

SELECTING THE WINNING BID

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ABSTRACT

Work program bidding is established as the favoured method of allocating petroleum exploration tenements in offshore Australian waters and most of onshore Australia. However, the selection of winning bids can be complicated by the ranking of 2D versus 3D seismic, seismic versus drilling, program timing issues etc. On occasion the selection of the winning bids has been contentious. This paper summarises the process developed by the Petroleum Group in South Australia to select the winning work program bids for prospective onshore blocks for which bids have been gazetted. No other Australian jurisdiction has yet publicly released their detailed bid assessment processes.

Onshore acreage releases with work program bidding have been used in South Australia since the 1980s by Petroleum Group to:

- focus industry onto specific prospective areas of the State (e.g. the Cooper Basin post expiry of PELs 5 and 6 in 1999);
- maximise exploration commitments; and
- achieve competition policy.

The South Australian Petroleum Act 2000 allows cash or work program bidding to be used depending on the acreage. Acreage releases are announced by Ministerial press release. Associated clear bid assessment criteria are published together with promotional material to aid applicants. The date and time for close of bidding are also established, usually allowing a 6–9 month acreage evaluation period, the timeframe depending on the volume of data involved, i.e. the exploration maturity of the area.

Applications received as a result of a gazettal process (i.e. competing bids) are assessed by a process designed to ensure probity and to achieve the over-arching aim of the bidding process i.e. the suitability of the applicants proposed work program for evaluating the prospectivity of the licence area and discovering petroleum.

A scoring system has been developed which establishes, for each bid what is effectively a risked net present value in well equivalents. In this system, guaranteed work scores higher than non-guaranteed work; early work scores higher than later work; wells with multiple targets are scored higher than single target wells; 2D and 3D seismic and other exploration activity is converted into well equivalents; and loading of the later, non-guaranteed years of work programs are heavily discounted.

The scoring system may also take into account differences in the amount and density of exploration data and minor variations may be made to the system to take this into account. It is intended that details of the scoring system to be used in bid assessment will be published each time bids are sought to ensure transparency and a level playing field.

Comparisons are made with acreage management philosophy and processes used by other regulatory regimes in Australia and internationally.

KEYWORDS

Petroleum licensing, work program bid assessment, Australia, South Australia

INTRODUCTION

The Petroleum Group of the Department of Primary Industries and Resources, SA (PIRSA), like other similar state and Commonwealth agencies, is responsible for managing the community's asset of the petroleum resources of the State through the administration of the rights to explore for and produce petroleum in South Australia. The major aim of managing these assets is to maximise the public benefit that may be derived from Australia's discovered and undiscovered petroleum resources. A key way of achieving this is for government agencies to develop processes which attract high levels of private exploration investment in the immediate future. Competitive tendering processes ensure that the maximum market price (i.e. best work program) is achieved for these exploration rights.

Regulatory framework

Petroleum exploration and development activities in South Australia were previously managed by the Petroleum Act 1940. A major review involving stakeholders commenced in early 1996, driven by recognition by the Department and stakeholders that community expectations had undergone major changes since the 1940s, that significant benefits lay in adopting objective-based regulation and that there was a need to adopt competition policy reforms, particularly in the area of exploration tenement allocation and management (Malavazos, 2001). Draft legislation was released for public comment in December 1998, the Bill was tabled in 1999 and the Petroleum Act 2000 was proclaimed on 25 September 2000. Other regimes have also recently undertaken regulatory reviews, with Victoria and Queensland drafting new legislation and the Northern Territory drafting amendments. Both of the above new Acts retain a more traditional prescriptive approach. However both allow the respective Minister to call for tenders for exploration licences. Queensland will probably favour a tender process.

It is critical for the onshore petroleum industry that state government agencies establish and maintain a secure and predictable regulatory regime. Equally, it is critical for the community that access to land for undertaking exploration and development activities can be granted only where there is not an environmental impact that outweighs the benefits from petroleum production. The Petroleum Act 2000 is designed to achieve these key objectives.

History of acreage management

Prior to the mid 1980s, prospective onshore South Australian petroleum acreage was allocated on the basis of over the counter applications based on the principal of first-in-best-dressed. Semi-formal onshore acreage releases with work program bidding were used from the mid 1980s for most prospective onshore South Australian basins (Otway and Officer Basins and former outlying areas of PELs 5 and 6 in the Arckaringa, Pedirka, Simpson and Arrowie Basins). A sounder regulative basis for this process is now provided by the Petroleum Act 2000. The objective of the work program bidding process is primarily to:

- focus industry onto specific prospective areas of South Australia,
- maximise exploration commitments, and
- achieve competition policy principles.

These acreage releases were announced by a Ministerial press release which froze the area(s) from over the counter applications for a set period of time and defined a deadline for applications. Typically this was accompanied by a promotional brochure summarising prospectivity, previous exploration, available data and the application process. In South Australia, bids are based on the first five year term of a Petroleum Exploration Licence. This frontier acreage attracted only low numbers of bids for each block and selection of the winning bid was simply resolved using broad work program, financial and technical criteria.

Later areas released, particularly the phased release of Cooper Basin acreage (which became available in 1999 after the expiry of PELs 5 and 6, held by Santos Ltd and partners since 1954) and some Otway Basin acreage, were more mature areas, likely to attract a significant number of applicants, and this led to the development of the bid assessment process outlined below.

APPLYING FOR A LICENCE

Application guidelines

An application for an onshore exploration licence (PEL) can be lodged at any time (an over the counter bid) over any frontier area of the State which is not in a declared highly prospective region. Applications for highly prospective regions (currently prescribed as the Cooper and Otway Basins) require the Minister to call for tenders specifying a specific closing date and time. More than one exploration

licence or production licence can be granted over the same area provided the rights to explore for or produce a particular regulated resource (e.g. petroleum or geothermal energy) differs for each licence.

Applications can be made by individuals and/or companies registered under the provisions of the Australian Corporations Law. Competing applicants are assessed having regard to the most effective proposed work program, providing the financial and technical abilities of the applicants are satisfactory. All applications are regarded as confidential. However, details of the successful bid (excluding financial and technical abilities of the applicant or any interpretive data) are now made public. The winning bidder is awarded the exploration licence immediately in areas where Native Title does not apply (e.g. the Otway Basin). In regions subject to Native Title (e.g. Cooper and Eromanga Basins) associated issues must be resolved before acreage is awarded.

Exploration is then conducted by the licensee in a co-regulatory regime focussing on achievement of environmental, public safety and resource management objectives. Public consultation processes are used to establish environmental objectives for significant proposed activities. When a discovery is made that warrants production, the licensee is entitled to a Production Licence over the discovery area. Production Licences are separate to this discussion and are not affected by the expiry of the parent exploration licence.

Cooper Basin case study

Santos was awarded exploration tenements over much of SA in 1954 when the paradigm was that onshore Australia was not prospective for petroleum (O'Neill, 1998). With only one party interested, the original tenement covered 507,397 km² and included Cambrian basins which then formed the primary target. Such large exploration tenements are no longer possible in South Australia where the maximum tenement area is now limited to 10,000 km². Following the discovery of Permian gas and Jurassic oil in the Cooper Basin region and unsuccessful exploration in outlying areas, PELs 5 and 6 were reduced to cover only the Cooper Basin sector.

The expiry of PELs 5 and 6 in February 1999 enabled the release of some of Australia's most prospective onshore acreage and PIRSA was determined that this would be an orderly, transparent and market driven process. In the lead up to expiry, PIRSA decided that this large area would be split into 20 to 30 smaller blocks which would be offered in a phased acreage release program with 4 to 5 bidding rounds. The aims were to:

- allay industry concerns that it would all be handed back to the Santos joint venture,
- focus national and international attention on the basin (and South Australia),
- maximise work program bids, hence exploration investment and the chance of discoveries,
- maximise the number of operators (new explorers applying new ideas in a mature basin),

- satisfy national competition policy demands for competition in gas supply to Adelaide, and
- develop a larger, more diverse oil industry in South Australia.

PIRSA started to delineate release blocks in mid-1998 using these principals:

- frontier areas outside the Cooper Basin margin were to be larger (lower density of wells and seismic) than core areas,
- acreage evaluation timeframes were to be 6 months for flank blocks with lower data densities and up to 9 months for core blocks (related to the volume of data available to be examined by applicants, i.e. the exploration maturity of the area),
- areas were to be less than 10,000 km², consistent with the proposed new Petroleum Act,
- flank areas were to be offered as 3-term (i.e. maximum 15 year) tenements; core areas would be for 2 term (10 year) tenements, to be consistent with the proposed new Petroleum Act,
- a range of play types and prospects were to be encompassed by each block,
- commodity prices were considered in that the low oil prices in 1998–99 prompted earlier release of more gas-prone blocks, and
- blocks were designed to extend radially outwards from core production areas to include a range of play types and fairways.

The Cooper Basin acreage release program was launched by the Minister for Minerals and Energy at the COOPER98 workshop in October 1998 while PELs 5 and 6 were still extant, with the release of 11 flank blocks. Applications closed in March 1999 after the expiry of PELs 5 and 6 and 41 bids were received. This keen bidding resulted in seven consortia proposing to invest a total of A\$45 million during the first five years.

The second round of eight core Cooper Basin blocks was released in April 1999. Applications closed in November 1999 and 47 bids were received resulting in seven consortia proposing to invest a total of A\$110 million during the first five years. The third round was split and bidding for the first batch of five third round blocks closed in June 2000 with 11 bids received from a total of five applicants. The winning bids contain work program commitments of A\$10 million. The second batch of three blocks closed in September and twenty-one bids were received. These winning bids contained work program commitments of A\$58 million.

A total of 120 bids were lodged by twenty-seven different consortia during the 3-year acreage release program. Of the different applicant consortia, only 12 had previously explored for petroleum in South Australia. This broad mix of local, interstate and international companies will bring new ideas and exploration concepts to Australia's premier onshore petroleum province. As a result, there are now 27 successful petroleum exploration license applications in the Cooper Basin, where once only PELs 5 and 6 existed. The winning bids in the three rounds contain guaranteed commitments of more than

A\$166 million of exploration investment in the region in the next five years.

The fourth round was unusual in that it consisted of six small, single well blocks (withdrawn Production License Applications) and was offered on a combined cash bidding and work program basis. At the close of bidding in August 2001, no applications had been received.

ASSESSMENT OF BIDS

Criteria

In contrast to previous acreage releases, the Cooper Basin core and flank areas were expected to attract high levels of interest and multiple bids for most blocks. In addition, it was likely that the existing licensees of PELs 5 and 6 would bid on the blocks, and it was important that an open, probative and transparent award process was developed which would allay any associated concerns by the wider industry. This necessitated development of a process that chose the most suitable applicant based on the best proposed work program for evaluating the prospectivity of the licence area and most likely to lead to discovering petroleum (as later encapsulated by the Petroleum Act 2000 Section 23[a]).

The following broad assessment criteria were published in acreage release brochures and on the website to guide applicants with preparation of their bids and ensure transparency of process:

Work program bids will be assessed taking account of the criteria listed below. All these criteria are used when selecting the winning bid. It is important to note that the timing of activities, especially the drilling of wells, and the extent of the guaranteed nature of the program carry substantial weight in the assessment process.

The most important criteria for assessment of work programs are:

- number of exploration wells (dry-hole basis) to be drilled, their timing and the anticipated number of exploration objectives to be drilled by the wells
- extent that the wells proposed to be drilled are supported by adequate seismic or other geophysical techniques
- number of years that the applicant is willing to guarantee the work program
- adequacy of financial resources and technical expertise available to the applicant
- past performance in fulfilling work program commitments of the applicant elsewhere in Australia. Secondary criteria that may be taken into account are:
- the amount and nature of seismic surveying to be carried out and its timing
- other data acquisition and seismic reprocessing to be carried out.

In addition to the above criteria, where work program bids are similar, the benefits of the introduction of new explorers into the area (including intention with regard to establishing an office in South Australia) may be taken into account. It should be noted that there are no criteria

limiting the number of PELs which may be offered to one applicant providing the applicant has adequate financial resources to complete all programs. In the case of cascading bids (i.e. multiple or hybrid bids for an area by one applicant or joint venture) only the highest of the bids will be considered.

Acreage release brochures also included application forms and proformas for each year of the five year work program. A date and time for close of bidding was also clearly stated. Bids were to be lodged in sealed unmarked envelopes which were only opened after the published close of bidding.

Once the broad acreage release policy and procedures had been determined, a detailed process to objectively assess the expected high numbers of work program bids was developed. This process was made public during a workshop at the 2001 APPEA Conference, the first time an Australian upstream petroleum authority has done so. This reflects the philosophy of transparency encapsulated by the Petroleum Act 2000.

Summary of bid assessment procedure

To ensure that bids are assessed fairly and objectively, PIRSA uses two teams for the assessment process. A Bid Receipt Team (BRT) including the Petroleum Registrar and one geologist opens the bids and extracts the relevant details of each work program bid. Company names are removed and a code is assigned for each bid received for each block. The bid documents are then securely stored. For most recent acreage releases PIRSA have requested the use of proformas to simplify both the construction and presentation of bids by applicants and then the compilation of the scoring spreadsheet by PIRSA.

Alternative work programs for any year are treated as cascading bids and only the highest scoring program for that year is used in the assessment. The BRT give the assessment spreadsheet to the Bid Assessment Team (BAT) of 2–4 geologists and geophysicists who then assess the bids without knowing the identity of bidders.

Timing of work

To account for the critical issue of the timing of all work in a 5 year bid program, PIRSA have applied net present value methodology in order to discount work over time (Appendix 1). Under the Petroleum Act 2000, once a licence year is entered, the work program must take place (ie the work program is 'guaranteed'), hence work in year one of any bid is almost certain to be conducted and is therefore worth more than work in later years. Another benefit of applying a time discount is that the scoring impact of lavish work programs in years 4 and 5 (higher risk of not being completed) is minimised. In addition, where the non-guaranteed program grossly exceeds the guaranteed program, additional discounts are applied. These two methods minimise the impact of applicants deliberately back-loading bids with work that is unlikely to be conducted to increase their scores.

Applicants are also given the option of guaranteeing years 2–5 of the work program on a year by year basis. Such guaranteed work is scored more highly than non-guaranteed work. Guaranteed work programs cannot be varied or avoided without penalty (cancellation of licence, prosecution, black mark to be considered in award of later licences), non-guaranteed work programs allow the licensee to surrender the licence in good standing prior to entering the first non-guaranteed year

Relative value of work

The standard published criteria for assessment of work programs are (in order of priority):

The number of exploration wells (dry hole basis) to be drilled, their timing and the anticipated exploration targets (e.g. for the Cooper Basin region—Jurassic, Triassic, Permian, and Pre-Permian objectives, for the Otway Basin—Tertiary to Upper Sherbrook Group, Lower Sherbrook Group and Crayfish Group); the extent that the wells proposed to be drilled are supported by adequate seismic or other geophysical techniques; the amount and nature of seismic surveying to be carried out and its timing; other data acquisition and seismic reprocessing to be carried out; the number of years that the applicant is willing to guarantee the work program; the adequacy of financial resources and technical expertise available to the applicant.

Properly located wells are the most effective way of evaluating the prospectivity of an area. Wells are therefore regarded as the most valuable component of a bid. In frontier blocks with only regional seismic grids, a minimum amount of seismic per well is considered appropriate to adequately locate prospects. In this case, wells that do not appear to be supported by sufficient seismic (either existing data and/or new data from proposed seismic surveys) will result in those wells being discounted.

To assess diverse bids, all work program elements of each bid are translated into well equivalents (weqs), based on their perceived exploration impact. The work program hierarchy used by PIRSA is summarised in Figure 1.

Appraisal or development drilling proposed in a bid is not included in the assessment—i.e. it is not scored.

Exploration wells may be discounted in frontier areas if they are not preceded by adequate new seismic acquisition (e.g. in the first round of the Cooper Basin release, outlying blocks were required to have at least 200 km of new 2D seismic acquisition per exploration well. This figure was based on the historical exploration seismic acquisition to exploration wildcats ratio). Where single bids are received for frontier regions, the work program bid can either be accepted or rejected, if it is inadequate. If rejected, the applicant can request to the Minister that the area is gazetted.

To summarise the process thus far, each element of a bid is scored by, firstly, applying the time discount factors and where applicable any penalty factors for

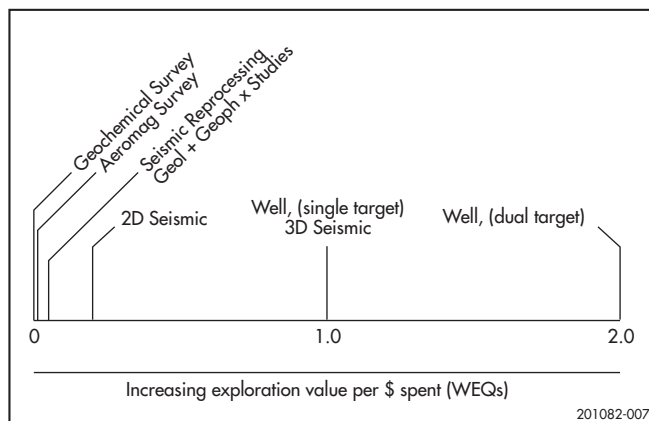


Figure 1. Perceived relative value of exploration activities in the PIRSA work program assessment process.

back-loaded programs. Other proposed work (e.g. seismic) is then converted to well equivalents and the same process applied. Scores are then totalled for each bid and either there is a clear winner (ie bid >1 weq from the nearest other bidder) or the two highest scores are within ± 1 weq of each other. If a clear winner exists, the BRT and Director Petroleum are informed and the BRT initiates financial checks.

If similar bids exist (i.e. ± 1 weq of each other), and the BRT cannot separate the applicants by financial assessment and/or regard to whether one of the bidders is a new player extra criteria are applied by the BAT:

- the bidder with the highest number of guaranteed wells will be recommended as the winner; however,
- if the number of guaranteed wells are also the same, then the bidder with the higher amount of guaranteed 3D seismic will be recommended the winner; however,
- if bids are still equal after these tests are applied, then the amount of guaranteed 2D seismic and non guaranteed wells and seismic will be used to separate bids.

If these criteria separate a winning bid, the BAT then identify the highest ranking work program bids to the BRT, who then undertake financial checks of those applicants.

Financial and technical assessment

PIRSA regard sufficient financial backing as more critical than technical capacity on the basis that funding will always enable the hire of appropriate technical expertise. Checks on the financial status of the highest ranking applicants are undertaken, together with an assessment of other licence commitments in the State (or if more than one block is to be offered to an applicant, the commitments in all blocks) and the previous performance in meeting work program commitments (including a new company with a director of a previously poor performing company). If the applicant is classified as inadequate, a report on the likelihood that the capital may be raised,

and/or that the work program may be fulfilled is also included. The BRT reports to the BAT on the bidders status.

The BAT makes a recommendation to the Director. Any applicant whose status is classified as inadequate may be excluded from being offered the licence, and the second highest bidder may be considered. However, if such a company is the only bidder for the block, the block may be offered if there is a reasonable likelihood that the capital may be raised, and that the work program may be fulfilled.

Competition policy issues

In some cases restrictions may apply to the number of licences a company is offered in any one round, e.g. to promote competition for gas supplies. Consideration of existing licences may also be taken into account.

For example, in the event of a company winning in more than the published limit blocks in a bid round, major work program benefits should apply to justify awarding them more over the limit. A major work program benefit is defined as a score >2 WEQs above the next nearest bid. If major work program benefits apply in all blocks, the company would be offered all blocks. If this is not the case, the company would be awarded less blocks and asked to nominate the block or blocks of preference.

Announcement of winning bidders

When the work program, financial and technical assessment processes are completed, the winning bidders are recommended to the Director Petroleum by the BRT. The identity of the bidders is only revealed to the BAT after the decision to offer blocks has been made. The basis of selection of winning bids is then announced by a Ministerial press release which includes details of the winning work program bids. Unsuccessful applicants are notified of the reasons for the rejection of their application and their bids are held confidential. The Petroleum Act 2000 requires that the winning bids be published in the South Australian Government Gazette.

CASH BIDDING

As stated previously, the Petroleum Act 2000 has provision for cash bidding in certain circumstances. Cash bidding was used unsuccessfully for the first time for the CO2001 acreage release. The release consisted of small (single well) blocks that were withdrawn production licence applications. Applicants were requested to submit a cash bid together with payment of 10% of the value of the bid, a five year exploration work program (a one exploration well limit was applied) and the standard application fee. The deposit was refundable for unsuccessful applications. The winning bidder was required to lodge the remaining 90% of the cash bid immediately prior to grant of the PEL (after the right to negotiate process had been concluded with any native title parties).

Assessing cash bids

The following criteria were all to be used when selecting the winning bid for the CO2001 work programs:

- amount of cash bid,
- adequacy of financial resources and technical expertise available to the applicant,
- applicant's past performance in fulfilling work program commitments elsewhere in South Australia, and
- whether any proposed well is guaranteed (in the more prospective blocks).

Proposals to drill more than one exploration well in each block would have been ignored. The bidder with the highest cash bid was to be the winner. The timing of drilling would have been taken into account if equal cash bids were received. In addition, where bids were similar, the benefits of the introduction of new explorers into the area (including intention with regard to establishing an office in South Australia) could have been taken into account. No limit was applied to the number of PELs which could have been offered to one applicant providing the applicant has adequate financial resources to complete all programs.

Cash bidding results

Cash bidding for onshore acreage was not well received by some industry members. Others were dissuaded by block size (in terms of acquiring useful seismic), perceptions of prospectivity and the likely cost of Native Title negotiations. There is a strong feeling by some companies that Cooper Basin blocks are now too expensive. These explorers are now waiting to negotiate farm-ins for particular prospects because they believe it is more cost effective than bidding large work programs.

The APPEA Exploration Committee was contacted prior to announcing cash bidding. However, members were divided on the issue. No-one has yet developed a viable alternative approach to small single well blocks or highly prospective acreage. Clearly there is a point where an applicant bids unrealistically high numbers of exploration wells which are unlikely ever to be drilled and cash bidding is an effective way of avoiding this situation. Petroleum Group is considering options for future bidding rounds.

COMPARISON WITH OTHER AUSTRALIAN JURISDICTIONS

Differences exist between Australian jurisdictions in acreage release philosophies, processes and the degree of transparency. The authors contacted representatives of each jurisdiction via telephone (see Acknowledgements) to conduct a standardised survey to compile information and enable comparisons to be made. A draft of this paper was then sent to the contacts for checking and corrections were made. Results are summarised below.

South Australia, Victoria, Queensland and New South Wales have provisions for both work program bidding

and over-the-counter bids for onshore acreage. Commonwealth waters and onshore Western Australia provide for work program and cash or premium bidding but not over-the-counter bids. The Northern Territory generally operates on the basis of over-the-counter applications, with some informal acreage releases for onshore acreage. Tasmania does not actively promote onshore petroleum exploration licenses and such activities are covered by their Mining Act. We believe that the Petroleum Act 2000 provides South Australia with the most open and transparent legislative framework in Australia. In addition APPEA have stated that SA comes closest in Australia to best practice in approvals processes after the introduction of the Petroleum Act 2000. (Jones, 2001)

The South Australian assessment criteria have some common elements with those published by other Australian authorities. For example, the Queensland Department of Natural Resources and Mines (QDNRM) weights wells most highly (relative weighting 40), followed by geological and seismic acquisition, other data acquisition (geochemical, aeromagnetic) and seismic reprocessing (25). Financial (10) and technical resources (10), appropriateness and timing (10) of the work program (substantial new work must be undertaken before the end of licence year two) and previous performance (5) are also scored in Queensland (QDNRM website, October 2001).

While not publishing allocated weightings, the Commonwealth Department of Industry Science and Resources (DISR) and Western Australian Department of Minerals and Petroleum Resources (WADMPR) firstly assess the financial and technical capacity of the applicant to meet its commitments associated with the bid and in other permits, the future viability of any consortium/joint venture and the applicant's past performance. The work program is then examined looking at the number and timing of wells, the adequacy of the supporting geological and geophysical program, the amount, type and timing of seismic acquisition, other surveying and data acquisition and reprocessing, the number of conceptual targets to be tested by drilling, interpretation of non-exclusive data and significant appraisal work over any previous petroleum discoveries.

The Victorian Department of Natural Resources and Environment take into account the respective merits of the work programs, financial and technical capacity of the applicant to carry out the proposed work program, and any other criteria mentioned in the tender.

The New South Wales Department of Mineral Resources (NSWDMR) base consideration of applications on the proposed work program and the most appropriate exploration program is determined, together with the term and size of the application area, financial and technical capacity of the applicant, their relinquishment philosophy and level of commitment to the proposed exploration program.

The assessment criteria used by the Northern Territory Department of Mines and Energy (NTDME) include

financial and technical aspects, the work program strength, timing and coverage of the area under application, past performance, desirability of diversifying exploration and production activity and other information supplied by the applicant. Competing applications are assessed primarily on work programs 'after negotiation with the affected applicants which, depending on the circumstances, may allow both competing applicants to be offered much of their respective application areas.

Provision is made for cash bidding in onshore South Australia and Victoria, and in Commonwealth jurisdictions although this is not the policy of the current Federal Government. Western Australia operates a premium bidding system, but no other states allow cash bidding for petroleum acreage.

INTERNATIONAL ACREAGE MANAGEMENT PRACTICES

A variety of acreage management practises are used by governments around the world and within Australia. While world commodity prices and basin prospectivity are beyond the control of governments, providing access to quality data, a secure and predictable regulatory and fiscal regime and access to land for exploration are fundamental roles.

Many countries still rely on over the counter applications (first come, first served). This can be hard to administer and unfair. It is potentially open to abuse and without a competitive process may not achieve optimal prospectivity evaluation. In contrast, bidding rounds for petroleum acreage are announced in over 20 countries a year and comprise approximately two thirds of acreage awards outside of North America (Hodgson and Land, 2000). Clearly, Australian acreage releases, both on and offshore are competing in a global market.

Countries typically use bidding rounds to maximise commitments and to ensure competition and fairness aimed at eliminating monopolies and restrictive licensing (e.g. corrupt practices). There are two types of competitive licensing arrangements used around the world (Hodgson and Land, 2000):

- Open bid rounds typically have a fixed timeframe for evaluation and applications. The bid conditions and selection criteria are set by the government and there is a public opening with heavy promotion to ensure the widest possible participation. If bids are not received, some countries allow out of round applications.
- The second method is contested applications where the government uses an open licensing system with a competitive element. Companies can apply over the counter for open acreage at any time but the government then invites competing bids over those applications during a set period of time.

Some countries (e.g. Denmark, China and Indonesia) use open bid rounds for mature areas and open licensing for frontier areas (Hodgson and Land, 2000). South Australia has similar provisions. As discussed previously, Australia has a variety of acreage management regimes

onshore, while offshore acreage is managed purely by gazetted bidding rounds. Some states have no provision for competitive bidding rounds while others use bidding rounds exclusively and some use a combination.

Closed bid rounds are used by some governments where only companies selected by the government are invited to participate. Nationality restrictions may also be applied in some countries. In other cases, preconditions like financial and technical capacity or bid participation fees (e.g. required purchase of data packages) may be used by a government to deter smaller companies (Hodgson and Land, 2000). In contrast, South Australia collects only nominal entry fees—application fees are less than A\$2,400 and digital data are relatively cheap. Entrepreneurs and small companies are still able to apply successfully for onshore Australian acreage in most states.

A prerequisite for governments using bid rounds successfully is the provision of timely access to relevant data to evaluate acreage. This means that governments need to ensure that companies submit all relevant data in standard oil industry formats, that data is verified and properly archived, and then is readily and cheaply accessible after confidentiality periods lapse (typically one to two years). South Australia has been a leader in the conversion of hard copy petroleum data to digital formats and since 1992, a leader in the provision of cheap exploration initiative datasets to both the mining and petroleum industries.

Governments around the world utilise archived, interpreted and consolidated company exploration data as well as generating new data through commissioning or conducting applied geological research to work up new areas for release. In Australia, some state authorities provide regional prospectivity reviews, others generate prospects and leads to promote vacant acreage or acreage releases. In general, limited government resources mean that industry will usually devote more effort and expertise into acreage evaluation, so PIRSA concentrates on areas of market failure such as compilation of regional data sets, development of new play concepts and other work to change industry perceptions of a basin's prospectivity. Governments are often well placed to undertake or facilitate applied research to address industry knowledge gaps and to compile and develop regional datasets—i.e. work that explorers are not in a position to carry out.

A number of oil-producing countries utilise nationally owned oil companies to oversee their petroleum interests (Hodgson and Land, 2000). In the 1970-1990s, Australia had in effect, national oil companies operating at federal, then state levels. In 1974, R.F.X. O'Connor, the Commonwealth Minister for Minerals and Energy, established the Federal Petroleum and Minerals Authority (PMA). PMA purchased interests in the Cooper Basin. However this was deemed illegal by the High Court of Australia in 1975 (O'Neil, 1998). In SA, the South Australian Petroleum Exploration Group (SAPEG) was formed out of the Mines Department in 1976, funded by a levy on gas consumers. SAPEG was expected to look

Table 1. Comparison of Australian petroleum acreage management

	SA	WA	Victoria	Queensland *	NSW	NT	Offshore (DISR)
Work program bidding	Yes	Yes, seek industry input into areas to release	Yes	Yes, for all former ATP areas	Yes	No, but may informally suggest areas	Yes, seek industry input into areas to release
Over the counter applications	Yes	No, but have at times released entire State for applications	Yes	Yes for vacant land only	Yes	Yes	No
Release schedule	Coincide with major conferences (i.e. NAPE, APPEA)	Released at Petroleum Open Day in October	Coincide with Commonwealth release at APPEA	Released at APPEA, other times upon request	Whenever available and suitable	All vacant areas available at any time	Released at APPEA
Publish award criteria?	Yes	Partially based on Commonwealth, general info published	Similar to Commonwealth	Yes	General information – work program, \$ and technical capacity	Criteria for award of exploration permits published	Yes
Currently publish bid assessment process?	Yes	No	No	No	General guidelines	General guidelines.	No
Evaluation timeframes	6 to 9 months depending on amount of data/exploration maturity	5 months, but depends on area & amount of data	Same as Commonwealth	6 months	Was 3 months, now 6 months	2 months	6 or 12 months, depending on acreage
Publish winning bid	Yes, 5 year work program and expenditure via press release and gazetteal	Press release gives summary information, included in Register.	Yes	Current advertisements state that winning bid will be published	Yes	Usually	Yes, via press release
Notify unsuccessful bidders	Yes	Yes, FOI enables access to all applications, minus sensitive commercial data.	Yes	No	Yes in general terms	Yes with outline reasons for decision	No
Current provision for cash bidding?	Yes	No, but have premium bidding system.	Yes	No	No	No	Yes, but not a current Government policy

* new legislation pending

after the interests of the people of SA to ensure long-term gas supplies, but was also expected to act commercially. SAPEG purchased PMA's interests in the Cooper Basin and joined the Producers Unit in PELs 5 and 6 (O'Neil, 1998). In 1977 it became the South Australia Oil and Gas Corporation (SAOG) and became more commercially oriented over time, until in 1992, it was privatised when the State Government sold its interests to Boral Energy.

We believe that it is no longer appropriate in the mature upstream petroleum market place existing in Australia for government participation as an active explorer, and no State oil companies currently exist. It is now generally more effective for Australian governments to focus effort on creating a competitive market, rather than participating in that market as an explorer in their own right. However many still believe that they are in a superior position to judge the effectiveness of one exploration program over another, and some may still try to direct effort to particular plays or prospects during the promotion phase rather than letting the commercial market operate.

CONCLUSIONS

Key elements of South Australia's approach to acreage management are similar to other countries and other Australian jurisdictions. However consistent with the openness and transparency which underpins the regulatory philosophy in South Australia, PIRSA has developed an objective and consistent bid assessment process such that any independent person could verify the award of competitive licences.

The advantages of South Australia's open and transparent gazettal process are that it:

- avoids any perception of favouritism in the award of licences;
- maximises the early realisation of the undiscovered potential of the State (i.e. maximise the NPV of the State's royalty stream);
- ensures that the market price is paid by industry for acreage,
- focuses interest on highly prospective regions, and
- can be tailored to the prospectivity of the areas on offer.

The bid assessment process recognises that:

- without adequate financial resources or a good prospect of securing such resources, a work program bid is worthless,
- drilling of wells are the most important exploration activity, but other activities may be equated on an exploration effectiveness basis;
- early exploration is preferable to later;
- measures are implemented to avoid abuse of the system by the overloading of later years of a work program; and
- risk is associated with awarding licences to former licensees who did not fulfil their work program.

PIRSA considers that the most effective role for governments to realise the value of their undiscovered

petroleum asset is to create a competitive market, rather than participate in that market as an explorer in their own right. While state-owned exploration companies are a thing of the past in Australia, many governments still believe that they are in a superior position to judge the effectiveness of one exploration program over another, and some may still try to direct effort to particular plays or prospects during the promotion phase. PIRSA believes that the government does have a role in addressing market failures during the exploration and development phases by undertaking applied research to address knowledge gaps or develop regional datasets—i.e. work that explorers are not in a position to carry out.

PIRSA believes that in the end, the more wells that are drilled—the more chance of discoveries, and that testing of many plays and ideas is better than restricting effort to a preferred or fashionable play or prospect. The creation of a competitive market with simple, open, objective criteria for award of exploration licences achieves this aim.

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APPENDIX I

DETAILED BID ASSESSMENT SCORING
METHODOLOGY

The specific methodology used will vary from basin to basin and bid round to bid round, depending on the featured prospectivity issues. The specific methodology to be used to select winning bidders will be provided at the time the areas are gazetted.

WELLS

Wells are firstly given a score of according to their proposed target horizons:

Target 1	1.0
Target 2	1.0
Target 3	1.0
Intra-basement	0.2

Where the bidder has not indicated a target, the well is given a score of one. Multiple target wells increment scores based on the targets intercepted e.g. a well that will test both targets 1 and 2 will score 2, a well that will test both target 1 and the intra-basement target will score 1.2. A maximum score of 3.2 is therefore possible for a multi target well in this example.

The well score is then discounted to account for timing using standard discount factors for guaranteed and non-guaranteed wells, (where the bid has not been loaded with non-guaranteed activity, see below).

Table 1. Discount factors for guaranteed and non-guaranteed wells

Year	Guaranteed well	Non-guaranteed well
1	1	1
2	0.9	0.45
3	0.8	0.4
4	0.7	0.35
5	0.6	0.3

Where any non-guaranteed drilling for either year 4 and/or 5 exceeds the total guaranteed drilling program, a sliding scale of additional discount factors is applied. This reduces the effect of an applicant loading bids with non-guaranteed wells in years 4 and 5.

Table 2. Discount factors where non guaranteed program exceeds twice guaranteed program.

Non-guaranteed year	Ng ≥ 2 x g	Ng ≥ 3 x g	Ng ≥ 4 x g	Ng ≥ 5 x g
4	0.3	0.15	0.075	0.04
5	0.25	0.125	0.06	0.03

Where g = guaranteed program, ng = non-guaranteed program

In frontier blocks, where it is considered that a minimum amount of seismic per well is required to located prospect, wells that do not appear to be supported by sufficient seismic per proposed well (e.g. 200 km 2D seismic per well in the Eromanga Basin) will

result in those wells not being included in the assessment.

SEISMIC

Assessment of seismic surveys reflects the value of seismic compared to drilling and also the greater value of 3D surveys relative to 2D surveys. In this case, the value of 3D seismic is equated to that of drilling a well.

The value of each seismic survey is discounted using the following cost factors:

Table 3. Seismic surveys and cost factors

Seismic survey type	Seismic cost factor
2D	0.2
3D	1.0

A standard well equivalent cost is assumed for the area (e.g. A\$1,000,000), and this is used to convert the discounted seismic value into WEQs:

The seismic survey score (WEQ) = (cost of seismic survey x seismic cost factor)/1,000,000

The seismic survey WEQ scores are then further discounted using the factors in Table 1 and also Table 2 where any non-guaranteed seismic for either year 4 or year 4 and 5 exceeds the total guaranteed seismic.

The sum of all discounted seismic survey scores = total seismic score (WEQ)

OTHER DATA ACQUISITION

Other data acquisition includes seismic reprocessing, geological and geophysical studies, aeromagnetic surveys, geochemical surveys etc. Each of these activities will have the following cost discount factors applied:

Table 4. Discount factors for other data acquisition.

Type of work	Cost discount factor
Seismic reprocessing	0.05
Aeromagnetic survey	0.02
Geological and Geophysical studies	0.05
Geochemical survey	0.01

The data acquisition score (WEQ) = (cost of work x cost factor)/1,000,000

The other data acquisition WEQ scores are then further discounted using the factors in Table 1 and also Table 2 where any non-guaranteed work for either year 4 or year 4 and 5 exceeds the total guaranteed work.

The sum of all discounted data acquisition scores = total acquisition and reprocessing score (WEQ).

SCORING

Total bid score (WEQ) = total well score + total seismic score + total data acquisition and reprocessing score

Two situations may arise at this point. Either there is a clear winner (ie bid >1 weq from the nearest other

bidder or the two highest bids are regarded as similar (within 1 weq of each other).

CLEAR WINNER (DIFFERENCE IN BIDS >1 WEQ)

Total bid scores for each bid will be ranked by the BAT. Where there is a clear winning bid, the Director Petroleum will be informed and will ask the BRT to initiate financial checks.

SIMILAR BIDS (DIFFERENCE IN BIDS ±1 WEQ)

Similar bids are defined as those where total scores are within ±1 WEQ for a block. If similar bids cannot be separated by financial assessment and/or, preference given to the bidder who is a new player (see below), extra criteria will be applied by the BAT:

- the bidder with the highest number of guaranteed wells will be recommended the winner; however,
- if the number of guaranteed wells is also the same, then the bidder with the higher amount of guaranteed 3D seismic will be recommended the winner; however,
- if bids are still equal after these tests are applied, then the amount of guaranteed 2D seismic and non guaranteed wells and seismic will be used to separate bids.

The BAT will then inform the BRT of the winning bids.

FINANCIAL RESOURCES ASSESSMENT

Checks on the financial status of the highest ranking applicants are undertaken, with the applicants being classified as adequate, marginal, or inadequate. The financial assessment includes both other licence commitments in SA (or if more than one block is to be offered to an applicant, the commitments in all blocks) and the previous performance in meeting work program commitments (including a new company with a Director of a previously poor performing company). If the applicant is classified as inadequate, a report on the likelihood that the capital may be raised, and/or that the work program may be fulfilled is also included. The BRT reports to the BAT on the bidders status.

The BAT makes a recommendation to the Director. Any applicant whose status is classified as inadequate may be excluded from being offered the licence, and the second highest bidder may be considered. However, if the company is the only bidder for the block and their financial status is classified as inadequate, the block may be offered if there is a reasonable likelihood that the capital may be raised, and that the work program may be fulfilled.

COMPETITION ISSUES

In some cases it may be desirable, particularly for promoting competition for gas supplies to restrict the number of licences a company is offered in any one round. Consideration of existing licensees may also be taken into account.

For example, in the event of a company winning in more than two blocks in a 3 block round, major work program benefits should apply to justify awarding the bidder more than two blocks. A major work program benefit is defined as a score >2 weqs above the next nearest bid. If there is a major work program benefit in all 3 blocks, the company would be offered all three blocks. If this is not the case, the company would be awarded two blocks and asked to nominate the blocks they would prefer. If the company refuses to so nominate, then two blocks selected by PIRSA will be offered.

APPENDIX 2

EXAMPLE BID ASSESSMENT

Attached are hypothetical example score sheets for a single block with 3 bidders (Tables 5 to 11). The well cost equivalent for seismic is assumed to be \$1 million, and the area has sufficient seismic to locate wells adequately. However seismic will assist (particularly 3D) in lowering the risk associated with drilling. There are two potential target horizons above basement.

BID A

Table 5. Summary of Bid A.

Work Program year	1	2	3	4	5
Guaranteed	Y	Y	Y	N	N
No. wells		1	1		1
No. targets		2	2		2
Seismic 2D (km)					
2D seismic cost (\$k)					
Seismic 3D (km ²)				115	
3D seismic cost (\$k)				1150	
Seismic reprocessing (\$k)					
G and G studies (\$k)	200				

Table 6. Scores for Bid A (WEQ).

Work Program year	1	2	3	4	5
Well target score		2	2		2
Timing and guarantee		0.9	0.8		0.3
Total well score		1.8	1.6		0.6
Seismic survey					1.15
Seismic timing and guarantee					0.35
Total seismic score					0.4025
Other data acquisition	0.01				
Timing and guarantee	1.0				
Total data acquisition score	0.01				

Total BID A SCORE = 4.41 WEQ

BID B

Table 7. Summary of Bid B.

Work Program year	1	2	3	4	5
Guaranteed	Y	Y	Y	N	N
No. wells	1	1	1	1	
No. targets	2	2	1	1	
Seismic 2D (km)	85				
2D seismic cost (\$k)	250				
Seismic 3D (km ²)					
3D seismic cost (\$k)					
Seismic reprocessing (\$k)					
G and G studies (\$k)	200				

Table 8. Scores for Bid B.

Work Program year	1	2	3	4	5
Well target score	2	2	1	1	
Timing and guarantee	1.0	0.9	0.8	0.35	
Total well score	2.0	1.8	0.8	0.35	
Seismic survey	0.05				
Timing and guarantee	1.0				
Total Seismic score	0.05				
Other data acquisition	0.01				
Timing and guarantee	1.0				
Total data acquisition score	0.01				
TOTAL BID B SCORE = 5.01 WEQ					

BID C

Table 9. Scores for Bid C (WEQ).

Work Program year	1	2	3	4	5
Guaranteed	Y	Y	Y	N	N
No. wells			1	2	2
No. targets			2	1	2
Seismic 2D (km)		150			
2D seismic cost (\$k)		450			
Seismic 3D (km ²)					
3D seismic cost (\$k)					
Seismic reprocessing (\$k)	100	100			
G and G studies (\$k)	200	200	200	200	200

Table 11. Summary of bid scores.

Bidder	Wells			Total seismic	Total score (WEQ)	Financial rating
	Guaranteed	Non-guaranteed	Total			
A	2	1	3	115 km ² 3D	4.41	Marginal
B	3	1	4	85 km 2D	5.01	Inadequate
C	1	4	5	85 km 2D	1.92	Adequate

Table 10. Summary of Bid C.

Work Program year	1	2	3	4	5
Well target score			2	1	2
Timing and guarantee			0.8	0.075	0.06
Total well score			0.8	0.075	0.12
Seismic survey		0.09			
Timing and guarantee		0.9			
Total Seismic score		0.081			
Other data acquisition	0.015	0.015	0.015	0.015	0.015
Timing and guarantee	1.0	0.9	0.8	0.35	0.3
Total data acquisition score	0.015	0.135	0.008	0.0035	0.003
TOTAL BID C SCORE = 1.91 WEQ					

CONCLUSIONS

In this example bidder C is not a contender as its WEQ score is significantly lower than that of A or B, in spite of proposing more wells and seismic (Table 11). The bid has been heavily discounted due to apparent loading of the non guaranteed program, and the late timing of well drilling.

Bidders A and B are within ±1 WEQ and are therefore similar bids, but bidder A has better financial resources, and therefore would be declared the winner. If both A and B bidders were judged to have adequate financial resources, then bidder B would be declared the winner based on the greater number of guaranteed wells (Table 11).

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