strengthen the governance arrangements and efficiency of the NPI. Under a federated model, service charters between the Commonwealth and the jurisdictions could be published on the NPI website. Modernisation of tools, systems and processes to support the NPI's future performance would improve the value proposition of the NPI without the need to move to a centralised model.

There is general agreement that the NPI model should remain consistent with the current arrangements, where the Commonwealth and jurisdictions jointly operate the program and oversee its policy.

## 5.4 Recommendations in relation to NPI performance

The review recommendations in relation to NPI performance are to:

**Recommendation 2:** Develop ongoing initiatives to increase program awareness among stakeholders and the community

**Recommendation 3:** Improve the NPI online interface by

- enhancing the website functionality through human-centred design
- upgrading the online reporting system to streamline industry data submission and government administration
- using modern tools and approaches that meet government standards for accessibility, data validation, data quality and data management

**Recommendation 4**: Undertake modernisation projects to

- review and update the substance list, EET and EET manuals
- investigate options for modelling and presentation of other data relevant to the NPI (such as aggregated data on emissions and substance transfers)
- identify improved mechanisms for data collection and appropriate thresholds for reporting that focus administrative efforts on activities of interest with reasonable costs on NPI reporting facilities, for example, investigate the use of minimum reporting quantities for both emissions and waste transfers to simplify reporting requirements and potentially, to substantially reduce the number of facilities required to report. (Consistent with the 2005 Recommendation 26)
- consider validating NPI performance in relation to the OECD PRTR operation and harmonisation recommendations.

# 6 Delivery of the NPI

The delivery arrangements for the NPI have been considered in the context of the ToR for the review, the review findings about the NPI's achievement of outcomes and performance, and a range of other whole of government reviews and policies which impact on the future governance and operation of the NPI.

## 6.1 Delivery considerations

The review steering committee asked that the review include:

- a comprehensive review of the NPI NEPM as provided for in subsection 33(1) of the Measure
- consideration of sustainable resourcing models for the effective operation of the NPI, including options for cost recovery.

## 6.2 Assessment

Since its inception, there have been several changes to the context within which the NPI operates, including:

- the *National Environment Protection Council Acts (Commonwealth, state and territory)* Review Report and the related government response in April 2021
- the Review of Council of Australian Governments (COAG) and Ministerial Forums 2020
- creation of the Commonwealth Data Sharing Agreement 2021.

Two other areas of government legislation and policy that predate the review also impact on the future delivery of the NPI. These are:

- the *Public Governance and Accountability Act 2013*
- the Commonwealth Cost Recovery Principles and Guidelines.

### 6.2.1 National Environment Protection Council Acts Review

Since the NPI review was commenced, a separate review into the operation of the environment protection councils has been completed. This resulted in the *Independent review of the National Environment Protection Council Acts* in 2019 and the related government response in 2021. At the time of the government response, agreement was given, either fully, in part, or in-principle, to several recommendations which have flow-on implications for the delivery of the NPI. In summary, these are that:

- the NEPC create a rolling 3-year work plan that is reviewed annually and reported against in the Commonwealth Department of Environment and Energy's Annual Report, and is linked to the NEPC website
- the consultation requirements set out in s.16-20 of the NEPC Act be repealed and the nature and extent of the amended provisions be responsive to regulatory risk frameworks and comply with the Office of Better Practice Regulation (OBPR) Guidance Note - Best Practice Consultation (February 2016)

- the NEPC Act be amended to allow the NEPC to delegate to the NEPC Committee the ability to create, vary and revoke NEPMs
- the NEPC secretariat prepare and distribute to jurisdictions a service charter that defines the roles and responsibilities of the secretariat and participating jurisdictions
- s14 of the NEPC Act be amended to establish that NEPC can make NEPMs for any 'National Environment Protection issue', such as waste, pollutant or other material or substance that has, will or is likely to enter the environment and pose a potential risk to human health and/or cause environmental harm
- provision for a Special Account be retained given the operation of the special account has enabled practical, cost effective, collaboration between jurisdictions that would otherwise have not occurred
- a revised framework as described in chapter 8 of the review report be implemented
- the NEPC Act reporting requirements be modernised to be timely, accessible and easy to understand. Reporting should be delivered through existing mechanisms which include 'real time' online reporting and jurisdictional annual reports (NEPC 2021).

### 6.2.2 Review of Council of Australian Governments and Ministerial Forums

On 29 May 2020, the Prime Minister announced that National Cabinet, an intergovernmental forum composed of the Prime Minister and the state and territory premiers and chief ministers, agreed to review ministerial forums and government councils (PMC 2020). This included the National Environment Protection Council. The review report (The Conran Review) was released in October 2020 and the 33 recommendations were agreed by the National Cabinet (NEPC 2021).

The Review rationalised the number of ministerial councils and forums and recommended a more efficient and less bureaucratic approach. The Conran Review recommended that the National Environment Protection Council be disbanded, and issues be managed by environment ministers which reflects current practice as the National Environment Protection Council is comprised of the environment ministers. It also recommended that while regulatory functions remain the responsibility of relevant ministers, that these functions should be conducted out-of-session wherever possible and that routine, non-controversial or technical matters should be delegated to senior officials or progressed out-of-session (PMC 2020).

### 6.2.3 Intergovernmental agreement on data sharing

The intergovernmental agreement on data sharing came into effect on 9 July 2021. This agreement commits all jurisdictions to share public sector data as a default position, where it can be done securely, safely, lawfully and ethically.

The agreement recognises data as a shared national asset and aims to maximise the value of data to deliver outstanding policies and services for Australians (Commonwealth of Australia 2021).

### 6.2.4 *Public Governance and Performance Accountability Act 2013*

The *Public Governance, Performance and Accountability Act 2013* (PGPA Act) established a coherent system of governance and accountability for public resources, with an emphasis on planning, performance and reporting (Department of Finance 2021). The PGPA Act applies to all Commonwealth entities including DAWE and its delivery of the NPI program.

### 6.2.5 Commonwealth Cost Recovery Principles and Guidelines

The *Australian Government Cost Recovery Guidelines* are administered by the Department of Finance on behalf of the Commonwealth (Department of Finance 2020). According to the guidelines, activities being considered for cost recovery are assessed on a case-by-case basis. This involves a detailed impact assessment and analysis of the legislative, social and economic context for the entity and stream of government operation considered for commercialisation.

Key considerations are:

- the nature of the government activity (will government be the only provider?)
- who might be charged (is there an identifiable individual, organisation or group that receives the activity or creates the need for it?)
- the impact of cost recovery on competition, innovation or the financial viability of those who may need to pay charges and the cumulative effect of other government activities
- whether it is efficient to cost recover the activity (are the costs of administering cost recovery appropriate to proposed charges for and revenue from the activity?)
- how cost recovery might affect
  - the policy outcomes for the activity
  - other government policies and legislation (policies relating to access to essential community services)
  - Australia's obligations under international treaties (free trade agreements) (Department of Finance 2020).

### 6.2.6 Sustainable resourcing and cost recovery

Recognising the funding experience for the NPI program, the ToR required that this review investigate sustainable resourcing models for its effective operation, including cost recovery options. Along with the views of submissions to the review, this consideration of whether cost recovery is applicable for the NPI had regard to the *Australian Government Cost Recovery Guidelines*.

#### Sustainable resourcing

Resourcing for the NPI to date has been through budget appropriations to the relevant Commonwealth department, a portion of which is distributed to states and territories under memorandums of understanding. The resourcing distributed to the states and territories is at least matched by their own contributions. Jurisdictions remain concerned to ensure that, whatever delivery model is agreed, this includes appropriate resourcing arrangements with the Commonwealth, if required. One of the long-standing issues for the NPI is that resourcing has not been sufficient to enable the necessary modernisations required.

The review discussion paper extrapolated the cost scenarios for PRTRs undertaken by the United Nations in 2002 and presented the estimated 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. Table 5 provides this summary and some submissions to the review cited this comparison as evidence of the need for increased resourcing for the NPI.

**Table 5 Summary of extrapolated fifth-year operating costs for PRTRs (using 2016 A$)**

| Pollutant Release and Transfer Registers | Total costs to regulator (2016 A$, per year) | Number of facilities | Costs per facility (2016 A$, per year) |
|---|---|---|---|
| Canada NPRI (actual 2008) | 7,372,000 | 8,500 | 867 |
| US TRI (2016) | 18,671,000 | 21,629 | 863 |
| UN modelled | 4,904,000 | 8,000 | 613 |
| NPI (actual 2016) | 1,500,000 | 4,189 | 358 |

Source: NPI review discussion paper

Most stakeholders that commented on this issue supported an increase in resourcing, with many identifying core aspects of program delivery that have been impacted by insufficient funding, such as AED, EET manuals, tools for data collection and validation, the public database and data quality.

> The Discussion paper (pg. 60) demonstrates that the program is well underfunded compared to international programs. The effect of this is that the outcomes from prior reviews of the NPI have still not been implemented, diffuse emission sources are not updated, supporting contextual information has ceased being provided and errors and updates to emission estimation manuals have not been addressed. (NSW Minerals Council 2018)

Sustainable resourcing continues to be an issue for the NPI. The 2005 review of the NPI noted that the NPI will require either more efficient use of resources, a higher level of funding, or both (Environment and Heritage 2005). To address the question of sustainability, the review considered both the delivery models already discussed in this paper, and the potential for cost recovery.

### Cost recovery

Three cost recovery models were considered by the NPI review discussion paper. Table 6 provides a summary of the 3 options.

**Table 6 Options for cost recovery**

| Model | Description | Advantages | Disadvantages |
|---|---|---|---|
| Per-facility fee | • Reporters pay when they submit report<br>• Fees could be scaled to reflect size of reporting facility. | • Simple to administer and collect<br>• Incentivises collecting organisations to chase up reporters. | • Does not incentivise reporters to report<br>• Extra burden on industry and reporters who already pay state fees. |
| Per-emissions fee | • Charge a per weight fee for all substances emitted or transferred in the NP.I | • Incentivises reporters to reduce emissions. | • Complex structure to apply fairly for all substances / types of facilities<br>• NPI is not a regulatory program, states and territories already do this |

| Model | Description | Advantages | Disadvantages |
|---|---|---|---|
| | | | • Extra burden on facility reporters who already pay state fee<br>• May incentivise under-estimation of emissions. |
| Data-use fee | • Charge for data download<br>• 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<br>• Program gets better information on uses for the data. | • Would require NEPM 31(2) variation<br>• Contradicts right-to-know and open-government principles<br>• Disadvantages public data users who may not have resources to pay<br>• Data may not have high enough quality and value to attract enough users willing to pay for it<br>• Potential liability issues. |

Source: NPI review discussion paper

Cost recovery was a topic of interest in review submissions. No submissions supported a cost recovery or user pays model for the NPI. Broadly, the reasons for this were:

- there is an expectation that the NPI information is free (consistent with the 'right to know' principle)
- there is a cost impact to NPI reporters already, and the expectation that a fee would be imposed to do this would be unjust and unreasonable
- the current quality and completeness of the data means that it does not have a commercial value
- the cost to administer would be expensive in the context of any possible revenue.

Considering the views of stakeholders, and that the assessment that the NPI in its current format is unlikely to meet the requirements of the *Australian Government Cost Recovery Guidelines*, the review is not supportive of direct industry or user funding for the NPI. Options for 'in kind' contributions through a collaborative partnership with stakeholders to modernise the NPI (such as input to improving EET manuals or participating in user-centred design of an updated online interface) may be more appropriate.

## 6.3 Findings in relation to NPI delivery

Review submissions highlighted opportunities to increase the NPI's utility and functionality in informing environmental policy development and decision-making. This could be achieved through reform of specific legislative and governance arrangements, improved sustainability and reliability of the resourcing model, new initiatives to improve the quality and richness of the

data collected, new data streams that help build nationally consistent emissions inventories for use in air quality management, and more effective procedures to track specific industrial wastes.

To modernise the NPI in relation to the substances listed and the appropriateness of reporting thresholds, the NPI NEPM requires the formation of a panel of technical experts to review and advise on these changes. Terms of reference will be required to guide the panel's work.

Many of the elements in the modernisation program suggested for the NPI are long-standing and require a short to medium term injection of resources to progress. A cost benefit assessment of proposed reforms will need to be undertaken but the suggested improvements could be expected to increase the value-add of the NPI and its capacity to deliver on intended outcomes. A detailed plan to modernise and improve the NPI based on the findings from this review will help ensure its future relevance and utility.

Adequate resourcing of the NPI will be key to improving and maintaining the quality of NPI data, it's utility to users, and maintaining appropriate regulatory burden on reporters.

## 6.4 Recommendations in relation to NPI delivery

The review recommendations in relation to NPI delivery are to:

**Recommendation 5:** Investigate the NPI delivery approach, including opportunities to

- reform the legislative governance arrangements
- streamline data collection and improve data quality
- undertake a cost benefit analysis to better articulate the value proposition for the NPI's proposed modernisation program and to assist in securing sustainable co-partnering and resourcing under the current (and/or revised) NPI NEPM framework

**Recommendation 6:** Form a technical advisory panel to deliver recommendations on technical matters identified in relation to the NPI's performance.

**Recommendation 7:** Consider a service charter and a staged action plan consistent with the modernisations program identified in this review to build capacity and to ensure appropriate program design, consultation and governance can be put in place.

## 6.5 Conclusion

This review of the NPI confirms that while the broad intent of the NPI is being met, and the public values the information made freely accessible, there are opportunities to modernise the NPI's delivery. The NPI is intended to provide timely, accurate and reliable information about the release of emissions and the waste transfers of potentially harmful pollutants. With adequate resourcing, it is possible to advance the current model, and by improving the tools, processes and systems that support it, the NPI can be made more sustainable and be better able to meet the requirements of its stakeholders in industry, the community and government.

# Appendix A: Public submissions

Public submissions were received from the following authors:

ACTU, Advitech, Andrew Smith, Australian Asphalt Paver Association, Australian Conservation Foundation, Australian Energy Council, Australian Industry Greenhouse Network, Australian Institute of Environment Accounting, Australian Institute of Petroleum, Australian Lot Feeders Association, Australian Pork, Australian Sugar Milling Council, Australian Sustainable Business Group, Blantyre Farms, Camatic Pty Ltd, Cement Concrete Aggregates, Cement Industry Federation, Centre for Air Pollution Energy and Health Research Clean Air and Urban Landscapes Hub, Chamber of Minerals and Energy of Western Australia, Climate and Health Alliance, Doctors for the Environment of Australia, Energetics, Environmental Justice Australia, GFG Alliance Australia, Gladstone Ports Corporation, Greenbase, Healthy Futures, Hunter Communities Network, Jonathon Milford, Katestone, Kwinana Industries Council, Les Johnston, Maddie Bretton, Melcare Biomedical, Michael Campbell, Minerals Council of Australia, NSW Minerals Council, Pleiades Australia, Port Waratah, Public Health Association of Australia, Queensland Water Directorate, Queensland Department of Environment and Science, Rick Banyard, South Australian government agencies', South Australian Wine Industry Association, Southern Meats, Tasmanian Advanced Minerals, Teys Australia, WA Water Corporation, Warren Godson, Wesfarmers Chemicals Energy and Fertilisers, Woodside Energy and Yuleba Cypress Sawmills.

# Appendix B: Form submissions

Campaign form submissions were received from the following individuals:

Abby Gee, Adam Baudelaire, Al Leenaerts, Albert Lightfoot, Alexander Mackenzie, Alexandra Popof, Alice Beauchamp, Alyson Protetto, Andrea Gaynor, Andreas Dalman, Andrew Laird, Andrew Tune, Andy Hine, Angus Ralton, Anthony Barker, Anthony Gleeson, Anthony Moloney, Antony Lewis, Barbara J Fraser PhD, Benjamin William Weine, Beverley Crossley, Beverley McIntyre, Bob Baird, Bob Rich, Brenda Rule, Bret Leversha, Brigette Cameron, Bronwen Evans, Bronwyn Schulz, Bronwyn Spark, Bruce Upton, Carol Chenco, Carol Collins, Carole Lush, Carolyn Henry, Caspian Bahramshahi, Catherine Money, Catherine Pendrey, Catherine Wroe, Charles Paine, Chris Huggins, Christopher Stuart Harrison, Cilla Kinross, Clancy Read, Clio Popof, Colin Edwards, Courtney Roach, Cris Lion, D. Williamson, Daisy Barham, Dan Katz, Dana Sang, Daniel Caffrey, Daniel Endicott, Daniel Kristof, Daniel Riha-Jones, Darian Zam, David Balding, David Gibson, David Paul, David Tomkins, Deb Rosin, Deborah Knott, Deborah White, Debra Furness, Debra Oakley, Dereka Ogden, Dianne Hartshorne, Dr Bro Sheffield-Brotherton, Dr Dorothy L Robinson, Dr Mary Cole, Dr Nerida Riley, Elaine Diffey, Elena De Fanis, Elissa Ashton-Smith, Elizabeth Honey, Elizabeth Story, Emma Rooksby, Eric Oppel, Eva Regitz, Faith Burns, Fay Hicks, Felicity Crombach, Frances Hugo, Fred and Carol Harvie, Gabriella Eakins, Gas Ulio, George Patterson, Gino Czaster, Glenn Boyd, Glenn Michael, Glenys Davies, Graeme Walters, Graham Edgson, Graham Evans, Greg Bailey, Greg Gill, Greg Johnson, Gregory Charles Mier, Gregory North, Harry van Moorst, Heather Oke, Heather Patterson, Helen van den Berg, Henry Haszler, Hugh Cross, Ian McCallan, Imelda Rivers, Ivan Richards, James Houston OAM, James Mulcare, James Parratt, Jan and Warren Watson, Jan Lacey, Jane Hidebrant, Jane Hyslop, Jane Morgan, Janet Grogan, Janet Roden, Janette Connard, Janette Eade, Jean Christie, Jean du Ross, Jen Petinatos, Jennifer Brewer, Jennifer Cuthbertson, Jennifer Gregory, Jennifer Kent, Jenny Hughes, Jeremy Davis, Jessie Wells, Jim Morris, Joan Staples, Joanne Eastman, Joe Boin, Joe Lenzo, John Cary, John Duggleby, John Pasqua, John Talent, John Warner, Jolieske Lips, Jos van den Berg, Judith Gatland, Judith Leslie, Judy Rees, Julie Favell, Justin McKee, Karen Bowley, Karen Taylor, Kate Forster, Kate Lardner, Kathryn Lai, Kathy Avram, Kathy Donnelly, Keelah Lam, Keith Burgess, Kelly Riley, Ken Winkel, Kerri Bradbury, Kerry Baker, Kerry Barlow, Kerry Bemrose, Kevin McDonnell, Kevin Parton, Klaus Kaulfuss, Kylie Bickle, Lara Ottignon, Leah Llagas, Leanne Hobbs, Lee Kemp, Leonie Lyall, Lesley Killen, Lesley Wilkins, Lili Perez, Linda Dal Castello, Linda Selvey, Line Ringgaard, Lisa Cliff, Liz Harris, Liz Millington, Liz Poole, Liz Thornton, Lolita Gunning, Lorraine Yudaeff, Lorris Jones, Louise Simmons, Lucinda Curran, Lucy Rose, Lyndal Breen, Lynette Lee, M T, Madi Maclean, Mal Anderson, Malcolm Read, Malcolm Rickarby, Manfred Klose, Marco Setiawan, Margaret Hilder, Margot Nelson, Maria Grazia Gismondi, Marilynne Cahn, Marion Ferguson, Marion Lewis, Mark Cramond, Mark Jones, Mark Taylor, Martin Oliver, Martin Watts, Mary McFadden, Matt Taylor, Matthew Hilder, Matthew Stuckings, Maxwell Fitzsimmons, Maynard Heap, Meredith Stanton, Michael Bull, Michael W Evans, Michelle Georgiou, Muriel Ryan, Naomi Beacham, Nicola Coles, Nicole Austin, Nicole McGregor, Omni Loannou, P Carden, Pamela Bates, Pamela Hoban, Pamela Reeves, Pamela Reeves, Patrick Connor, Paul Andrew, Paul Harris, Penelope Grose, Penelope Langmead, Peter Barker, Peter Drinkall, Peter Emerson, Peter Green, Peter Jack, Peter Kilvert, Peter McGee, Peter Moore, Peter Moylan, Peter Renkin, Peter Sainsbury, Peter Stafford, Peter Tyler, R Johnston, Rafael Wynn, Rayna Fahey, Rebecca Hilder, Rhonda Green, Richard McIntyre, Richard Yin, Rick Cavicchioli,

Rick Shulver, Rob Cottrell, Rob Soxsmith, Robert Garnsey, Robert Jenkins, Roberta & Ken Crawford-Condie, Robin Gardner, Robyn Aldrick, Rod Brooks, Roger Corben, Ronald Dunn, Rosemary Morrow, Ross Johnson, Roy Swan, Russell Brown, Russell Chiffey, Ruth Boydell, Ruth Clemens, Sally Newham, Sandra Heuston, Sarah Grace, Sarah Langdon, Sarah Moles, Sean Burke, Sean Corrigan, Sharyn Munro, Sheenah Turnbull, Shenaaz Hoosein, Sidney Wilcox, Stephen Niland, Stuart Dalgleish, Stuart Spark, Sue Bendel, Sue Ganz, Sue Jackson, Suren Bhatt, Susan Aird, Susan Allen, Susan Girard, Susan Gregory, Susan Gribble, Suzanne Carr, Suzie Brown, Sybille Frank, Sylvia Cooper, Tamsin Kelly, Tanya Tankard, Tassia Kolesnikow, Tejopala Rawls, Thelma Wakelam, Thomas Ebersoll, Thomas Timpe, Tim Brown, Tim Mintern, Tim Rowley, Trevor Edmond, Valoha Prager, Vicki Barry, Vivien de Remy de Courcelles, Volker Pfannenberg, Warren Davey, Wendy Delaney and William Burgher.

# Appendix C: Recommendations from previous section 33(1) reviews

This appendix summarises the key findings from the previous two reviews that were completed in 2000 and 2005.

## C.1 2005 Review

### C.1.1 Delivery

The recommendations of 2005 review, relating to delivery, were:

- that the Commonwealth and the jurisdictions develop the transfer reporting form, methodologies for estimating transfers, include these in the relevant NPI resource material (handbooks and manuals as appropriate), redesign relevant databases so transfers are clearly differentiated from emissions data and develop relevant training and support materials (3)
- that industry be consulted on the conceptual design of the [transfers] database (4)
- that efforts be made to ensure that duplicate reporting by industry reporters is minimised through integration of transfer reporting with, where possible, other required reporting systems such as the hazardous waste manifest system (5)
- that an investigation be undertaken to determine whether the current reporting thresholds apply to the construction industry (14)
- that consideration be given to including emissions from non-anthropogenic sources in a separate database that provides the appropriate context when funding and sufficient data on biogenic emissions are available (17)
- that emissions from burning for fuel reduction, forest regeneration fires, plantation forest management and agricultural burning be included in the diffuse source emissions data (18)
- that the jurisdictional reference group undertake a review of data ownership issues (53)
- that a set of environmental quality measurement parameters indicative of the influence of the NPI be developed (55)
- that a suitable sample-based methodology for assessing the influence of the NPI on cleaner production and emission reduction expenditures in biennial surveys be developed (56)
- that indicators for data collection and data quality be developed that may include some or all of the following
  - proportion of reporters that have been subject to desk audits
  - proportion of reporters that have been subject to site audits
  - number of complaints about data quality
  - percentage of the jurisdictional area/population covered by diffuse emission inventories
  - proportion of diffuse emission inventories that have not been revised for more than 5 years

  - fraction of potential reporters actually reporting
  - fraction of potential emissions captured on the database for a limited number of key substances (57)
- that biennial public surveys be undertaken to ascertain trends in awareness and use of the NPI (58)
- that biennial surveys be undertaken, or other appropriate methods used, for assessing trends in the use of NPI data in selected sectors, for example government agencies, research, education, finance, industry (59)
- that jurisdictions consider harmonising industry reporting requirements for NPI and regulatory purposes (60)
- that funding be provided to improve the quality of NPI data and data systems so that they can reliably be used for multiple purposes by a greater range of users (61).

### C.1.2 Desired outcomes

The recommendations of 2005 review, relating to desired outcomes, were:

- that the EPHC undertake a review of the NEPM wording and structure to allow for recommended changes to the NEPM parameters and to reflect current policy requirements (1)
- that Transfers be included in the NPI and that the NPI NEPM be varied accordingly with the following definitions
  - an engineered landfill is a designed built and managed landfill incorporating placement of waste into lined discrete cells which
  - are capped and isolated from the surrounding environment and from one another. Such a facility is purpose built and emissions to the environment are monitored and reported to NPI. The facility may be on the waste generator's land or be a separate facility.' All other landfills should be regarded as accepting material emitted to land.
  - transfers are the transfer of a substance to an identified receiving place whether in pure form or contained in other matter and whether solid liquid or gaseous. It includes transfers of a substance to an engineered landfill, a sewage treatment plant or a tailings dam, and removal of a substance from a facility to an identified place for destruction, treatment, recycling, reprocessing recovery or purification (2)
- that facilities be required to report transfers when the transfer methodology has been incorporated into the industry Emissions Estimation Technique manuals (6)
- that the NEPM variation process include the provision for including greenhouse emissions depending on the outcome of the Ministerial Council Process and the NPI trials (7)
- that consideration be given to changing the name of the NPI to a National Emission Reporting Inventory or similar value neutral title (8)
- that the DEH provide an assessment of the capacity for the chemical use database program to provide public information on agvets to the EPHC (9)
- that EPHC defer consideration of the of agvets in the NPI be pending the assessment (10)

- that the provision requiring handbooks to be published before an industry reports to NPI be retained (11)
- that removal of the exemption of aquaculture from NPI be included in the variation process subject to further analysis (12)
- that an industry specific threshold for mercury not be considered in the variation process (13)
- that NEPC defer further consideration on the inclusion of emissions from the construction industry pending the outcomes of the investigation into the relevancy of the current reporting thresholds to the industry (15)
- that emissions from non anthropogenic sources such as emissions from biogenic sources and wildfires be excluded from the main NPI database (16)
- that the Technical Advisory Panel be reconvened to review the substance lists taking into consideration recent international PRTR reviews, this review, and other relevant new information (19)
- that the NPI NEPM be varied by adding the following clause after clause 3 'When a facility is required to report on category 3 substance it shall also be required to report on the other category 3 substance whether or not the facility exceeds the threshold for the other category substance' (20)
- that Schedule A, Clause 1 (f) be amended to read 'the threshold for "Phenol" (CASR number 108-95-2) refers to the amount to the total amount of phenol used' (21)
- that Schedule A 1(d) be amended to read 'the threshold for chlorine and compounds includes the amount of chlorine compounds used which may produce emissions of chlorine gas (Cl2), free residual chlorine (Cl), hypochlorite ion (OCl), hypochlorous acid (HOCl) and chloramines'; and that Schedule A 2(d) be amended to read 'the amount of chlorine emitted refers to the amount of chlorine gas (Cl2), free residual chlorine (Cl), hypochlorite ion (OCl), hypochlorous acid (HOCl), chloramines emitted, expressed as the equivalent weight of chlorine (Cl). The CASR number refers to the diatomic gas, (Cl27782-50-5)' (22)
- that the Technical Advisory Panel review the threshold for PM10 (23)
- that the Technical Advisory Panel review the appropriateness of reducing the threshold for mercury (24)
- that the NEPM define a range of reporting minimums for all substances (26)
- that the NEPM specify that where emissions are below detectable limits consideration should be given to reporting these as zero (or '-' if feasible) (27)
- that the NEPM require dioxins and furans to be reported as Toxic Equivalents (TEQ) (28)
- that a pre-release set of NPI data be available for jurisdictional and industry review from 31 January, and public release of the data be deferred to 31 March (54)
- that the next review of the NPI NEPM occur in early 2008, and subsequent reviews occur no less frequently than once every 8 years (25).

### C.1.3 Performance

The recommendations of 2005 review, relating to performance, were:

- that Government and industry NPI representatives work together to critically assess deficiencies in resource materials and develop priorities and a schedule for updating and correcting these (29)
- 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 (30)
- that a standard format and style be developed for the Emission Estimation Technique Manuals (31)
- that the data transfer protocol be reviewed to allow for a web-based reporting tool. The review process may include the specification, design, trialling, and implementation (32)
- that alternative ways of delivering emission estimation techniques to users be explored (33)
- that the on-line NPI reporting, currently being developed, should be fast tracked and include automatic data checking and validation functions and be designed to reduce jurisdictional reporting differences and to provide useful and usable information on the waste minimisation and cleaner production measures introduced during the reporting year. The continuing need for paper-based reporting should be assessed (34)
- that agreed targets for auditing industry returns be establish and resources provided for achieving these targets (35)
- that the IWG or other suitable group
  - explore options to improve reporting rates where appropriate
  - prepare and distribute to all industry sectors the relevant manuals for each industry
  - review the necessity for new manuals
  - explore alternative ways of delivering emission estimation techniques- (These recommendations are in addition to any others that may be undertaken by this group/s) (36)
- that all jurisdictions agree on the relevant set of emissions that must be reported for each diffuse source category (37)
- 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 (38)
- that airshed emissions be updated to an agreed base year (39)
- 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 (40)
- that standard methodologies, including agreed emission factors, be used to estimate diffuse source air emissions (41)
- that the list of water catchment emission sources be standardised and rationalised (42)
- that consideration be given to providing water catchment data on a sub-catchment level where available (43)

- that an investigation to critically assess the number of non-reporters and significance of their emissions be undertaken (44)
- that a program for achieving a predetermined capture rate of all potential emissions be developed, funded and implemented (45)
- that the emission estimation techniques for aggregated emissions from fuel combustion for sub-threshold facilities be improved (46)
- that once diffuse source emission estimates are standardised consideration be given to providing historical data on the database to enable trend analysis (47)
- that a critical assessment of data systems and resource requirements be undertaken, including assessment of priorities (48)
- that the data system capabilities be urgently expanded to cater for additional data including state-wide coverage (49)
- that data presentation and analysis and interpretative tools be redesigned to meet the needs of dual audiences (50)
- that greater data manipulation capability, for example to look at trends, be provided (51)
- that awareness raising campaigns be undertaken when data presentation is improved (52).

# C.2 2000 Review

## C.2.1 Delivery

The recommendations of 2000 review, relating to delivery, were:

- that funding for the NPI be continued, based on the levels provided for the first 3 years of the program but taking into account new information on implementation parameters and suggestions for improving the performance of the program (1)
- that the NPI Program continue to be delivered through a national co-operative model (2)
- that the Implementation Working Group be retained but that processes be put in place to ensure effective project management in order to progress national coordination issues (3)
- that the Commonwealth establish broad and inclusive mechanisms for on-going consultation and communication with industry and other stakeholders so that the program maintains a national focus and is more responsive to stakeholder concerns (4)
- that the Commonwealth and State and Territories seek opportunities for integrating the program with other environmental initiatives (5).

## C.2.2 Desired outcomes

The 2000 review didn't make any recommendations relating to desired outcomes.

## C.2.3 Performance

The recommendations of 2000 review, relating to performance, were:

- that all jurisdictions develop rigorous quality assurance programs which include verification systems and independent validation of data. That these systems be implemented in a nationally coordinated and consistent manner (6)

- that the Commonwealth undertake a comprehensive review of NPI guidelines to clarify uncertain definitions and formalise interpretations to assist industry in identifying their reporting obligations (7)
- that inaccurate and unreliable emission factors be identified in consultation with industry and more accurate and reliable factors be developed, either by industry or by government (8)
- that the Commonwealth develop a schedule to review industry handbooks and that this process provide industry with clear mechanisms for instigating corrections and updates (9)
- that an evaluation framework covering both implementation and compliance which includes collection of data on both reporting and non-reporting facilities be developed to enable on-going evaluation of the program (10)
- that the program continue to collect information on diffuse/subthreshold emissions and refine methods for estimating aggregated emissions data to facilitate analysis of sources and regions (11)
- the IWG enhance the sharing of program developments between jurisdictions, especially for areas of major expenditure and that education strategies continue to be targeted to particular industries and types of facilities and take account of factors impacting on facilities' ability to report (12)
- that a national community education campaign be implemented in a coordinated way across all jurisdictions (13)
- that the IWG fast track the development of a standard electronic reporting tool or format, which is able to be accepted by all states / territories (14).

# Appendix D: Submission metrics

### Table D1 Submitting groups

| Submitting groups | Number of submissions |
|---|---|
| Individuals | 7 |
| Industry associations | 16 |
| Large companies (>199 employees) | 10 |
| Non-government organisations and interest groups | 7 |
| Researchers/thinktanks | 2 |
| Service providers (for example auditors) | 7 |
| Small to medium enterprises (<200) | 7 |
| State governments | 3 |
| Union | 1 |

Source: NPI

### Table D2 Industry subsectors (where attributable)

| Industry sectors | Number of submissions |
|---|---|
| Administrative services | 1 |
| Basic chemical and chemical product manufacturing | 4 |
| Cement and lime manufacturing | 2 |
| Coal mining | 1 |
| Electricity supply | 1 |
| Food product manufacturing | 2 |
| Forestry and logging | 1 |
| Non-metallic mineral mining and quarrying | 1 |
| Other crop growing | 2 |
| Other livestock farming | 2 |

Source: NPI

### Table D3 Submissions by location (where attributable)

| Location | Number of submissions |
|---|---|
| ACT | 3 |
| NSW | 19 |
| NT | 0 |
| QLD | 10 |
| SA | 2 |
| TAS | 1 |
| VIC | 7 |
| WA | 7 |

Source: NPI

# Glossary

| Term | Definition |
|---|---|
| aggregated emissions data | Has the meaning defined in the National Environment Protection (National Pollutant Inventory) Measure 1998.<br>The estimates of the amount of a substance emitted to the environment annually from facilities which are not reporting facilities and anthropogenic sources other than facilities, which emit a significant amount of that substance to the environment. |
| aggregated transfer data | Has the meaning defined in the National Environment Protection (National Pollutant Inventory) Measure 1998.<br>The estimates of the amount of a substance transferred annually from facilities which are not reporting facilities and anthropogenic sources other than facilities, which transfer a significant amount of that substance to the environment. |
| ANZSIC | The Australian and New Zealand Standard Industrial Classification. |
| discussion paper | A document prepared by the department to stimulate consideration of key issues. |
| emissions data | Has the meaning defined in the National Environment Protection (National Pollutant Inventory) Measure 1998.<br>Is the estimate of the amount of the substance emitted in a reporting period that identifies the medium to which the substance was discharged (for example, air, land, or water) and the estimation technique used. |
| emissions estimation technique | A methodology for assessing pollutant emissions. The methodologies are available in manuals for National Pollutant Inventory reporters. These are known as EET manuals. |
| environmental outcomes | A list of desired outcomes specified in the National Environment Protection (National Pollutant Inventory) Measure 1998. |
| intergovernmental working group | Representatives from the Australian, state and territory jurisdictions who meet regularly to collaborate and administer the NPI. |
| NPI NEPM | The National Environment Protection (National Pollutant Inventory) Measure 1998. |
| NPI steering committee | A group of representatives from the jurisdictions overseeing the NPI review. |
| online reporting system (ORS) | A tool for enabling data to be reported as part of the National Pollutant Inventory. |
| PM2.5 | Particulate matter with a diameter less than or equal to 2.5 micrometres. |
| PRTR | Pollutant Release and Transfer Register |
| sustainability | The capacity for development that can continue into the future, within the capacity of the natural resource base. This includes encouraging sustainable agricultural and fishing practices which maintain and improve the natural resource base. |
| technical advisory panel (TAP) | A group of experts who provide technical advice. |
| ToR | Terms of Reference |

# References

ABS 2013, Essential Statistical Assets for Australia, (Cat. No. 1395.0), Australian Bureau of Statistics, Canberra, 2013, accessed 10 September 2021.

ARTD 2000, Report to the Chemicals and the Environment Branch, Environment Australia: Evaluation of the National Pollutant Inventory Program Final Report, ARTD Management and Research Consultants, Canberra, November 2000, accessed 9 September 2021.

Cement Industry Federation 2018, 'CIF Sustainability Roadmap', Review of the National Pollutant Inventory Discussion Paper, National Environment Protection Council, June 2018, accessed 1 September 2021.

Clean Energy Regulator 2021, National Greenhouse and Energy Reporting, Clean Energy Regulator, Canberra, 19 February 2021, accessed 12 September 2021.

Commonwealth of Australia 2021, Intergovernmental Agreement on data sharing between Commonwealth and state and territory governments, Commonwealth of Australia, Canberra, 2021, accessed 10 September 2021.

Department of Finance 2020, Australian Government Cost Recovery Guidelines (RMG 304), Department of Finance, Canberra, 30 September 2020, accessed 8 September 2021.

—— 2021, PGPA legislation, associated instruments and policies, Department of Finance, Canberra, 3 February 2021, accessed 9 September 2021.

Environment and Climate Change Canada n.d., National Pollutant Release Inventory, Environment and Climate Change Canada, accessed 11 September 2021.

Environment and Heritage 2005, Final Report Review of the National Pollutant Inventory, Department of Environment and Heritage in conjunction with CH Environment and JD Court and Associates, Canberra, April 2005, accessed 9 September 2021.

European Commission n.d., European Pollutant Release and Transfer Register, European Commission, accessed 11 September 2021.

NEPC 2016, Annual Report 2015-16, National Environment Protection Council, Canberra, 2016, accessed 11 September 2021.

—— 2018, Review of the National Pollutant Inventory Discussion Paper, National Environment Protection Council, Canberra, June 2018, accessed 1 September 2021.

—— 2021, National Environment Protection Council Response to the Report of the Fourth Review of the National Environment Protection Council Acts (Commonwealth, State and Territory, National Environment Protection Council, Canberra, 2021.

OECD 2001, Glossary of Statistical Terms, OECD, Paris, September 2001, accessed 18 October 2021.

—— 2001, Presentation and Dissemination of PRTR Data: Practices and Experiences, (ENV/JM/MONO(2000)17, OECD, Paris, January 2001, accessed 10 September 2021.

——2014, Guidance Document on Elements of a PRTR: Part 1, (ENV/JM/MONO(2014)33), OECD, Paris, November 2014, accessed 10 September 2021.

—— 2015, Guidance Document on Elements of a PRTR: Part II, (ENV/JM/MONO(2015)45), OECD, Paris, November 2015, accessed 10 September 2021.

—— 2017, Framework on the Role of Pollutant Release Transfer Registers (PRTR) in Global Sustainability Analyses, (ENV/JM/MONO(2017)7), OECD, Paris, 2018, accessed 10 September 2021.

—— 2018, Recommendation of the Council on Establishing and Implementing Pollutant Release and Transfer Registers (PRTRs), (OECD/LEGAL/0440), OECD, Paris, 2021, accessed 11 September 2021.

Origin Energy 2015, Sustainability Report 2015, Sydney, 2015, accessed 10 September 2021.

PMC 2020, Review of COAG Councils and Ministerial Forums, Department of Prime Minister and Cabinet and Peter Conran AM, Canberra, October 2020, accessed 9 September 2021.

Thorning 2009, Community knowledge and use of the National Pollutant Inventory, MSc Thesis, Griffith University, accessed 11 September 2021.

United Kingdom EA n.d., Pollution Inventory, United Kingdom Environment Agency, accessed 11 September 2021.

United States EPA n.d., Toxic Release Inventory Program, United States Environmental Protection Agency, accessed 11 September 2021.

Victorian Auditor-General's Office 2018, Improving Victoria's Air Quality, Victorian Auditor-General's Office, Melbourne, 2018, accessed 10 September 2021.

Wheeler, S, Zuo, A, & Loch, A 2014, 'Survey of National Pollutant Inventory (NPI) Users', Review of the National Pollutant Inventory Discussion Paper, National Environment Protection Council, June 2018, accessed 1 September 2021.