NOUS group

Ergon Energy's ICT expenditure 2015-20

Australian Energy Regulator

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1 Executive Summary

Ergon's Regulatory Proposal for the period 2015-2020 outlines a range of outcomes it plans to achieve. To deliver on these, Ergon has proposed an ICT program of work that involves capital investment within SPARQ of \$225.6 million (2012/13 prices). These are to be supported by Asset Service Fees of \$187.4 million, which also includes return on capitalised assets from previous periods. There are also proposed Operational Support and Telecommunications costs of \$263.6 million and Non-Capital Project Costs of \$20.7 million, providing a total of \$471.4 million of ICT operational Expenditure.

This report provides a systematic evaluation of the ICT program of work proposed by Ergon from two perspectives:

- A bottom-up evaluation of the justification for individual ICT projects against the requirements of the NEM.
- An assessment of the degree to which efficiencies are being achieved in the current delivery arrangements through SPARQ.

Both of these perspectives have linkages to a similar evaluation of the Regulatory Proposal from Energex. In several areas, efficiencies are being sought within the joint SPARQ ownership arrangement through selection of industry applications that can meet the requirements of both organisations. As much as possible, the assessment of project justification in the bottom-up evaluation is undertaken in this report on the basis of information provided by Ergon alone. However, in some areas, we were able to increase our understanding of areas of joint use of applications by considering the combined cases presented. The evaluation of jointly derived efficiency necessarily takes an integrated view.

1.1 Individual project evaluation

The proposed capital investment profile within SPARQ to deliver Ergon's program is shown in Table 1.

Our assessment has confirmed that there are core applications that need to be replaced or updated within the five year period to support current and expected network operating functions. These include:

- Core asset management capability
- Core geographic information system
- Administrative ERP
- Parts of the market systems
- Security related applications

Some of the proposed programs have components that move beyond core resilience and expected service requirements to drive for further efficiencies in operation. Where these are supported by clear analysis that delivers a positive return that will over time reduce costs to customers, we accept these as efficient and supporting market objectives. Other components and individual projects that cannot be justified either for essential service delivery or demonstrable benefits have been excluded from our proposed revised view of justified expenditure.

ICT Architecture Segment	Program	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Network Asset Management	Enterprise Asset Management	0	10,500	25,600	16,100	0	52,200
Network Asset Management	Network Information Enablement	4,300	900	1,600	800	3,100	10,700
Network Operations	Distributed Workforce Automation	300	300	1,500	1,500	300	3,900
Corporate Services	Administrative ERP	16,600	16,600	0	0	0	33,200
Customer Services	Market System Modernisation	4,300	4,300	0	0	10,400	19,000
Enterprise Services	Business Analytics Renewal	0	5,100	5,100	0	0	10,200
Enterprise Services	Information Security Enhancements	2,100	0	0	0	2,100	4,200
Enterprise Services	Integration Platform Renewal	0	0	10,800	0	0	10,800
ICT Infrastructure	Desktop and Productivity Thin Client	0	0	2,400	1,200	0	3,600
ICT Infrastructure	Infrastructure	6,900	6,600	3,100	8,100	10,400	35,100
ALL	Applications Replacement and Cl	3,800	3,800	3,800	3,800	3,800	19,000
ICT Infrastructure	End User Devices (Ergon Energy)	2,500	5,600	7,500	2,300	5,800	23,700
	TOTALS	40,800	53,700	61,400	33,800	35,900	225,600
Supports EECL forecast above - investment	Supports EECL forecast above - investment on behalf of Ergon Energy						

Table 1 - Ergon Energy - Proposed SPARQ capital investment program (\$2012-13)

Table 2 provides a summary of our conclusion on individual project justification within the Ergon capital program. The total of \$178.9M shown in Table 2 represents a 20% reduction on the original Ergon proposal shown in Table 1.

Table 2: Assessment of project justification against NEM criteria (\$2012-13)

Program	2015-16	2016-17	2017-18	2018-19	2019-20	Total	Comment
Enterprise Asset Management	0	10,500	12,800	2,800	0	26,100	50% accepted for core functionality only
Network Information Enablement	4,300	900	1,600	800	3,100	10,700	Core GIS capability accepted as non-discretionary
Distributed Workforce Automation	300	300	1,500	1,500	300	3,900	Follow-on from 2010-15 accepted
Administrative ERP	16,600	16,600	0	0	0	33,200	Core ERP accepted as non-discretionary
Market System Modernisation	4,300	4,300	0	0	0	8,600	Basic support accepted. Future improvements deferred
Business Analytics Renewal	0	0	0	0	0	0	Rejected as discretionary
Information Security Enhancements	2,100	0	0	0	2,100	4,200	Accepted as non-discretionary
Integration Platform Renewal	0	0	10,800	0	0	10,800	Accepted on basis of significant net benefits
Desktop and Productivity Thin Client	0	0	2,400	1,200	0	3,600	Accepted as non-discretionary
Infrastructure	6,900	6,600	3,100	8,100	10,400	35,100	Recurring expenditure - accepted
Applications Replacement and Cl	3,800	3,800	3,800	3,800	3,800	19,000	Recurring expenditure - accepted
End User Devices (Ergon Energy)	2,500	5,600	7,500	2,300	5,800	23,700	Recurring expenditure - accepted
TOTALS	40,800	48,600	43,500	20,500	25,500	178,900	

1.2 Efficiency Assessment

ICT services for Ergon Energy are provided by SPARQ Solutions (SPARQ), a jointly owned subsidiary between Ergon Energy and Energex to create economies of scale and overall cost reduction for the provision of ICT capability.

Ergon Energy uses operating expenditure (including Asset Services fees) to recover SPARQ capital investment in ICT assets. However, Ergon Energy directly procures client devices used by employees and contractors. Non-system ICT capital expenditure incurred directly by Ergon Energy relates only to end user devices such as desktop computers, laptops, tablets, handheld devices, smartphones and printers.

SPARQ's operating and capital expenditure for ICT services is charged to Ergon Energy as ICT service fees. Total ICT expenditure incurred by SPARQ associated with ICT services to Ergon Energy is treated as indirect operating expenditure and allocated to services consistent with Ergon Energy's approved CAM.

The review of both Ergon Energy and Energex's ICT spending proposals for the 2010-15 period shows that there will be a significant increase in application of common solutions across the two organisations. Most areas have matching strategies and investment profiles, with the notable exceptions being Network Information Enablement programs, including GIS investments, and Advanced Distribution Management.

However, the business cases for the two organisations show that most of the projects are planned to be internally delivered within SPARQ with little use of outsourced services. (Deloitte has previously noted less than 4% from external sources). This is at odds with current trends in ICT services delivery in which the focus is moving strongly towards accessing externally provided services, whether at the platform, application or total service level. This is especially the case with applications that are universal across a range of industries, such as ERP and desktop services.

This is supported by results of a recent benchmarking study by Computer Economics. Its *"IT Spending and Staffing Benchmarks Study"* provides key metrics in financial and strategic management of IT and identifies current trends in organization IT spending and staffing. The survey involves executives in public and private sector from over 200 U.S. and Canadian IT organisations and helps identify long-term trends and benchmarks.

Major findings of the 2015 study confirm that while ICT spending is on a cyclical upswing, the increase is in operational spending including cloud services, with capital and IT headcount remaining flat or decreasing. Overall the cost of services is declining on a per-user basis.

We recognise that the operator of an essential regulated network will take a conservative view on the transition to outsourced or cloud-based services, but we can expect that the momentum towards this type of delivery will increase over the next five years, including areas of comparable security and reliability requirements. The levels of investment in security infrastructure and integration capability in the SPARQ-based plans of Ergon Energy and Energex point to an increasing capability to move in that direction.

In that light, we are surprised by the extent to which the planned operating arrangement within SPARQ appears to remain primarily an in-house self-contained operation. The arrangement does not have any outside market-testing component by Energex or Ergon Energy, nor by SPARQ in its delivery of services.

We note that The Independent Review Panel on Network Cost (the Panel) included in its recommendations:

- Alternative service delivery models for Information and Communication Technology services currently delivered by SPARQ solutions should be tested as follows:
 - Issue market tenders for the delivery of capital projects
 - Issue market tenders for the delivery of the relevant operational Information Communication and Technology services.

Our view is slightly different from those put forward by the Panel. We agree with the need to have market-testing but we also see a case to continue to drive for efficiency by combining the services for Ergon and Energex. The highly parallel nature of the two submissions shows that there will be an increasing level of use of common applications over the next five year period. This appears to have moved on since the Panel found that there had been very limited delivery of joint projects.

The Panel recommendation is also not well geared to take advantage of the move to cloud-based services in line with the trends described above. The distinction between capital and operating components appears to support the status quo.

In Nous' view, an alternative approach that could achieve the overall objective of efficiency would be to have SPARQ progressively moves towards a role as a broker of available market services, rather than be primarily a self-contained developer and operator, at least for applications that are genuinely common. Ergon Energy and Energex could still individually test the market for applications and services that are not in common and perhaps selectively for those that are. But the prime objective should be to capture both economies of scale and market-based efficiencies. This will also allow a more explicit examination of the value added by the SPARQ relationship.

We don't see it reasonable to make adjustments to actual capital and operating allowances for this dynamic at this stage. However, if the position is clearly stated and an intention to benchmark the next round of pricing reset against publicly available Software as a Service (SaaS) and similar services, which will be substantial in five years, it would be reasonable in our view to make global adjustments in the next cycle.

2 Project evaluation

2.1 Enterprise Asset Management

Key findings:

- This project combines the replacement of a core enterprise asset management (EAM) capability with the upgrade of a number of asset management functions, particularly asset inspections and works management.
- The replacement of core capability is prudent due to the existing Ellipse 5 system reaching end-of-life.
- The upgrade of individual asset management functions are only broadly scoped at this stage and some may or may not be part of the new core EAM.
- The costs in the business case appear to span both parts and the NPV calculations do not provide a convincing case for the additional activities, even though Ergon's summary states that all new capability will be self-funded through the expected benefits.

Recommendation:

- To accept 50% of the costs proposed by Ergon in order to support the replacement of core EAM capability, weighted towards the first two years of the proposed program.
- To the extent that individual services are justified through savings, Ergon will be able to self-fund further development.

2.1.1 Project summary

The proposed project consists of a suite of activities to deliver a range of asset management capabilities for Ergon's future operations. These include:

- Replacement of a core enterprise asset management capability, currently held within the Ellipse 5 suite, with an EAM component of a new EAM/ERP solution.
- Replacement of an Asset Inspections solution
- Replacement of Works Management capability
- Potential future extensions to support other functions such as workforce mobility.

The preferred solution by Ergon combines the Asset Inspections and Works Management capability in an overall program that spans the period 2016 to 2019.

2.1.2 Need

The core driver for action is the expiration of support by Ventyx of the Ellipse 5 suite in June 2015. The operating platform is Windows Server 2003, with Microsoft withdrawing extended support for that platform from June 2015 as well. This requirement also drives the need to replace the ERP component of the suite, which is the subject of a separate business case.

The need to replace various asset management capabilities, many of which sit outside the Ellipse 5 suite, is broadly supported in the business case by operating efficiencies than will accrue in areas such as Asset Inspections and Works Management. While the business case states that all new capability will be self-funded through the expected benefits, it incorporates an assumption of Asset Inspections and Works Management as part of the preferred program.

2.1.3 Options

Ergon identified the following three options:

- Option 1: Do Nothing, which evaluated the additional labour cost and risk of working with an unsupported system indefinitely.
- Option 2: Deferral, which is similar to Option 1, but assumes the proposed changes will be deferred until the 2020-25 regulatory period.
- Option 3: Upgrade of Ellipse 5 with a contemporary EAM solution, including Works Management and Asset inspection replacements.

A fourth option – Upgrade of core Ellipse 5 functionality and deferring consideration of Works Management and Asset Inspection - is not mentioned or analysed in the business case. This is unfortunate because that case in comparison with Option 3 would have provided better insight into the justification for the Works Management and Asset Inspection components.

The NPV analysis in the business case appears to favour Option 3, but in Nous opinion, the comparison is flawed. Options 1 and 2 have significant labour costs to support the current arrangements through the full period from 2015. Option 3 does not appear to have any of these support costs, even though replacement of the core system is not commenced until 2016 and achieved until 2018. If the risks of Do Nothing are real, they will also need to be managed for at least two to three years until replacement is achieved.

2.1.4 Scope

Nous has reviewed the information provided and considers that the proposal to upgrade its core asset management application reflects good industry practice. However we remain unconvinced that funding the additional stages of replacing Works Management and Asset Inspections are warranted at this time. The business case states that the analysis is high level and subject to change as actual replacement strategies are developed. In the case of Asset Inspections, the replacement may be part of the new EAM or could be developed as a satellite solution e.g. as part of the Field Force Automation project. As the business case also states, the development of new asset functions once the core capability is in place can be self-funding.

2.1.5 Cost

Nous is not able to determine from the provided information which components of the overall cost relate to the core replacement and which to later stages, except by considering the overall program timing. Our judgement is an allowance of 50% of the proposed capital program would support the core EAM replacement, weighted towards the first two years of the program.

2.1.6 Timing

The proposed timing of the core project over the years 2016 to 2018 is justified by the end-of-life of Ellipse 5 support.

2.1.7 Opex/capex trade-off

The replacement of core capability will maintain current asset management capabilities and no new opex savings can be expected. However business cases for further development of new capabilities will be able to evaluate the efficiency savings that will accrue in each case.

2.1.8 Conclusion

Based on our above review, Nous considers that the 50% of the proposed expenditure be allowed, weighted towards the earlier years of the program, as shown in Table 3:

(\$m, 2012-13)	2015/16	2016/17	2017/8	2018/19	2019/20	Total
Ergon proposal	0	10,500	25,600	16,100	0	52,200
Nous recommendation	0	10,500	12,800	2,800	0	26,100
Difference	0	0	12,800	13,300	0	26,100

Table 3: Nous conclusion – Enterprise Asset Management – forecast capex

2.2 Network Information Enablement

Key findings:

- This is a difficult case to examine because the program has a series of separate, but related projects, primarily GIS (*Smallworld*), substation forecasting (SIFT) and the Distribution Planning prototype (DIPAT). Business cases have been provided for the first two systems.
- *Smallworld* is the core that provides geographic-referenced data as the definitive record for a range of actions across these systems. Its business case has several inconsistencies and the requested funds in the business case do not match the SPARQ capital plan. Some of this will be due to timing differences.
- As an overall assessment, we are satisfied that developing and maintaining a capable and supported GIS facility as the basis for distribution system management is prudent. This will be essential for the future support of Smart Meters and Distributed Generation, which will require the operation of a comprehensive low-voltage model.

Recommendation:

• To support the proposed costs by Ergon on the basis that they are less than the apparent costs of upgrade of the GIS system to a supported and future-capable system.

2.2.1 Project summary

This project consists of program of work to deliver applications to support distribution system planning and management. The core capability is a GIS system, currently *Smallworld* V3.3 and specific applications include:

- Substation forecasting (SIFT)
- A distribution planning prototype (DIPAT)

It is unclear from the ICT strategy what components are included in the requested capital profile as there is no breakdown. We have focussed on the core application, *Smallworld*, as the requested funds are of the same order of magnitude as this project.

2.2.2 Need

The current version used by Ergon is a heavily customised version of GE's *Smallworld* version 3.3. It has not been upgraded since 2003 and GE has stopped standard support for *Smallworld* 3.3. in 2011. SPARQ has established extended support arrangements for v3.3., due to expire in July 2016.

GIS referenced data is increasingly being used as a core functionality that supports distribution planning and maintenance. The advent of smart meters and distributed generation is significantly expanding the data modelling requirement to include low-voltage systems and these requirements will exceed the capabilities of v3.3.

2.2.3 Options

Ergon identified the following two options:

- Not Investing Continuing with *Smallworld* V3.3 and supplementing it with Magik code for new business needs.
- Upgrading *Smallworld* to Version 4.3 Electric office.

2.2.4 Scope

The scope of this assessment is limited to the core *Smallworld* upgrade. An associated business case for SIFT has not been assessed in detail. (It is a much lower cost at less than \$0.5M)

Nous has reviewed the information provided and considers that the proposal to upgrade *Smallworld* reflects good industry practice. Distribution systems over the next five years will require contemporary GIS capability.

2.2.5 Cost

We have accepted the costs in the proposed SPARQ capital profile on face value The business case lists a capital requirement for SPARQ of \$12.6M, but the five year total in the ICT strategy is \$10.7M. Some of the difference may be due to timing if the planning for the upgrade has commenced in the current period.

2.2.6 Timing

The proposed timing of expenditure is consistent with a loss of extended support for the current system by July 2016

2.2.7 Opex/capex trade-off

The case for upgraded GIS capability appears to generate a net benefit mainly due to a reduction in the cost of continued workarounds in the current arrangement. Unusually, the risk ratings for continued operation under current arrangements are rated as low. Furthermore, the net difference in calculated

NPV for the two options is not large (and different values are quoted in body text and tables in the business case). Therefore we do not consider this to be an overwhelming stand-alone business case, but overall the investment can be justified on the basis of future capability and flow-on benefits that will be generated in the related distribution planning and management systems.

2.2.8 Conclusion

Based on our above review, Nous considers that the proposed expenditure is prudent to develop critical future distribution planning and management capability. This is summarised in Table 4.

(\$m, 2012-13)	2015/16	2016/17	2017/8	2018/19	2019/20	Total
Ergon proposal	4.3	0.9	1.60	0.8	3.1	10.7
Nous recommendation	4.3	0.9	1.60	0.8	3.1	10.7
Difference	0	0	0	0	0	0

Table 4: Nous conclusion – Network Information Enablement – forecast capex

2.3 Distributed Workforce Automation

Key findings:

• This is a small program of work, to complete a project commenced in the previous regulatory period.

Recommendation:

• To support the proposed costs by Ergon.

2.3.1 Project summary

During the 2010-15 regulatory period Ergon implemented the Ventyx Service Suite for Field Force Automation (FFA). The project for the 2015-20 period consists of:

- FFA Sustainment Program Recurrent expenditure to maintain the program
- FFA Extension Program Extension to incorporate additional work types, where they can be economically justified.

2.3.2 Need

The need for recurrent expenditure is clear, given the investment made in the previous period to establish the capability. Individual extensions are justified where net benefits are positive.

2.3.3 Options

Individual options have not been examined in detail, given the low cost and prima facie justification for the follow-on program.

2.3.4 Scope

The scope of this project is defined above in Section 2.3.1.

2.3.5 Cost

The proposed costs are accepted at face value.

2.3.6 Timing

The proposed timing is logical for recurrent expenditure ad some expansions.

2.3.7 Opex/capex trade-off

Not analysed in detail.

2.3.8 Conclusion

Based on our above review, Nous considers that the proposed recurrent costs are prudent and expansion costs efficient in the delivery of NEM outcomes. This is summarised in Table 5.

Table 5: Nous conclusion – Distributed Workforce Automation – forecast capex

(\$m, 2012-13)	2015/16	2016/17	2017/8	2018/19	2019/20	Total
Ergon proposal	0.3	0.3	1.5	1.5	0.3	4.1
Nous recommendation	0.3	0.3	1.5	1.5	0.3	4.1
Difference	0	0	0	0	0	0

2.4 Administrative ERP

Key findings:

• The replacement of core Administrative ERP capability is prudent due to the existing Ellipse 5 system reaching end-of-life.

Recommendation:

• To support the proposed costs by Ergon.

2.4.1 Project summary

This project consists of the replacement of the end-of-life Ellipse 5 suite with a contemporary ERP solution.

2.4.2 Need

The core driver for action is the expiration of support by Ventyx of the Ellipse 5 suite in June 2015. The operating platform is Windows Server 2003, with Microsoft withdrawing extended support for that platform from June 2015 as well. This requirement also drives the need to replace the EAM component of the suite, which is the subject of a separate business case, as described in Section 2.1.

2.4.3 Options

Ergon identified the following three options:

- Option 1: Do Nothing evaluating the ICT capex and opex uplift that would be necessary to keep working with an unsupported Ellipse 5 suite.
- Option 2: Deferral similar to Option 1, but with deferral of replacement to the following regulatory period.
- Option 3: Replacement with a contemporary Administrative ERP system

Nous is satisfied that these options over the realistic range of alternatives to be considered. .

2.4.4 Scope

The scope of this project under the preferred option is replacement of the core ERP suite over the first two years of the 2015-20 period. Nous has reviewed the information provided and considers that the proposal to upgrade the application reflects good industry practice.

2.4.5 Cost

The costs defined for the preferred option are for foundation ERP capability that will in turn support subsequent programs, such as the EAM program covered in Section 2.1.

Nous is satisfied that the proposed costs for foundation capability are justified.

2.4.6 Timing

Timing in the first two years of the period is appropriate, given the impending obsolescence of the current system and the fact that this project provides foundation capability for other projects.

2.4.7 Opex/capex trade-off

The business case calculations demonstrate a net benefit as a result of the proposed replacement, mainly due to the removal of opex and capex that would be required to maintain operation without replacement.

2.4.8 Conclusion

Based on our above review, Nous considers that the proposed expenditure is prudent to support core administrative capability and to enable the subsequent delivery of projects that will support network operation, such as EAM. This is summarised in Table 6.

(\$m, 2012-13)	2015/16	2016/17	2017/8	2018/19	2019/20	Total
Ergon proposal	16.6	16.6	0	0	0	33.1
Nous recommendation	16.6	16.6	0	0	0	33.1
Difference	0	0	0	0	0	0

Table 6: Nous conclusion – Administrative ERP – forecast capex

2.5 Market Systems Modernisation

Key findings:

- Ergon has transferred the major part of its market systems from its legacy FACOM system to the systems used by Energex, namely Peace, Toht and Nemlink
- The market systems, Nemlink and TohT, require upgrading early in the 2015-20 period to maintain reliability of data management and market gateway operations.
- An upgrade of Peace is planned for late in the regulatory period and the case for this will draw on efficiencies to be achieved by the upgrade of the Customer Information System

Recommendation:

- To support the costs proposed by Ergon for securing TohT and Nemlink in the first two years of the regulatory period.
- In the absence of a detailed business case, to defer the proposed costs of upgrading Peace by one year to the following regulatory period, to allow a proper assessment to be made.

2.5.1 Project summary

This project consists of a series of steps to continue the establishment of Ergon market systems on those used by Energex, namely Peace, Toht and Nemlink. The market systems, Nemlink and TohT, are planned for upgrading early in the period. An upgrade of Peace is planned for late in the regulatory period.

2.5.2 Need

We do not have detailed business case for these system changes. However, Ergon's ICT Technology Plan provides detail on risks to market operation if Toht and Nemlink are not replaced. We have also been provided a high level strategic case entitled Market Systems Modernisation Strategic Initiative Part A: Strategic Program Charter. This is a high level strategic case without quantification of benefits.

Based on these documents, it is clear that Toht and Nemlink provide key market gateway and meter data management solutions. We are satisfied that lack of action on these applications would introduce unacceptable risk in data management and market operation.

The case for an upgrade of Peace late in the period is less clear. The main benefits appear to be related to efficiencies that will be derived when the Customer Information System is upgraded. As the proposed expenditure is in the last year of the period, we propose deferral of that part of the expenditure by one year to the following regulatory period to allow proper examination of the benefits.

This is supported by the above-listed Market Systems Strategic Initiative document, which states that if the components are delivered individually, the customer components should be deferred as much as possible and potentially into the subsequent period.

2.5.3 Options

Without a detailed business case to examine the assessment has been made on the basis of a risk of 'Do Nothing' discussion in the ICT Technology Plan and the Strategic Initiative document.

2.5.4 Scope

Nous has reviewed the available information and is satisfied that it is prudent to upgrade the Toht and Nemlink systems. However the upgrade of Peace requires further examination.

2.5.5 Cost

Nous is satisfied that the costs in the first two years are justified, but not the final year.

2.5.6 Timing

Action in the first two years is justified to reduce risk of failure of market systems

2.5.7 Opex/capex trade-off

The case for Toht and Nemlink do not rely on operational efficiencies. We expect that this will be a focus of a future business case for Peace.

2.5.8 Conclusion

Based on our above review, Nous considers that the proposed expenditure in the first two years is justified, but the amount proposed for the final year should be deferred to the next regulatory period. This is summarised in Table 7.

(\$m, 2012-13)	2015/16	2016/17	2017/8	2018/19	2019/20	Total
Ergon proposal	4.3	4.3	0	0	10.4	19.0
Nous recommendation	4.3	4.3	0	0	0	8.6
Difference	0	0	0	0	10.4	10.4

Table 7: Nous conclusion – Market System Modernisation – forecast capex

2.6 Business Analytics Renewal

Key findings:

- Some components of the business analytics platform will become unsupported in the 2015-20 period and others may, although the suppliers has not made a firm announcement.
- We have not had access to a detailed business case and have made our assessment on the basis of the Ergon ICT Technology Plan and the Energex Business Proposal for the common components.
- There is no clear justification for the upgrade of existing capability and no assessment of services or functionality lost or at risk if this is not achieved.
- On this basis, we consider the project to be discretionary.

Recommendation:

• To remove the allowance for Business Analytics Renewal from the proposed Ergon capital expenditure profile.

2.6.1 Project summary

The proposed project consists of further updates to a Business Analytics platform, which has been established in the 2010-15 regulatory period, without explicit funding approved by AER. Components of the infrastructure will become technically and asset obsolete in the 2015-20 period.

2.6.2 Need

On face value, there may be a case to upgrade components of the analytics platform as they reach points of obsolescence. However no detail is available to determine what services or functions would be affected and to what extent, if the upgrades are not delivered with the proposed timing. Given that the base platform has been developed without explicit funding, we consider the project to be discretionary.

2.6.3 Options

No options have been examined in detail.

2.6.4 Scope

The scope of this project is upgrade of components that may include SAP Business Analytics, Sharepoint 2010, Oracle SOA Suite and SAP Business Objects Data Services and a number of satellite applications.

Nous has reviewed the information provided and considers that the proposal to upgrade these is not proven at this point. We also note that the upgrade of the Oracle SOA suite is part of the Integration Platform Renewal, separately reviewed in Section 2.8.

2.6.5 Cost

Costs have not been examined in detail as the project is considered discretionary.

2.6.6 Timing

Timing not been examined in detail as the project is considered discretionary.

2.6.7 Opex/capex trade-off

There is no information available to demonstrate a tradeoff.

2.6.8 Conclusion

Based on our above review, Nous considers that the proposed expenditure is discretionary and has removed it from the revised capital expenditure profile. This is summarised in Table 8.

(\$m, 2012-13)	2015/16	2016/17	2017/8	2018/19	2019/20	Total
Ergon proposal	0	5.1	5.1	0	0	10.2
Nous recommendation	0	0	0	0	0	0
Difference	0	5.5	5.2	0	0	10.2

Table 8: Nous conclusion – Business Analytics – forecast capex

2.7 Information Security Enhancement

Key findings:

• With the increasing level of data being transferred and the use of mobile devices, we consider that maintaining adequate levels of security is non-discretionary.

Recommendation:

• To support the proposed expenditure by Ergon to enhance information security.

2.7.1 Project summary

This project consists of enhancements to Ergon's security infrastructure.

2.7.2 Need

A prudent operator will continue to enhance its security infrastructure as information use and mobility increases.

2.7.3 Options

Not explicitly examined.

2.7.4 Scope

Not explicitly defined.

2.7.5 Cost

The proposed costs of \$4.2M over the period are reasonable.

2.7.6 Timing

Proposed upgrades spaced four years apart are realistic.

2.7.7 Opex/capex trade-off

Not applicable.

2.7.8 Conclusion

Based on our above review, Nous considers that the proposed costs for upgrade of the security infrastructure are non-discretionary. This is summarised in Table 9.

-1 able 9. Nous conclusion – initiation security enhancement – initialized abes

(\$m, 2012-13)	2015/16	2016/17	2017/8	2018/19	2019/20	Total
Ergon proposal	2.1	0	0	0	2.1	4.2
Nous recommendation	2.1	0	0	0	2.1	4.2
Difference	0	0	0	0	0	0

2.8 Integration Platform Renewal

Key findings:

- The Integration Platform is a key component of the ICT architecture and its application reduces the complexity and cost of interface and operation of many of the systems in Ergon's overall suite.
- The platform is due for renewal in the middle of the 2015-20 regulatory period and business proposal information by Energex demonstrates substantial net benefits from its continued operation.

Recommendation:

• To support the costs proposed by Ergon for Integration Platform Renewal.

2.8.1 Project summary

This project will be delivered in conjunction with Energex. Drawing on the Energex Business Proposal for the renewal, the project consists of:

- An upgrade of Oracle Fusion middleware platform
- Creation of Cloud-Cloud integration capability
- An increase in mobile application integration capability
- An upgrade of a number of processes to support data management and governance to a required level of maturity.

Together these will maintain and enhance the ability for applications to operate without the need for direct interfaces to be developed and maintained, reducing costs and complexity.

2.8.2 Need

An integration platform is a core component of a prudent operator's ICT architecture, providing flexibility and supporting cost reduction in individual application delivery. The Business Proposal demonstrates substantial net benefits from its continued and expanded application. Energex has estimated 20% improvement in related application areas.

2.8.3 Options

The Business Proposal is based on the benefits of making the investment, compared with a do-nothing assumption.

2.8.4 Scope

Nous has reviewed the information provided and considers that the proposal to upgrade the integration platform reflects good industry practice.

2.8.5 Cost

In Nous' view, the proposed costs are realistic

2.8.6 Timing

The proposed timing is towards the end of the required period defined in the Business Proposal.

2.8.7 Opex/capex trade-off

The Business Proposal identifies significant opex benefits that it states have been factored into the other project areas, on the assumption that the integration platform is maintained and renewed. Nous is not able to directly track the application of this assumption, but the fact that the platform already exists makes this the most likely outcome.

2.8.8 Conclusion

Based on our above review, Nous considers that the proposed costs for the Integration Platform Renewal are both in line with good industry practice and efficient, leading to substantial reduction in development and operating costs across a wide range of applications. This is summarised in Table 10.

(\$m, 2012-13)	2015/16	2016/17	2017/8	2018/19	2019/20	Total
Ergon proposal	0	0	10.8	0	0	10.8
Nous recommendation	0	0	10.8	0	0	10.8
Difference	0	0	0	0	0	0

Table 10: Nous conclusion – Integration Platform Renewal – forecast capex

2.9 Desktop Productivity – Thin client

Key findings:

- This project involves the upgrade of desktop operating platform and productivity applications from Microsoft Windows 7 and Office 2010, respectively, to versions that will be supported through the 2015 – 20 period.
- Upgrading to supported versions will be essential to maintain efficiency and ensure security of the desktop infrastructure.

Recommendation:

• To accept the costs proposed by Ergon

2.9.1 Project summary

This project consists of the upgrade of desktop operating platform and productivity applications from Microsoft Windows 7 and Office 2010, respectively, to versions that will be supported through the 2015 – 20 period. The current versions will be unsupported by 2019-20

2.9.2 Need

In Nous' view, the replacement is in line with good industry practice to maintain productivity and ensure security of the desktop infrastructure.

2.9.3 Options

Options have not been examined in detail, except to note the productivity loss and security risks that would accrue if the action is not taken.

2.9.4 Scope

Nous has reviewed the information provided and considers that the proposal to upgrade the above applications reflects good industry practice.

2.9.5 Cost

The costs appear realistic.

2.9.6 Timing

The proposed timing is consistent with loss of support in 2019/20 for the existing solutions.

2.9.7 Opex/capex trade-off

Not explicitly examined.

2.9.8 Conclusion

Based on our above review, Nous considers that the proposed costs by Ergon are prudent. This is summarised in Table 11.

(\$m, 2012-13)	2015/16	2016/17	2017/8	2018/19	2019/20	Total
Ergon proposal	0	0	2.4	1.2	0	3.6
Nous recommendation	0	0	2.4	1.2	0	3.6
Difference	0	0	0	0	0	0

Table 11: Nous conclusion – Desktop and Productivity – Thin Client – forecast capex

3 Efficiency Assessment

3.1 Current operating arrangements

ICT services for Ergon Energy are provided by SPARQ Solutions (SPARQ), a jointly owned subsidiary between Ergon Energy and Energex to create economies of scale and overall cost reduction for the provision of ICT capability.

Ergon Energy uses operating expenditure (including Asset Services fees) to recover SPARQ capital investment in ICT assets. However, Ergon Energy directly procures client devices used by employees and contractors. Non-system ICT capital expenditure incurred directly by Ergon Energy relates only to end user devices such as desktop computers, laptops, tablets, handheld devices, smartphones and printers.

SPARQ's operating and capital expenditure for ICT services is charged to Ergon Energy as ICT service fees. Total ICT expenditure incurred by SPARQ associated with ICT services to Ergon Energy is treated as indirect operating expenditure and allocated to services consistent with Ergon Energy's approved CAM.

The review of both Ergon Energy and Energex's ICT spending proposals for the 2015-20 period shows that there will be a significant increase in application of common solutions across the two organisations. Most areas have matching strategies and investment profiles, with the notable exceptions being Network Information Enablement programs, including GIS investments, and Advanced Distribution Management.

However, the business cases for the two organisations show that most of the projects are planned to be internally delivered within SPARQ with little use of outsourced services. (Deloitte has previously noted less than 4% from external sources). This is at odds with current trends in ICT services delivery in which the focus is moving strongly towards accessing externally provided services, whether at the platform, application or total service level. This is especially the case with applications that are universal across a range of industries, such as ERP and desktop services.

3.2 Current trends in ICT service delivery

The *"Computer Economics IT Spending and Staffing Benchmarks Study"* provides key metrics in financial and strategic management of IT and identifies current trends in organization IT spending and staffing. The survey involves executives in public and private sector from over 200 U.S. and Canadian IT organisations and helps identify long-term trends and benchmarks.

Major Findings of the 2015 study, recently released, are:

- 1. IT spending remains in a cyclical upswing. Over 65% of IT organizations are increasing IT operational budgets this year:
 - a. larger organizations are doing better than smaller ones
 - b. service companies have stronger IT operational spending growth than manufacturing companies.
- 2. While IT operational budgets are rising at the fastest pace since the Great Recession, IT capital spending remains flat and IT headcount is increasing only at the margins.
- 3. IT spending as a percentage of revenue and on a per-user basis is falling. The trend indicates IT budgets lag behind general revenue growth employee headcount.

- 4. The effects of transition to the cloud are emerging. Operational spending is accelerating while capital spending decreases.
- 5. The cost of IT is declining on a per-user basis and as a percentage of revenue. But IT executives are divided over whether budgets are adequate to meet organisational needs.
- 6. Investment in cloud applications and infrastructure is rising.
 - a. 56% of IT organizations are increasing spending on cloud applications compared with 10% growing spending on data centre infrastructure.
 - b. Transition to cloud has a long way to go IT organisations continue to use data centres and employees to support critical business applications.

Our experience in Australia mirrors these findings. A recent article in Australia's CIO magazine¹ identifies five areas of IT that are on the rise and makes the following observations:

- 1. IT as a Service broker You don't build and run systems anymore, you deliver and service. A CIO's value is in understanding what the business is about and mapping their knowledge and experience to the capability.
- 2. Software-as-a-service (SaaS) this market will be worth \$142 billion globally by 2020. Take advantage of this instead of maintaining legacy systems. Move to SaaS infrastructure and enable IT teams to focus on high value tasks.
- 3. Identity-as-a-service (IdaaS) allows companies to encrypt all data right down to end point devices. Change in this space will be exponential as security is embedded into applications and capability rather than being around it like a wall. Identities are no longer the domain of a single organisation the perimeter disappears for organisations with large distribution of customers, employees and partners. To validate identities, IdaaS will reduce reliance on internal infrastructure for 'who is who in the zoo'.
- 4. ArcOps making an end-to-end role/capability responsible from architecture through to completion (rather than fragmented between developers and operational staff) to drive a lot more value. Developers will start to consider operations when creating their apps.
- 5. The 'sharing' economy currently driven by innovators like Uber, Airbnb and Airtasker.

We recognise that the operator of an essential regulated network will take a conservative view on the transition to outsourced or cloud-based services, but we can expect that the momentum towards this type of delivery will continue to increase over the next five years, including areas of comparable security and reliability requirements. The levels of investment in security infrastructure and integration capability in the SPARQ-based plans of Ergon and Energex point to an increasing capability to move in that direction.

In that light, we are surprised by the extent to which the planned operating arrangement within SPARQ appears to be planned to remain primarily an in-house self-contained operation. The arrangement does not have any external market-testing component either by Ergon (and Energex), nor by SPARQ in its delivery of services.

We note that The Independent Review Panel on Network Cost (the Panel) included in its recommendations:

• Alternative service delivery models for Information and Communication Technology services currently delivered by SPARQ solutions should be tested as follows:

¹ http://www.cio.com.au/article/577321/5-areas-it-rise/

- Issue market tenders for the delivery of capital projects
- Issue market tenders for the delivery of the relevant operational Information Communication and Technology services.

Our view is lightly different from those put forward by the Panel. We agree with the need to have market-testing but we also see a case to continue to drive for efficiency by combining the services for Ergon and Energex. The highly parallel nature of the two submissions shows that there will be an increasing level of use of common applications over the next five year period. This appears to have moved on since the Panel found that there had been very limited delivery of joint projects.

The Panel recommendation is also not well geared to take advantage of the move to cloud-based services in line with the trends described above. The distinction between capital and operating components appears to support the status quo.

In Nous' view, an alternative approach that could achieve the overall objective of efficiency would be to have SPARQ progressively moves towards a role as a broker of available market services, rather than be primarily a self-contained developer and operator, at least for applications that are genuinely common. Ergon Energy and Energex could still individually test the market for applications and services that are not in common and perhaps selectively for those that are. But the prime objective should be to capture both economies of scale and market-based efficiencies. This will also allow a more explicit examination of the value added by the SPARQ relationship.

We don't see it reasonable to make adjustments to actual capital and operating allowances for this dynamic at this stage. However, if the position is clearly stated and an intention to benchmark the next round of pricing reset against publicly available SaaS and similar services (which will be substantial in five years), it would be reasonable in our view to make global adjustments in the next cycle.