



**Australian Foundry
Institute**

ABN 53 830 764 159

Industry Data Report

September 2020

**Details of a survey of the cast metal
industry of Australia.**

Compiled by –

**Alan Cooke,
AFI National President**

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1.0 Executive Summary

The 2019 Metal Casting Industry Report was an attempt to summarise the scale of the industry in Australia and to capture some of the key metrics that impact on metal casting operations. The data provided was an aid in delivering favourable outcomes for the industry, particularly for our Queensland based foundries with the proposed and then subsequently modified electricity tariff.

Building on the success of the 2019 metal casting industry survey, the AFI National Council made the decision to conduct another survey with an expanded range of requests for data. This decision was based partially on the view that those reports typically used by our political decision makers do not accurately represent our industry. Attempts were made to discuss feasibility of a professional 3rd party to compile this report, without success.

Understandably there continues to be a reticence in some quarters to share business confidential data. This is an issue that requires further discussion and resolution. For this report, Non-Disclosure Agreements were signed when requested.

The 25 casting operations that have shared data with me, ensures that the report is representative of the casting industry in Australia. I also derived data, using publicly available information, from a further 13 metal casting operations.

The cast metal industry in Australia generates more than \$0.75 billion in sales annually, and directly employs 2000+ people, including 44 trainees / apprentices.

The challenges for much of our industry remain similar to last year – access to trained personnel, training of apprentices and high and uncertain electricity costs. Overriding each of these is the global challenge that Covid-19 has presented.

Along with the challenges that are presented in the current environment, there is also opportunity. There has been much discussion in the media about supply chain disruption, a deterioration in the Chinese-Australian relationship and a perceived need to build sovereign capability. The AFI and each Casting operation should consider how we can leverage this situation to advance our causes.

2.0 Background

The 2019 Metal Casting Industry Report, though limited in scope, was well received by the AFI membership. The decision of the AFI National Council was to expand on the range of data requested, so that it more closely matched the data represented in the IBIS C2121 Iron and Steel Casting in Australia June 2019 report and also the IBIS C2141 Non-Ferrous Casting report. There was a strong view aired at our October 2019 National Conference, that the IBIS reports did not accurately represent the reality for Australian metal casting operations.

The data requested in the 2020 industry survey is significantly more detailed than that requested for the 2019 survey.

3.0 Survey Purpose and Overview

The purpose of the survey was to provide collated industry data on selected aspects of the Cast Metal Industry.

3.1 Areas Addressed

The request for Industry Data has been mainly focussed on AFI member casting operations but does include some non-AFI member companies.

Information requested covers Tonnage of metal cast (Ferrous and Non-ferrous), number of employee's, number of trainees and apprentices, power cost per Kwh, new sand cost per Tonne, \$ value of annual casting sales, casting methods used, major market segments and cost structure by %.

This is an expansion of the range of data requested in the 2019 report.

3.2 Confidentiality Management

Confidentiality of the data supplied by individual casting operations continues to be of prime importance. As with the 2019 report, all data was received and collated by myself only. As a long term, but now retired foundryman, I have no vested interest in any existing casting operations. I was happy to make an absolute commitment to maintain confidentiality of the provided data. Where requested a non-disclosure agreement has been signed. Only aggregated data is reported.

3.3 Survey Format

Appendix 1 shows a blank Data Request Form and the 2 related documents that were issued to casting operations through the various AFI State Secretaries.

3.4 Participant Feedback

A significant majority of participants were supportive of the process. A few were limited in the data that they could share. A total of 25 metal casting businesses gave me data. Using publicly available information, I derived data for a further 13 metal casting businesses and included this data in this report.

3.5 Survey Timing

The initial communication requesting data was issued in December, 2019. Data was received over a wide time frame – from December 2019 through to October 2020. In some cases the data related to calendar year, for some financial year. The majority of the data pre-dates the effect of the covid pandemic.

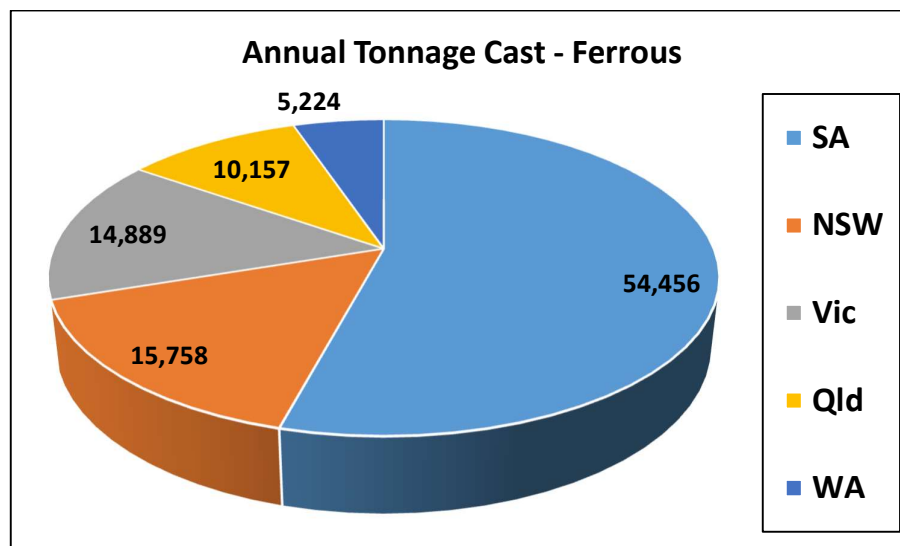
4.0 Survey Data – Statistics Summary

4.1 Annual Metal Tonnage – Ferrous and Non-Ferrous

22 respondents gave an annual Ferrous tonnage cast figure to which I added derived data for a further 9 foundries, giving a total 100,484 T of Ferrous metal cast annually.

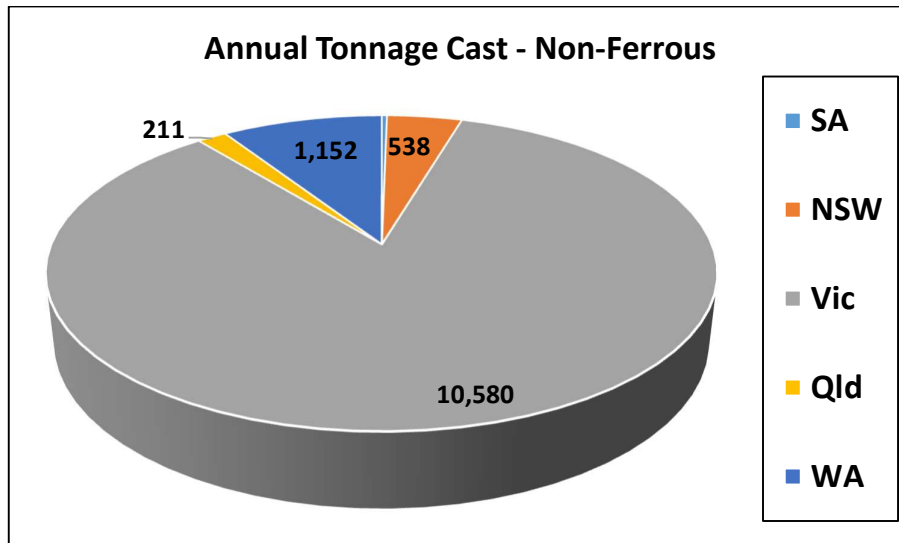
This total represents a steady state result from the total indicated in the 2019 Industry Report.

Note that this data covers what we define as a foundry, not the large continuous cast steel operations or the multiple metal refining operations. For example, Australian steel makers produce in the order of 3.2 million Tonne of steel per annum.



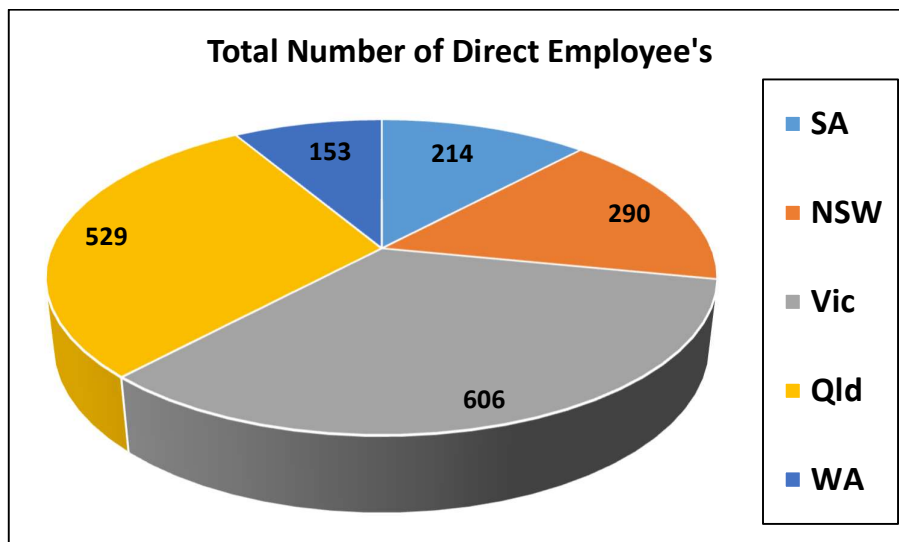
The Non-Ferrous data received from 10 respondents, along with data derived for a further 9 operations, gave a total of 12,518 T metal cast annually.

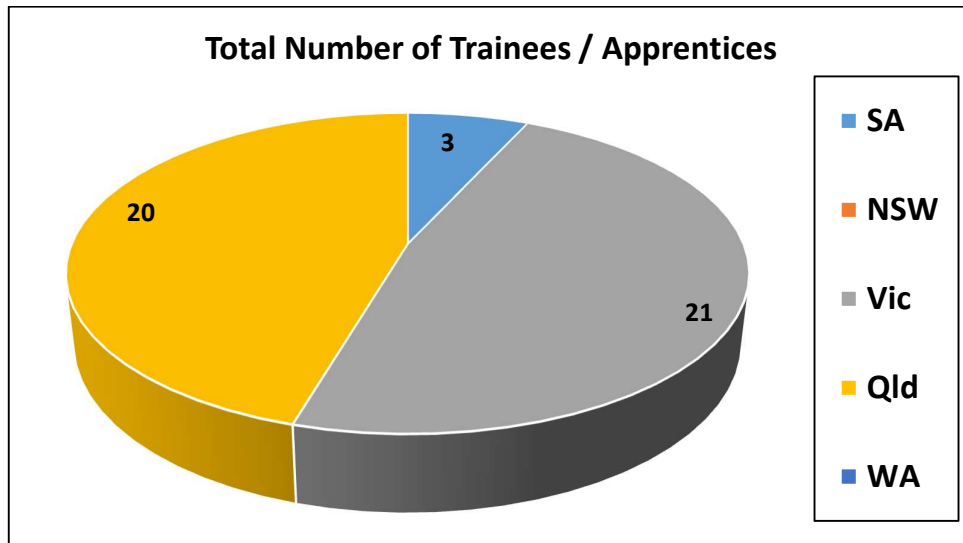
This figure does not include the annual tonnage from the many diecasting operations in Australia. I would consider that the total of Non-Ferrous metal cast in Australia would conservatively exceed 37,000T pa with the bulk of this based in Victoria, if data for the major diecasting operations was added to the total.



4.2 Number of Employees and Trainees / Apprentices

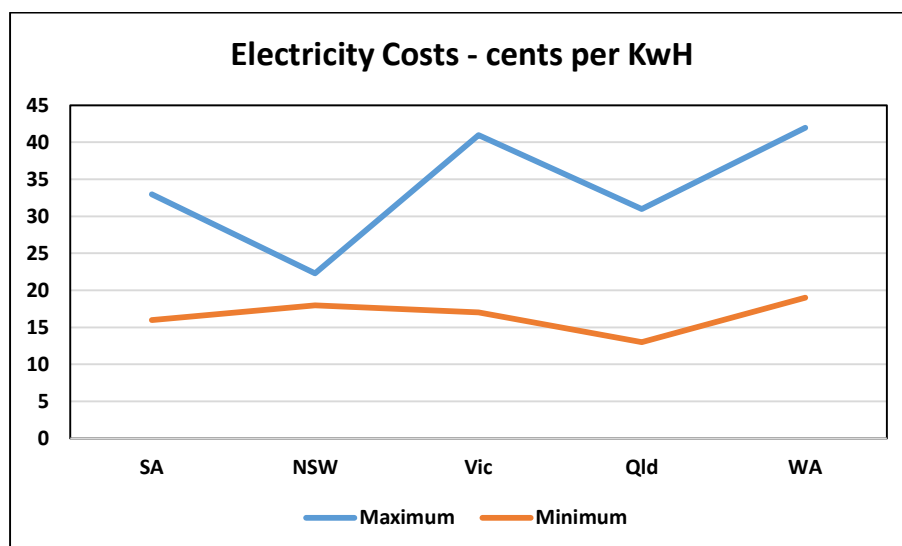
The respondents to the survey directly employ 1792 employees and 44 trainees / apprentices. The majority of these trainees / apprentices are based in Queensland and Victoria.





4.3 Energy Costs

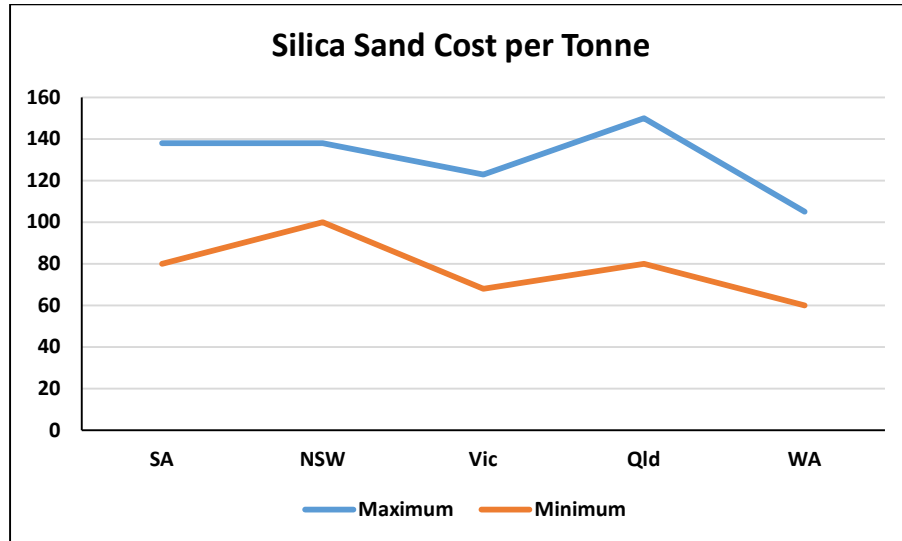
Survey participants were asked to provide electricity cost per kWh, ie total paid for electricity divided by total kWh's consumed. The aim was to have a directly comparable metric for all metal casting operations. For some integrated businesses it is difficult to split out this cost specific to their casting related activity. The 22 responses indicate a range of \$0.13 to \$0.42 / kWh.



4.4 Sand Costs

Survey participants were asked to provide sand costs and identify type of sand purchased. The 22 responses gave cost per Tonne for silica over a range of sizes. Some also provided costs for chromite and synthetic sand.

Silica sand data is represented in the chart below.



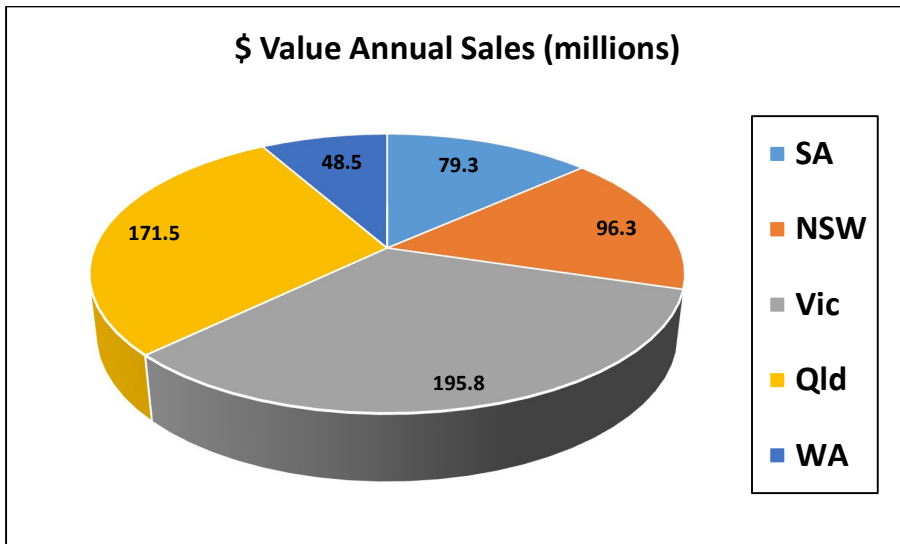
Chromite sand cost ranged from a minimum of \$860 / T to \$1040 / T. Synthetic sand cost ranged from \$1800 to \$2200 / T.

4.5 Annual Sales

Survey participants were asked to provide the \$ value of annual sales of castings. This calculation is made more complex by the fact that many casting operations also have considerable value-add processing post-casting (eg: machining, assembly, painting).

The chart below represents data received from 23 respondents plus my derived estimate for a further 9 metal casting businesses.

The total of \$591.4 million represents a significant increase on the \$491 million reported in the 2019 Industry report.



4.6 Casting Method

Survey participants were asked to identify the casting method used. The 25 respondents indicated the use of Hard sand, Greensand Investment Casting, Shell Mould, Die Casting and Continuous Casting. We did not ask for a breakdown of tonnage cast for each casting method used.

4.7 Market Segments

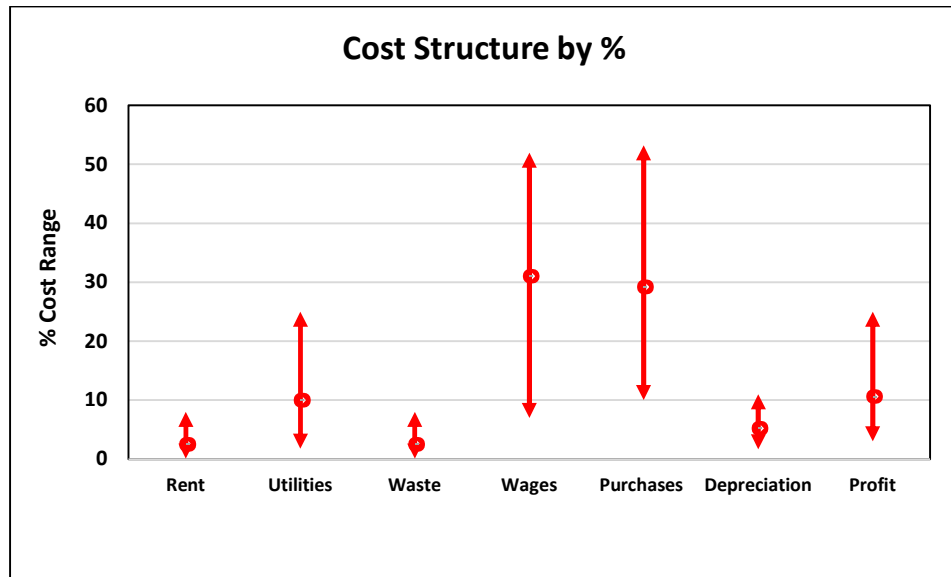
Survey participants were asked to identify the major market segments that they supply. Not surprisingly, the 25 respondents indicated a customer base covering a very diverse range of industries. I am not able to weight these in any particular order. The following lists industries supplied with Australian castings–

Aerospace	General Industry	Power Generation
Agriculture	Heavy Transport	Pumps and Valves
Automotive	Marine	Quarries
Biomedical	Memorial	Rail Infrastructure
Brickmaking	Mineral Processing	Smelting
Civil Engineering	Mining	Sugar Mills
Construction	Petrochemical	Water
Defence	Plumbing	

4.8 Cost Structure

Survey participants were asked to provide business metrics in % terms for the categories of Profit, Rent, Utilities, Depreciation, Waste Disposal, Wages, Purchases and Other.

This was the most commercially sensitive information requested, so not surprisingly fewer businesses were willing to share this data. The charts below show the aggregated data for those 15 businesses that were able to share their data with me.



5 Discussion

I consider a conservative estimate of metal cast in Australia is 110,000T of Ferrous (Iron and Steel) and 37,000T of Non-Ferrous (Al alloys, Cu base alloys, Pb).

The tonnage of metal cast reported represents a similar figure as reported in the 2019 Industry Report. This apparent steady state does not reflect the considerable flux that all industries have experienced with the onset of the global pandemic. Anecdotal information indicates that through 2020 some of our foundries have experienced a contraction in activity while others continue to grow. Many are reporting a surge in enquiries from casting purchasers that would normally source their product from overseas suppliers.

44 trainees and apprentices are directly employed in our metal casting industry. These individuals are of highest importance. As they progress their career they will develop the skills and know-how to become a new generation of leaders. The distribution of these people is highly skewed towards Queensland and Victoria. I consider that this largely due to the availability of training opportunities within each of these States.

What these figures don't reflect is the considerable interest in both NSW and WA to employ new apprentices. Funding for apprentice training is a State Government responsibility. The AFI has a direct role to play in advocating for funding in each of these States. The process to achieve this is both tedious and frustratingly slow, but the experience of AFI(Vic) demonstrates that a successful outcome can be achieved.

Another issue is securing and retention of new apprentices. What are the barriers and what can the AFI do to help remove these barriers ?? AFI(Vic) have almost finished developing a "Foundry In a Box" which is a tool aimed at igniting interest in a metal casting industry career with school age people. The longer term vision is to have one of these units in each State.

The data for electricity cost per Kwh have changed significantly from the 2019 report. There is less variability across Australia for the lowest price paid for electricity (range of \$0.13 to \$0.19 / Kwh). This represent an opportunity to reduce costs for those metal casters that are paying more than this. Collaborative negotiation by groups of businesses is a proven successful means to drive a better outcome with energy suppliers, that metal casting industries should consider.

Somewhat surprisingly, the silica sand costs reflect no change from costs reported last year.

The total reported value of castings produced is a 6% increase over the 2019 report. I don't have any particular insight into what is driving this increase. As previously mentioned the anecdotal feedback is that the global pandemic has delivered considerable turmoil to our markets. The unknown is if the negatives of the pandemic will be offset by the increased interest in sovereign capability.

To aid our metal casting businesses to better take advantage of the potential growth in locally sourced castings, the AFI are working through updating our website and producing a promotional video to demonstrate our capabilities. Obviously, these actions on their own will not result in a strong order book. Each business needs to consider their position in the market and consider the best strategy to grow their business.

The wide range of market segments and wide range of cost structures reported reflects the significant diversity of the metal casting industry. As diverse as we are, we still have much to gain from working together on common goals.

There is an ongoing need for your feedback and direction. How do we assess the value of a regularly updated Industry Data Report and what form should it take ?? What information is required to ensure this Industry Report is useful to your goals ??

Please discuss these questions with your colleagues, be prepared to openly discuss your views at State and National meetings, and help to guide the AFI to be a more effective representative body for you.

6 Conclusion

This second annual survey of the Australian Metal Casting Industry has built on the base level data which was reported last year. Support for this survey remains strong though can be improved on.

Reductions have been seen in electricity pricing but opportunities still exist. The pool of skilled personnel remains uncomfortably small with an ageing workforce. For some businesses base level positions are difficult to fill and it's also difficult to retain new employee's.

We all have a role in changing the paradigm. Look for every opportunity to talk up our industry – our circular economy credentials, the creative aspects of turning a drawing or 3D model into a functioning product, the hands on technical savvy requirements of all our employee's.

The Australian metal casting industry has a significant advantage over our competitor countries – the quality, know-how and hands on capability of our people. Be active in driving this message.

7 Appendix 1

7.1 Blank Data Response Table

7.2 Letter issued with Data Response Table requesting participation.



**Australian Foundry
Institute**

ABN 53 830 764 159

20 March 2019

Re: AFI Industry Data

To: AFI Member Casting Operation

The AFI has traditionally been a technical body, enabling dissemination of technical developments in all aspects of the casting industry. Given the challenges our industry faces with power costs, accessing trained personnel and training of personnel, there is a growing need for the AFI to become more active in lobbying our political decision makers. A regular blocker to advancing AFI causes with our politicians has been the lack of industry wide data.

I am writing to you requesting your co-operation and support in gathering industry data. Can you please complete that table on the following page and return directly to me.

I understand and respect that privacy and competitive advantage concerns are a significant and legitimate concern in relation to company data. To alleviate this concern, all data will be received and collated by me only. As a foundryman of long standing, now retired, with no vested interest in data from individual companies, I give my personal commitment to confidentiality.

The data received will be collated by me to produce an Industry Report, which will be distributed to all AFI members. AFI State and National bodies will use this report to advance AFI causes with political decision makers.

I envisage a need to update Industry Data periodically. I propose to do this annually. I would also envisage a need to broaden the scope of the data being requested now. This will be subject to review over the coming year.

Thank you in advance for your support. If you do have any concerns or suggestions relating to this process, can you please contact me directly. In particular, please communicate any blockers that you may have to providing this data.

Yours Sincerely,
Alan Cooke
AFI National President
0427 777 061
Email: agcooke52@gmail.com

7.3 Document supporting Survey issued with Data Response Table

www.australianfoundryinstitute.com.au
Incorporating the Divisions of New South Wales, Queensland, Victoria, South Australia & Western
Australia
National Secretary – Joe Vecchio
Mobile: 0407 163371

Australian Foundry Industry Data

AIM:

To produce an annual Australian Foundry Industry Report that can be used to advance AFI causes.

Initial Data to be Requested

1. Annual Tonnage cast by metal type.
2. Total employee's to produce these castings.
3. Number of trainee's / apprentices
4. \$ value of annual sales
5. Power costs / kWh
6. New sand cost / Tonne

Why Do We Need Data ??

Traditionally the AFI has been a technical body. In recent years with high power costs, training and training personnel issues, there an increasing need for the AFI to lobby political decision makers. A regular blocker to progressing AFI causes with politicians has been the lack of industry wide data.

What Are the Blockers to Getting Data ??

A major blocker for individual companies to provide data has been around privacy and competitive advantage concerns. Clearly legitimate concerns that must be protected. For this initial collection of data. I want to use my credibility as a foundryman of long standing, now retired, with no vested commercial interest in data from individual companies.

How Will Initial Data Be Requested ??

The initial data will be requested by a letter from me to all AFI members companies active in casting, delivered through the State AFI Secretaries. It is very important that this letter is delivered to the appropriate decision maker of each of our member companies.

The request will be for the data to return directly to me.

It is envisaged that some members will readily provide the requested data, others will require follow up phone calls, and a few will require a face to face visit.

This stage of the data gathering process is critical to achieving a successful outcome. Identifying what actions are appropriate for each member company will be dependent on the strength of personal relationships in some cases. Could each State please give this aspect of the process significant consideration.

Collation of Data

I will be the only person to receive and collate data.

How Will the Data Be Used ??

The fully collated data will form the basis for the Industry Report. Data within the report would be provided down to State level. Regional data and individual company data will not be included in the Industry Report.

I propose that the Industry report be made available to all members by 31st March, 2019, and publicly available via the AFI website by the 30th September, 2019.

AFI National and each State branch would be encouraged to use the Industry report to progress relevant causes of benefit to the industry.

How Frequently Will Data Be Updated ??

The intention is to have an annual update to requested data so that it maintains it's relevance and (just as importantly) maintains a mindset amongst the decision makers of our member companies that an up to date Industry Report adds value to their business.

I would also intend to broaden the scope of the data being requested. I'd envisage a need to streamline the process of data collection and collation. To enable this, I propose investigating the possibility of engaging Deakin University (to be costed). Whatever 3rd party is engaged, the role would be to develop the tools needed to manage the data, review Industry Reports from other countries (eg: UK, USA, China, Turkey), research what data is needed, and put forward recommendations to enhance the value of the AFI Industry Report.

I would anticipate that this 3rd party can present their findings at the 2019 National Conference.

Alan Cooke

AFI National President