EXPERIMENTAL ENERGY AND WATER ACCOUNTS FOR THE REPUBLIC OF PALAU

FINAL REPORT

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ACRONYMS

ANU	Australian National University
BBPI	Blue Bay Petroleum Inc.
GDP	Gross Domestic Product
FY	Fiscal Year
IP&E	Isla Petroleum & Energy Company Ltd.
IVA	Industry Value Added
PPUC	Palau Public Utilities Corporation
ROP	Republic of Palau
SEEA	System of Environment-Economic Accounting
SDG	Sustainable Development Goals
SNA	System of National Accounts
UN	United Nations
UNESCAP	United Nations Economic and Social Commission for Asia Pacific
US	United States

UNITS

J	Joule
KJ	Kilojoules
GJ	Gigajoule
L	liter
MJ	Megajoule
ML	Megaliter

Note: To continuously improve the coverage and quality of the water and energy accounts, and to assist in the development of the environmental-economic accounts in Palau, feedback can be sent to Bureau of Budget and Planning, Ministry of Finance, Republic of Palau and will be used to improve future work.

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1. INTRODUCTION

This report presents experimental energy and water accounts for Palau. Complete physical and monetary accounts are presented for the fiscal years 2014 to 2016. The accounts were developed using the System of Environmental-Economic Accounting – Central Framework (SEEA)[1].

Energy and water accounts were identified as a priority in an assessment report[2], prepared by Bureau of Budget and Planning, with support from the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) in 2015. The assessment, conducted in consultation with national stakeholders, drew upon key national policy documents to identify areas of national priority and determine technical feasibility based on available statistics.

In particular, the Palau National Energy Policy (2010)[3], identified goals directly related to the energy account. The policy aims to reduce energy use, raise energy efficiency and convert to renewable energy sources. A range of actions and targets are outlined in the Policy, including:

- 30 percent reduction in overall national energy consumption by 2020; and
- 20 percent of electrical energy generated in Palau through renewable sources by 2020.

The national Water Policy (2012) aims to: protect and conserve Palau's water resources; and ensure access to affordable and sustainable water supply and wastewater services. Further, an Executive Order (No.401) dated 28 June 2017, established water use and conservation policies in anticipation of extreme drought conditions expected until May 2018. Measures target government offices and facilities, including implementation of water efficiency practices and technologies, and awareness raising and training.

Water and energy priorities for Palau are also found in the global Sustainable Development Goals (SDGs) 6 and 7. Given the cross-cutting implications of water energy policy and associated data for sustainable development, implementation, as well as, monitoring progress towards national and where appropriate, global targets is important.

Monitoring of several national development indicators and SDGs 6 and 7 indicators can be derived from the SEEA energy and water accounts. For example: proportion of population with access to electricity and water services; use of renewable energy; and rate of improvement in energy and water use efficiency.

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[1] The SEEA was adopted as an international statistical standard in 2012, and can be integrated with the System of National Accounts (SNA), which among other things produces the indicator of Gross Domestic Product (GDP). See https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf

[2] Found at: http://palaugov.pw/wp-content/uploads/2017/08/Palau-National-Assessment-Report.pdf

[3] http://prdrse4all.spc.int/node/4/content/republic-Palau-national-energy-policy

1.1. Focus of the experimental energy and water accounts

These accounts were prepared with the aim of determining the extent to which existing data can support the compilation of energy and water accounts to meet policy demands in Palau.

Two main forms of energy are supplied for production purposes in Palau: fossil fuels and electricity supplied by the Palau Public Utilities Corporation (PPUC). Most electricity is generated from fossil fuel (diesel) but a small amount is generated from solar. All fossil fuel is imported by two companies, Blue Bay Petroleum Inc. (BBPI) and Isla Petroleum & Energy Company Ltd (IP&E). In addition to fossil fuels and electricity, firewood and cooking gas are also sparingly used as energy sources.

Water is exclusively supplied by PPUC, with both metered and non-metered (fixed rates) systems of billing.

These experimental energy and water accounts are focused on the supply and use of fossil fuels and electricity, and piped water and sewerage services respectively, for which there is readily available national information. This includes information from the national accounts on the use of energy and water in monetary terms for the period FY2014 to FY2016, as well as, more detailed data from PPUC for FY2014 to FY2016.

From the 2015 Census[4] it was estimated that around 98% of households are connected to the electricity network and 97% of households are connected to the piped water network, with the remainder getting water from other sources (e.g. public standpipes, rain harvested supply and water tanks).

The tables presented are simplified versions of those presented in the SEEA Central Framework. In particular, industry based split is limited in the supply and use tables as the primary data is limited, while the imports by the Blue Bay and IP&E are shown as a direct supply to users. The simplified table is used to align with the data available and to aid interpretation by those new to the SEEA. Over time the tables can be expanded to include greater industry detail and more information (suggestions for this are made in Section 5 “Next Steps”).

2. SUMMARY OF RESULTS

A summary of information related to the supply and use of energy and water in Palau is presented in Table 1. It shows that GDP has been growing while physical use of energy and water has been declining, but productivity for energy is increasing while it is decreasing for water due to price changes. The full energy and water accounts for Palau for FY2014 to FY2016 are found in Annex 1, Tables A1 to A6, while Annex 2 shows these flows in diagrams (Figs A1-A6).

[4] http://palaugov.pw/wp-content/uploads/2017/02/2015-Census-of-Population-Housing-Agriculture-.pdf

Table 1. Summary and indicators from the energy and water accounts, Palau, FY2014 to FY2016

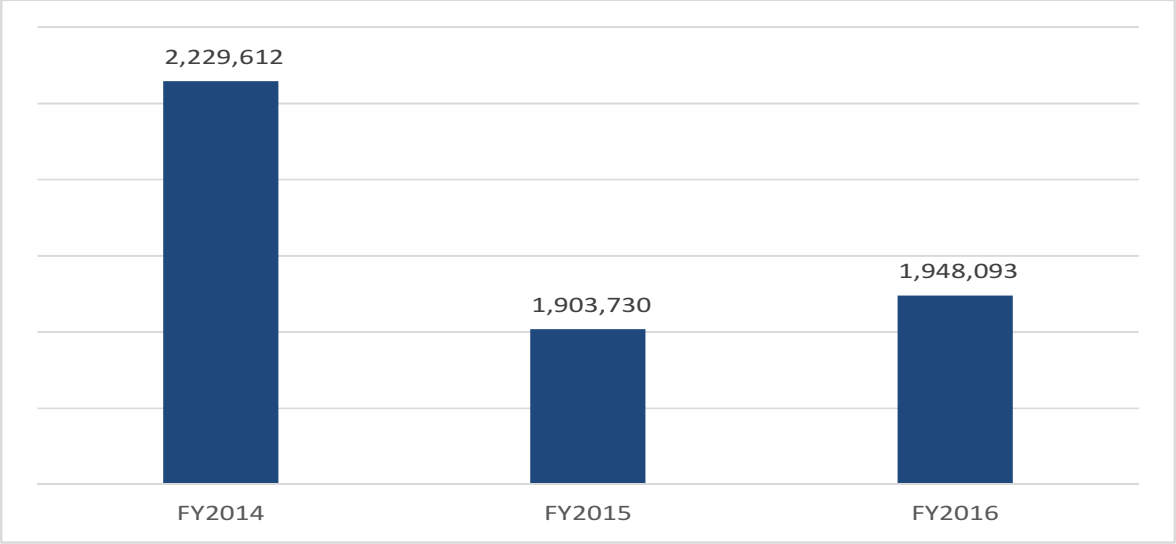
	Unit	FY2014	FY2015	FY2016
GDP (current price)	US$ million	246.40	297.60	310.20
Population	No.	17,501	17,661	17,943
Energy				
Physical use of energy products	GJ	2,229,612	1,903,730	1,948,093
Monetary use of energy products	US$ million	102.19	92.39	80.73
Water				
Physical use of water products	ML	2,871	2,650	1,990
Monetary use of water products	US$ million	2.50	3.24	5.02
Efficiency measures				
Physical use energy products/GDP	GJ/US$ million	9,049	6,397	6,280
Physical use water products/GDP	ML/US$ million	11.65	8.90	6.42
Productivity measures				
GDP/monetary use energy energy products	ratio	2.41	3.22	3.84
GDP/monetary use water products	ratio	98.64	91.99	61.77
Intensity measures				
GDP/Physical use energy products	$/litre	0.11	0.16	0.16
GDP/Physical use water products	$/KJ	0.09	0.11	0.16
Per capita measures				
Per capita physical use energy products	GJ per person	127.40	107.79	108.57
Per capita physical use water products	ML per person	0.16	0.15	0.11
Contribution to GDP				
Accommodation and food service	US$ million	33.60	37.60	41.50
Electricity	US$ million	4.80	3.20	2.60
Water supply, sewerage and waste management	US$ million	1.30	1.10	1.30
Value of PPUC infrastructure				
Electricity*	US$ million	43.75	41.60	42.06
Water supply	US$ million	21.83	22.16	23.48
Sewerage	US$ million	20.13	20.13	20.69

The data in Table 1 and the full accounts (Annex 1) should be interpreted in conjunction with the notes on data sources and methods (Annex 3). In general, the primary data has some limitations and as such the results, while generally indicative of levels and trends, should be interpreted with care.

2.1 Energy summary results

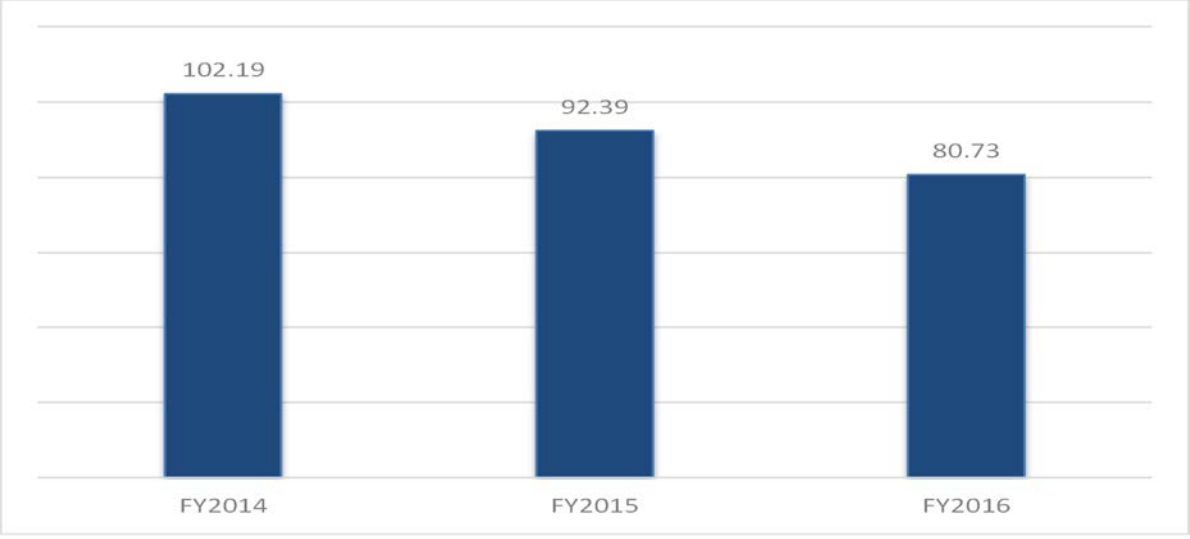
The results from energy accounts are summarized graphically in this section, with short commentary highlighting features of the data. The physical units are Gigajoules (GJ) and the monetary units are United States dollars (US$).

Figure 1. Total physical use of energy products in Palau, FY2014 to FY2016 (GJ)



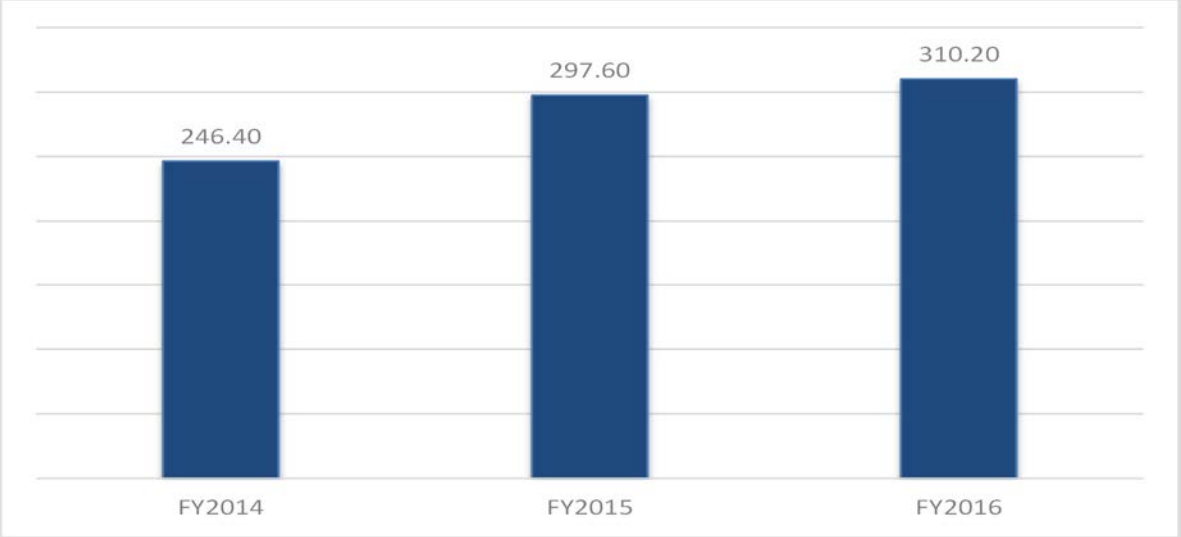
Total energy use in Palau declined in both physical (Fig. 1) and monetary terms (Fig. 2) between 2014 and 2016. The decline in monetary energy use was 21% between FY2014 to FY2016 while the decline in physical terms was slightly less than 13%.

Figure 2. Total monetary use of energy products in Palau, FY2014 to FY2016 (US$ million, current price)



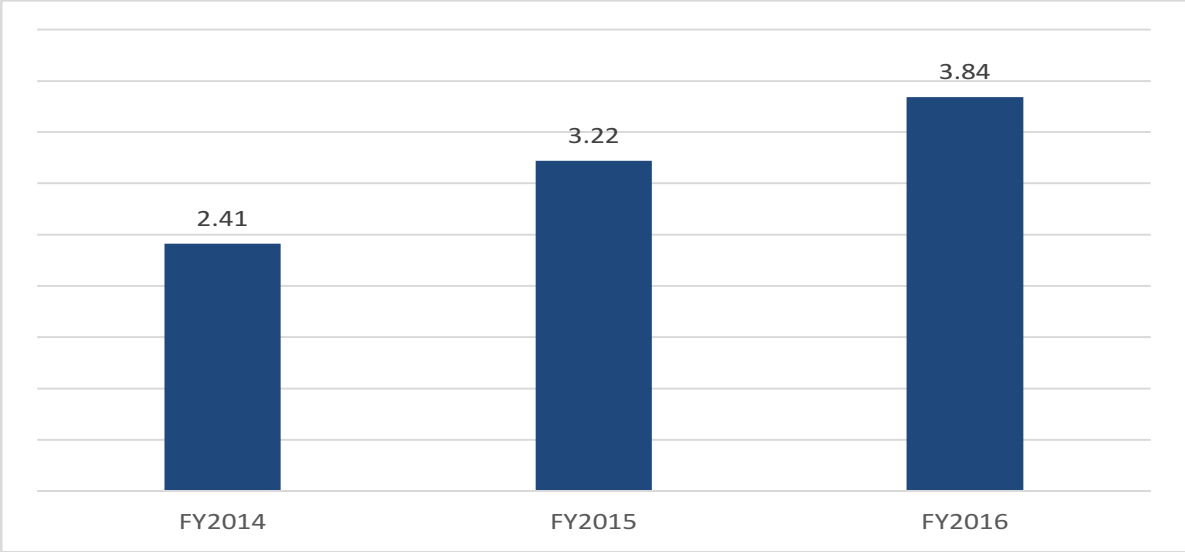
GDP over the last three years has been growing with the most increase realized in FY2015 (Fig. 3, Annex 4). At the same as there was a decline in energy use (Figures 1 and 2) there was an increase in GDP growth (Fig. 3), driven by the tourism industry and increases in tourist arrivals.

Figure 3. Gross Domestic Product in Palau, FY2014 to FY2016 (US$ million, current price)



The ratio of GDP to the value of energy used in Palau is shown in Figure 4. This is GDP for each dollar of energy product used. Total economic productivity in Palau increased by 59.8%, from 2.41 dollar GDP per dollar energy used in FY2014 to 3.84 dollar GDP per dollar energy in FY2016. The overall increase in economic productivity of energy use (Fig. 4) reflects that while the value of energy used is decreasing (Fig. 2), GDP is increasing (Fig. 3).

Figure 4. Ratio of GDP to monetary use of energy products, FY2014 to FY2016



The contribution of each industry to GDP is known as industry value added (IVA)[5] . The contribution of the electricity industry is declining as a share of the Palau economy (Figure 5) between FY2014 and FY2016. This may be counterintuitive, considering that major economic activities such as tourism (accommodation and food service activities), which use energy as a major input, grew by 23.5% over the same period. It does point to policy considerations discussed later in this report.

Figure 5. Electricity industry contribution to GDP, FY2014 to FY2016 (US$ million, current price)

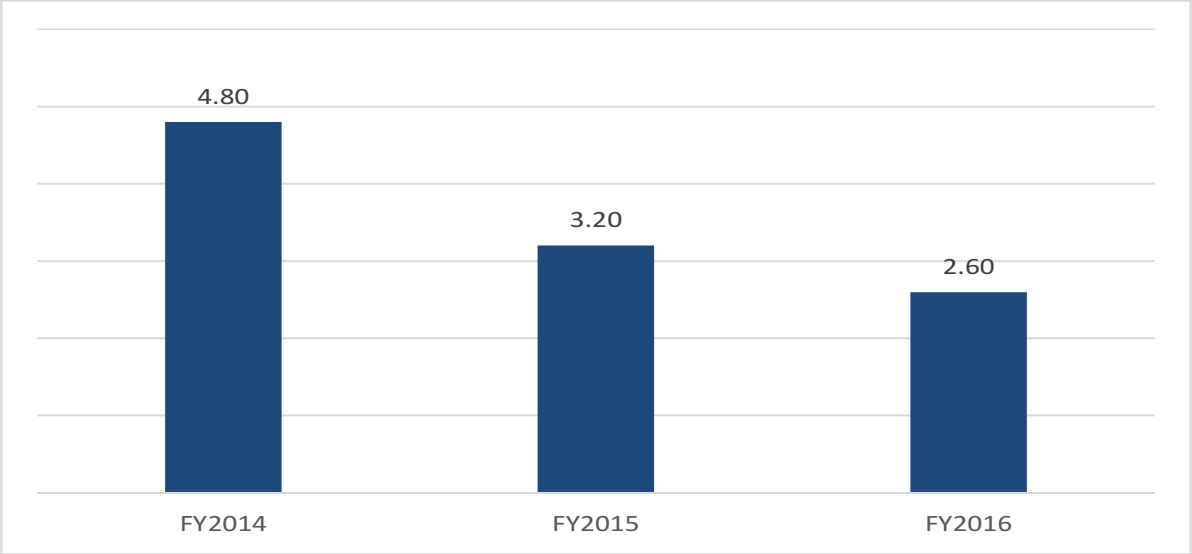
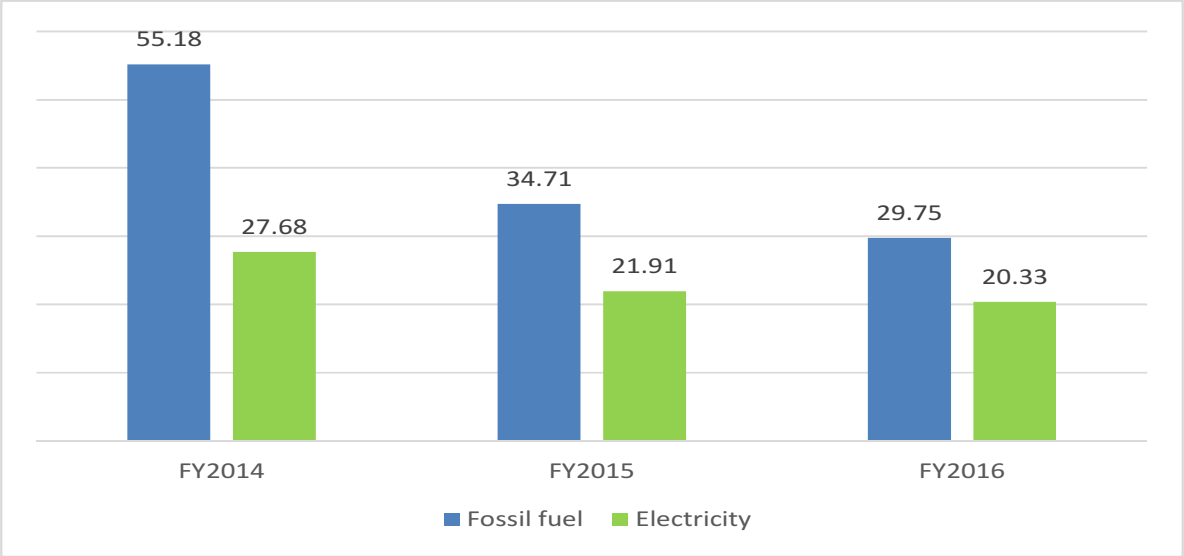


Figure 6 shows that in FY2014 the value of supply of fossil fuel was almost double that of electricity. It also shows that the value of fossil fuel has been declining from FY2014 to FY2016, which is attributable to the global prices of fossil fuel. Electricity shows a downward trend but not as great as that of fossil fuel. Note Figure 6 is shown at basic price, which is the amount received by the energy supplier, and hence the basic price excludes taxes and subsidies and trade and transport margins, which are paid by purchases of these products. Purchases prices are used.

[5] i.e. the sum of the IVA of all industries equals GDP

Figure 6. Value of supply by energy type (Fossil fuel and Electricity), FY2014 to FY2016 (US$ million, basic price*)



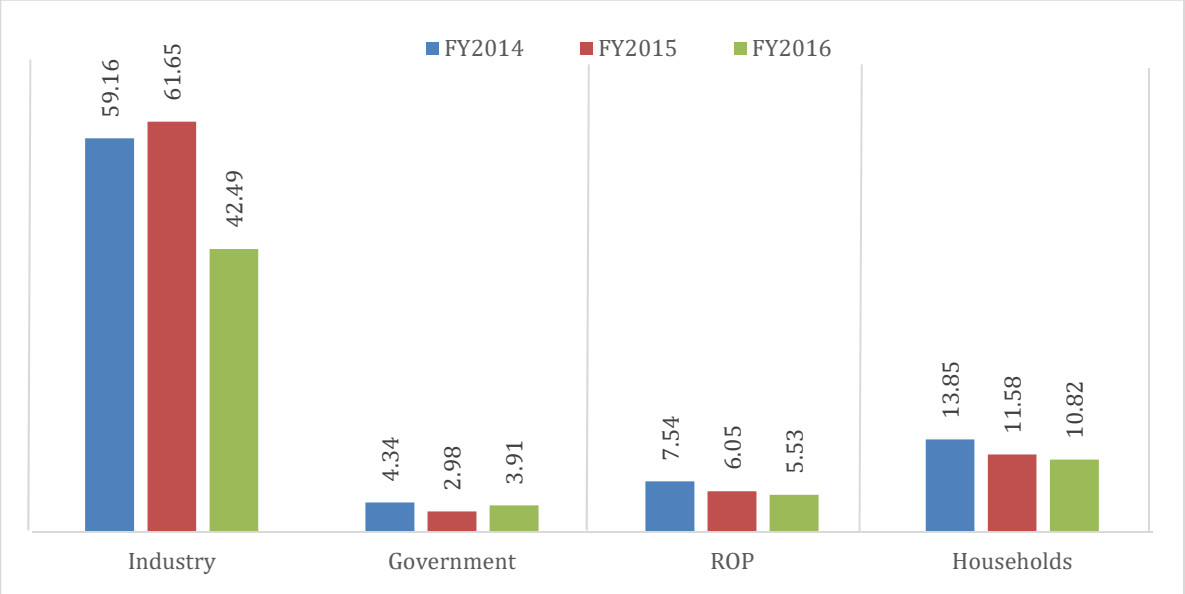
*Basic price excludes taxes and subsidies and trade and transport margins which are included in the purchases price. Basic price = Purchases price - taxes less subsidies - trade and transport margins.

The value of fossil fuel and electric energy used by the different sectors in FY2014 to FY2016 in Palau is shown in Figure 7, at purchases price. As for the supply of energy products (Fig. 6), there was a large drop in the value of energy products use between FY2015 and FY2016 (Fig. 7), stemming from lower global oil price. Industries (retail, construction, hotels and restaurants, domestic transport, telecommunications, etc.) accounted for majority of use averaging US$54.4 million or 71% of total energy use per year, between FY2014 to FY2016. During the same period, the second biggest user was households, which on average used US$12.1 million or 15.8% of total energy. Government (including State Governments, traditional houses and youth centers plus other[6]) and the Republic of Palau (ROP)[7] which accounted for the remaining use with 4.9% and 8.3% respectively during that period. The physical use of energy followed a similar pattern to the monetary use (Fig. 8), with use by industry dominating the other sectors. Further details are found in monetary and physical supply and use tables in Annex 1, Tables A1 to A3.

[6] The category is defined by PPUC customer database and includes, state governments, youth centers, traditional houses, churches, private schools, foreign governments, non-profit organizations and non-profit making businesses.

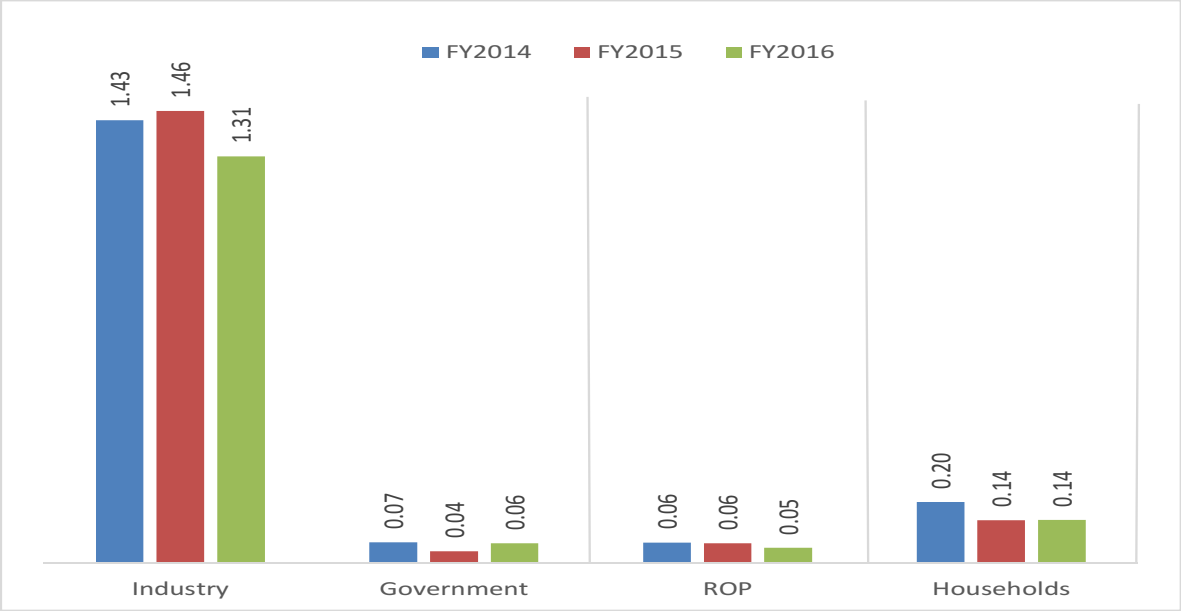
[7] ROP is also defined by the PPUC customer database and is national government, ministries, semi-government agencies, authorities, board & commissions & all public schools.

Figure 7. Monetary use of energy products (Fossil fuel and Electricity) by sector, FY2014 to FY2016 (US$ million, purchases price*)



*Purchase price includes taxes and subsidies and trade and transport margins which are excluded from basic price. Purchases price = Basic price + taxes less subsidies + trade and transport margins.

Figure 8. Physical use of energy products (Fossil fuel and Electricity) by sector, FY2014 to FY2016 (GJ)



Solar electric energy currently makes up a very small part of total energy use (less than 1%) but the level of use has increased rapidly between FY2014 and FY2016, with government the largest user (Fig. 9). Between FY2014 and FY2016 total use of solar electric energy more than doubled, while the use of solar electric energy by industry increased more than 20-fold in the same time.

Figure 9. Use of solar electric energy by sector, FY2014 to FY2016 (GJ).

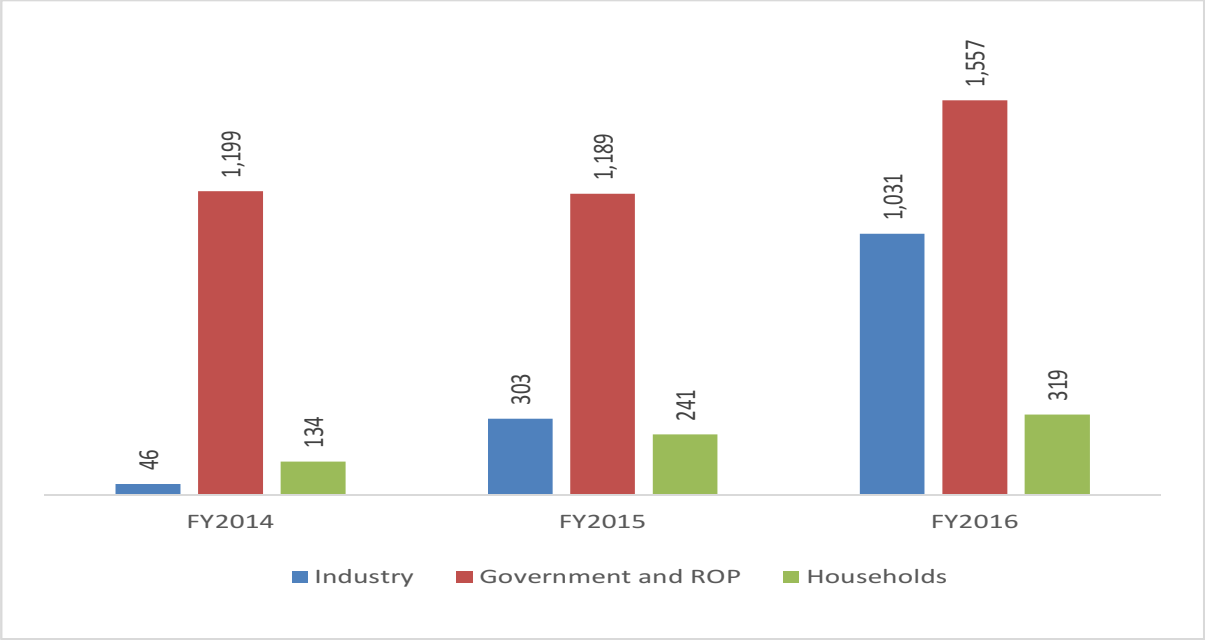


Figure 10. Losses in energy conversion and distribution by energy industry, FY2014 to FY2016 (GJ)

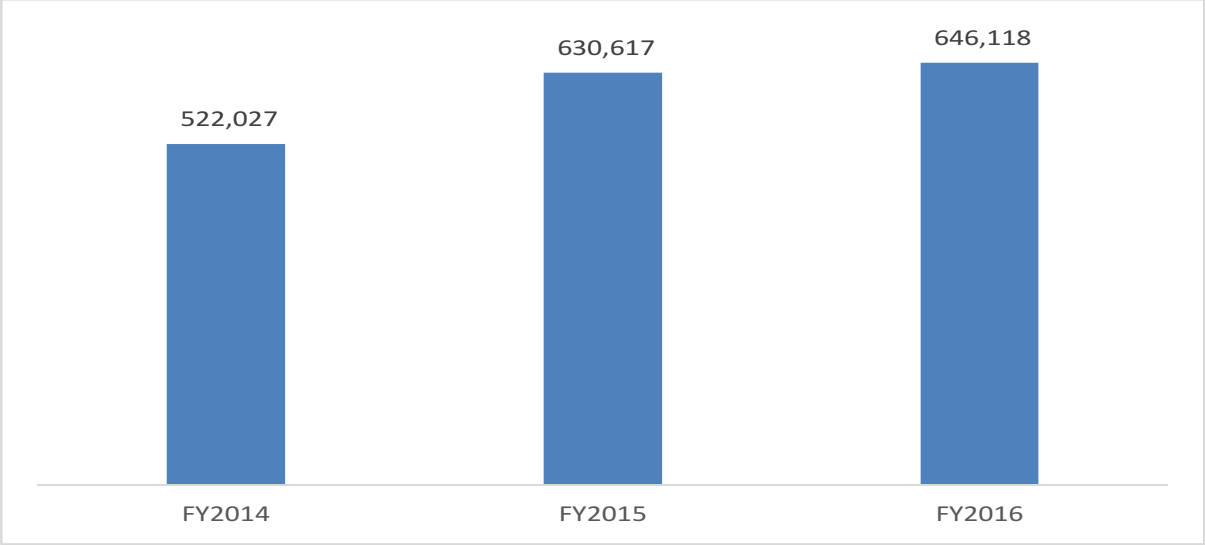


Figure 10 shows the losses in energy conversation and distribution by the energy industry. Losses occur when energy is transformed from diesel to electricity and when electricity is distributed via wires to final consumers. These losses are expected and represent a large part of energy use (conversion rates of 30-40% are common when compared against international experience). Losses may be reduced through more efficient electricity generators and transmission systems.

2.2. Water summary results

Figure 11 illustrates total use of water products in physical terms was 2,871 megaliters (ML) in Palau in FY2014, declining to 1,990 ML in FY2016. The reason for this is probably a combination of infrastructure replacement, increased prices, reduced water availability and the population being encouraged by PPUC to conserve water.

Figure 11. Total physical use of water products, FY2014 to FY2016 (ML)

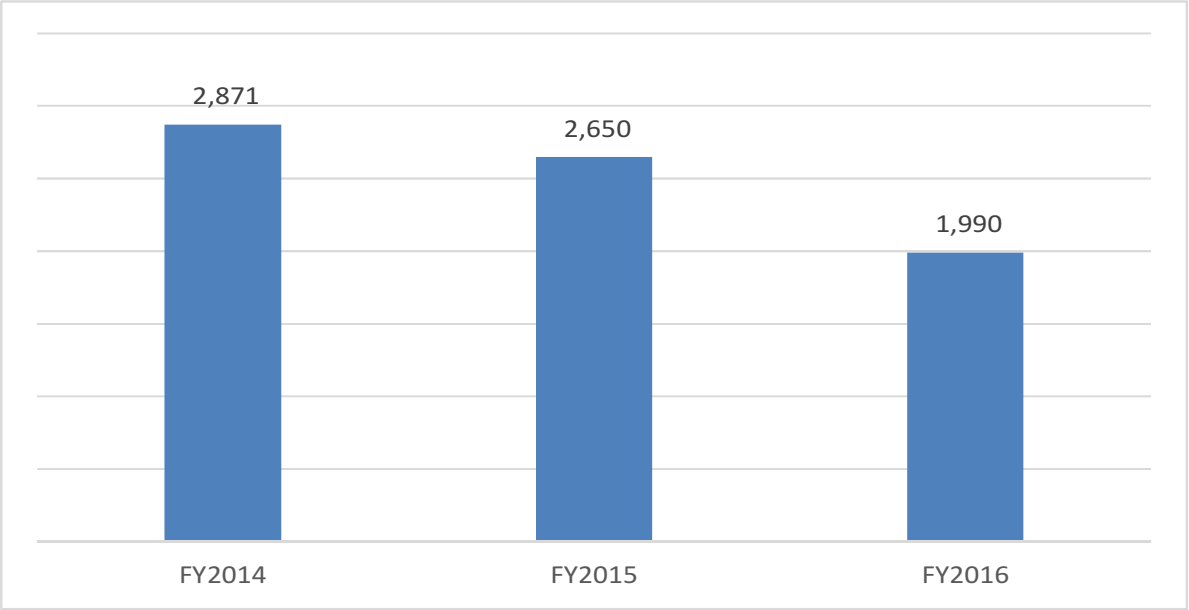
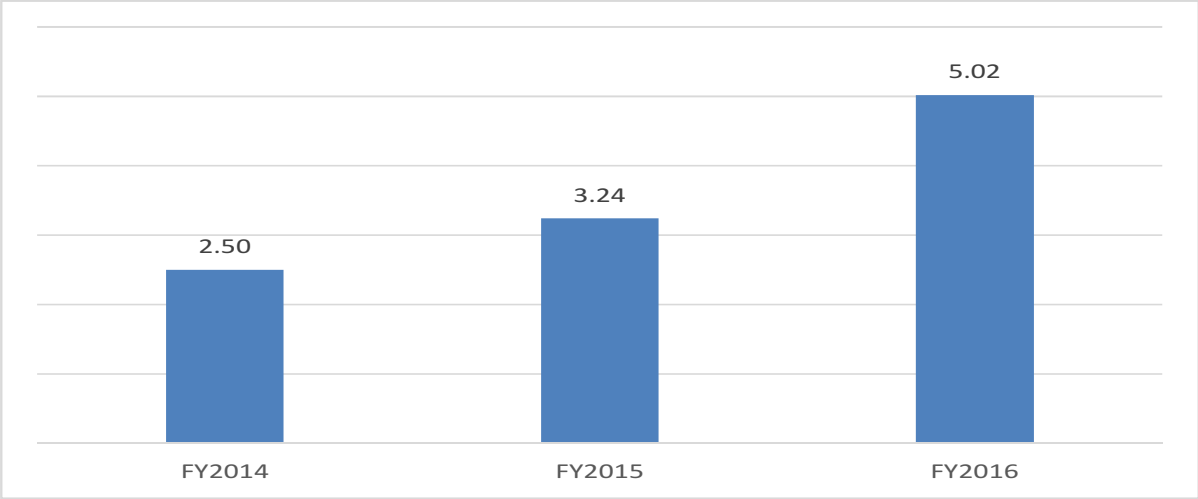


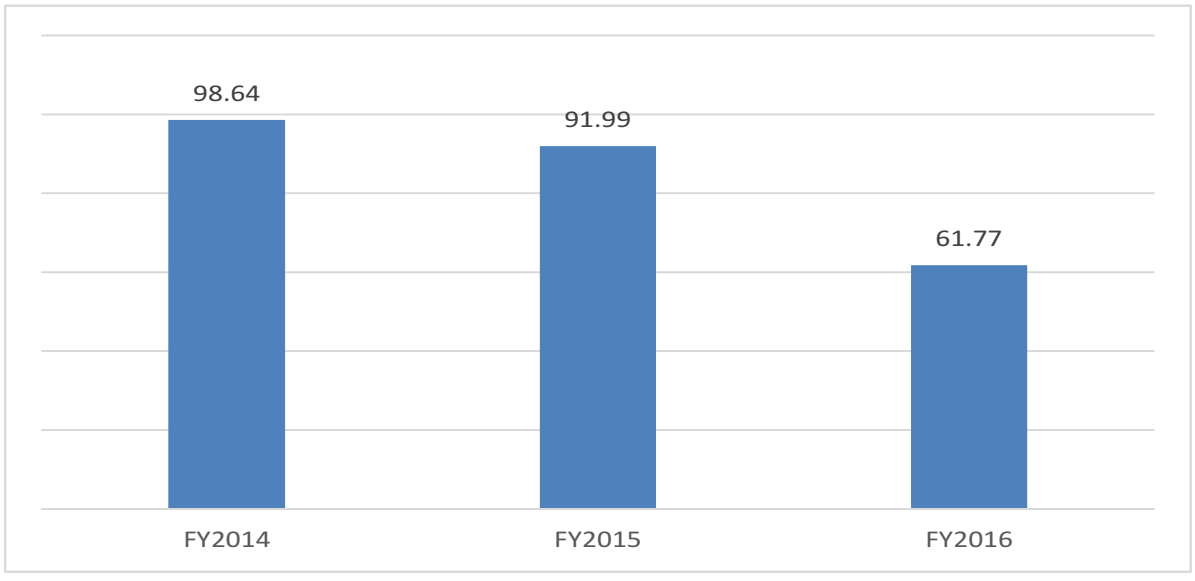
Figure 12 illustrates the value of use of water products for FY2014 to FY2016. In contrast to declining physical use, there was an increase of approximately 29% from FY2014 to FY2015 in monetary use. This is probably due to the increase in visitor arrivals and the higher water tariffs charged to hotels. The increase from FY2014 to FY2016 was more than double and with the increases due to general increase in water charges, particularly between FY2015 to FY2016.

Figure 12. Total monetary use of water products, FY2014 to FY2016 (US$ million, current price)



The ratio of GDP to the value of water used in Palau is shown in Figure 13. This is GDP for each dollar of water used. Total economic productivity for water in Palau reduced by 60% between FY2014 and FY2016. That is, for each dollar of water used in FY2014, 99 dollars of GDP was produced, but had dropped to 62 dollars of GDP per dollar water used in FY2016. The overall decrease in economic productivity of water use indicates that the value of water used is increasing faster than GDP. It may also reflect a change in the industry composition of the economy of Palau. However, in physical terms the amount of GDP generated per liter of water used went from $0.09 per liter in FY2014 to $0.16 per liter in FY2016.

Figure 13. Ratio of GDP to the value of water product use, FY2014 to FY2016.



Overall, the water supply, sewerage and waste industry contribution to GDP (as illustrated in the Fig. 14) remained constant between FY2014 and FY2016, but with a smaller contribution recorded in FY2015.

Figure 14. Water supply, sewerage and waste industry contribution to GDP, FY2014 to FY2016 (US$ million, current price)

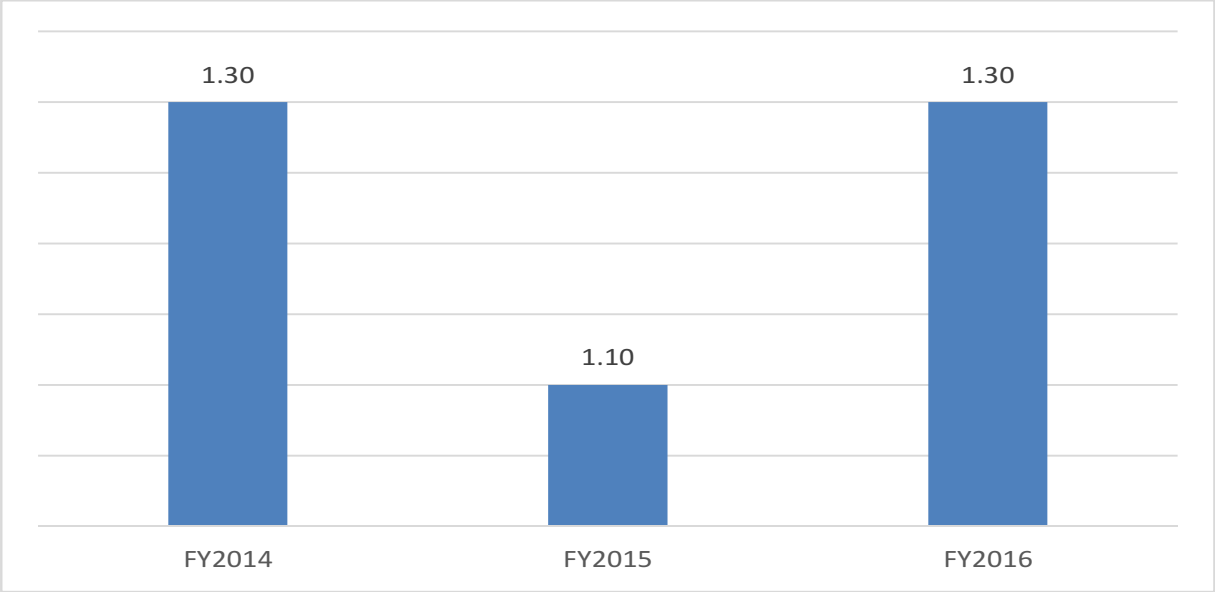
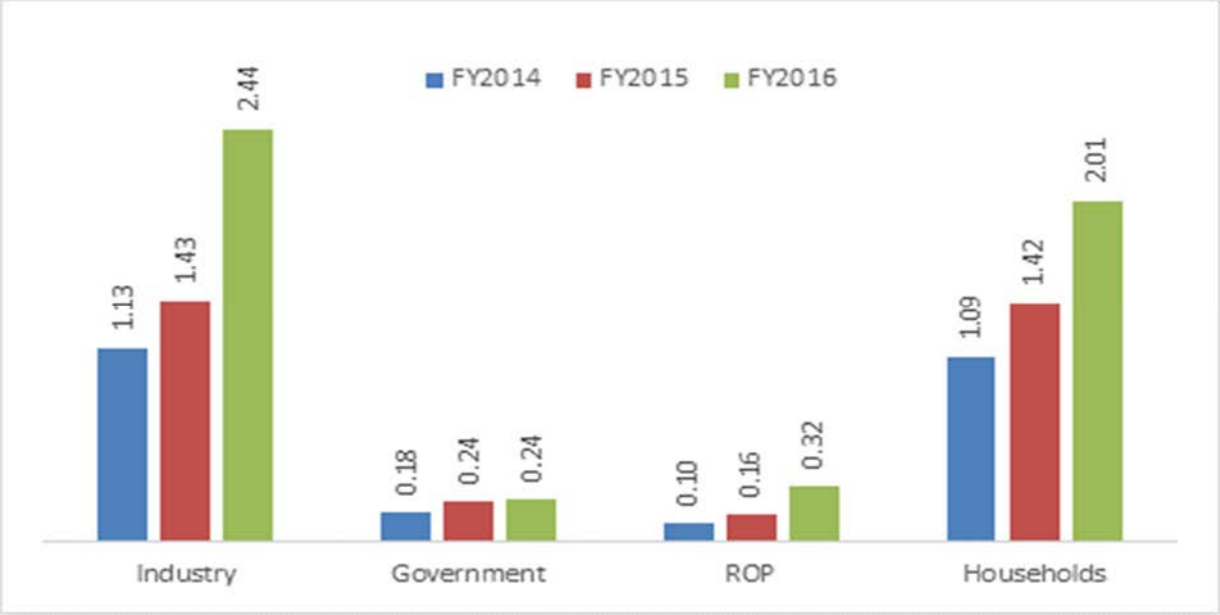
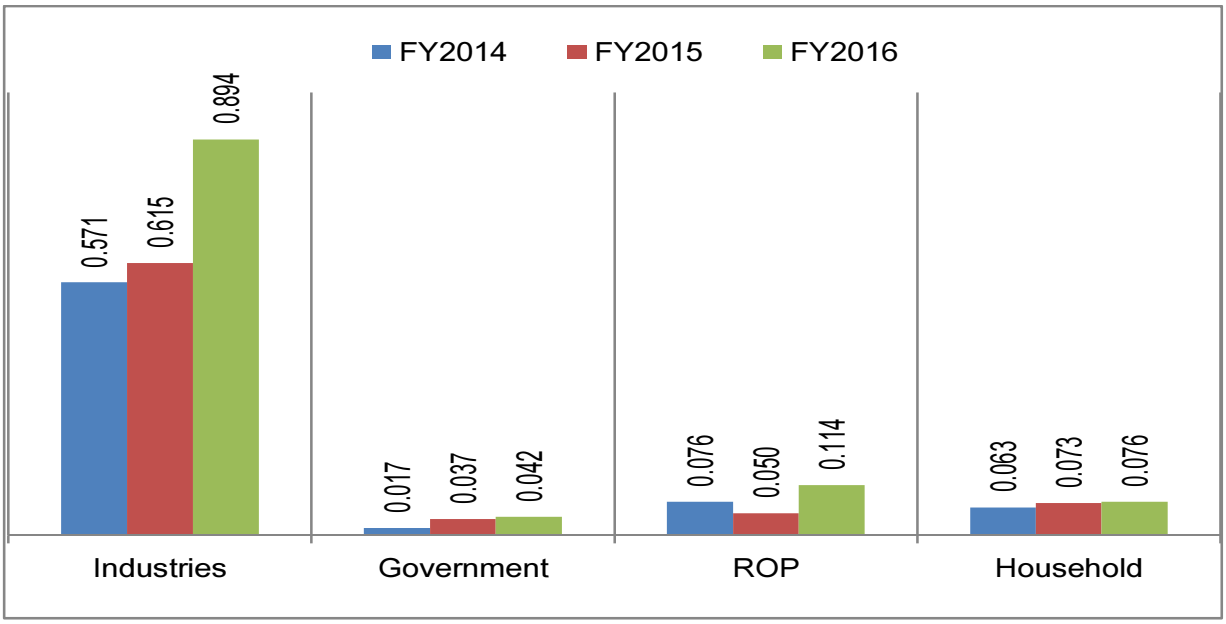


Figure 15. Monetary use of water products by sector, FY2014 to FY2016 ($US millions, current price)



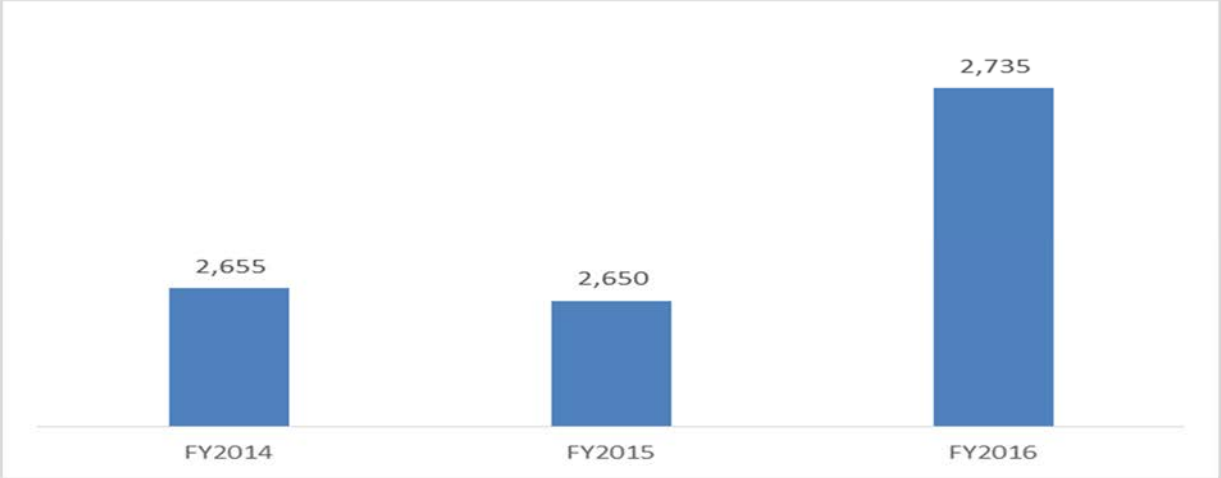
The value of the water use and sewerage services used by the different sectors in FY2014 to FY2016 in Palau is shown in Figures 15 and 16 respectively. Industries (retail, construction, hotels and restaurants, etc.) accounted for much of the use of both natural water and sewerage services.

Figure 16. Monetary use of sewerage services by sector, FY2014 to FY2016 (($US millions, Purchase price*)



*Purchase price includes taxes and subsidies and trade and transport margins which are excluded from basic price. Purchases price = Basic price + taxes less subsidies + trade and transport margins.

Figure 17. Water losses by water supply industry, FY2014 to FY2016 (ML)



Water is lost by the water supply when it is distributed via pipes to consumers (industry, government and households), in the forms of leaks from pipes or burst water mains and is shown in Figure 17. Such losses occur in all water supply systems and are an indication of the condition of the water supply infrastructure. The volume of losses has not changed greatly: from 2,655 GL in FY2014 to 2,735 in FY2016. These estimates of losses are preliminary and indicative. In general, the newer the infrastructure the less the amount of

losses and the current pipe replacement project in Palau is likely to lead to reduced levels of losses.

3. POLICY CONSIDERATIONS

Policy considerations from the results could be interpreted in various forms. Specific use of the results for policy will depend on type of user and nature of development challenge to be addressed. The accounts developed have some limitations due to the data available and the methods used. These limitations must be considered when applying the information to particular policy decisions. Specific ways to address the limitations are considered in the Section 4 Next Steps.

This report is not meant to provide advice on specific policy measures, rather it presents existing energy and water data using an international accounting standard, that can inform the formulation, implementation and monitoring of national energy and water priorities. However, to stir policy interest, a few examples of issues and applications that could be explored are discussed below.

3.1 Regulatory issues

For energy, Palau's fuel and electricity retail costs against regional benchmarks present a mixed picture. Palau retail fuel (both gasoline and diesel) prices are considered above average of regional benchmarks[8], when considered at either pre-tax or tax inclusive prices. On the other hand, Palau's electricity tariffs compare very favorably against regional benchmarks[9], and rate in the lowest cost quintile. This raises several policy questions which the SEEA energy accounts can explain and unravel. For instance, domestic pricing policy at both wholesale and retail level for fuel products could be explored further, noting that price is not controlled for mark-up and that taxes (duty) on fuel products is relatively low[10]. As for lower electricity prices, with relatively high fuel costs (main input for electricity generation), the level of government subsidies to support lower prices could be reviewed, noting fiscal implications and need for user pay and equitable pricing. The intensity of energy use by households, industry and government (Table 1 and Figure 7) would

[8] Pacific Fuel Price Monitor Quarter 2, 2016, found at http://prdrse4all.spc.int/sites/default/files/2q2016_pacific_fuel_price_monitor.pdf

[9] Comparative Report – Pacific Region Electricity Bills, June 2015, found at http://prdrse4all.spc.int/system/files/electricity_price_comparison_-_pacific_area_2015_final_20150615_2.pdf

Pacific Power Benchmarking Report – 2012 Fiscal Year, prepared by the Pacific Power Association with technical support from the Pacific Region Infrastructure Facility, June 2015, found at www.theprif.org

[10] Pacific Fuel Price Monitor Quarter 2, 2016, found at http://prdrse4all.spc.int/sites/default/files/2q2016_pacific_fuel_price_monitor.pdf

support such a review. In the process, better management of energy resources could result. In addition, government could consider subsidies for hybrid or electric cars.

3.2 Infrastructure planning

Using data from the accounts to examine options for increasing supply or reducing demand, for example, loss of energy in generation and distribution, and losses in distribution of water (Figures 10 and 17), global comparisons could facilitate the assessment of investment decisions on appropriateness and efficiency of technologies and infrastructure within the water and energy supply industries as well as more efficient use of water and energy in other industries (e.g. by using more energy efficient appliances). Estimates for the overall energy and water supply and distribution capacity can help plan for future requirements, noting demand/ use trends that the SEEA accounts present, including intensity of use by category of users. For example, the significance of tourism sector activities to Palau's economy means considering water and supply challenges vis-à-vis the number of visitor arrivals and forecast arrivals. The concept of sustainable tourism can be linked to capacity of infrastructure inputs (such as energy and water) needed to support activities, without impacting broader domestic needs and conserving environment resources. The latter point is underscored by Palau's current conservation of water use given anticipated extreme drought conditions, with Executive Order No.401 emphasizing its role for 'sustainable management of our water resources and the preservation of our natural environment'. Table 1 indicates that pace of accommodation and food services activities contribution to GDP is constantly growing between FY2014 to FY2016, while electricity is declining and water production (contribution to GDP) remains flat over the same period. More so, Table 1 highlights infrastructure inventory change for PPUC, with electricity assets declined by 4.9% between FY2014 and FY2015, water assets marginally rose by 1.5%, while sewerage assets remained unchanged in the same period.

3.3 Renewable energy technologies and use

Solar energy production and use is growing significantly in Palau. Given the existing public policy aim of reducing dependence on fossil fuel, further incentives and awareness may assist in transition towards greater investment in renewable technologies. Government and ROP users were catalytic in shifting to solar energy production and use, supported in part by external aid projects, but industry stakeholders have since led the use of solar energy. This will make commercial sense, if the cost of production is far lower over the medium-term than fossil fuel use. Lower upfront cost in renewable technology will incentivize uptake, while government support through lower duties/ tariffs and other fiscal measures could be further considered. The current industry use success stories could be promoted to create awareness amongst other stakeholders. The current PPUC policy to obtain and use additional energy generation from private households and commercial ventures into the broader electricity distribution network provides further incentives to invest, and mitigates technical challenges with storage of excess energy. While the technical feasibility of mass use, maintenance, operations and sustainability of renewable energy technologies in Palau is subject to specific research, trends from solar energy

use and production data contained in this report will provide recent evidence for research and policy use.

3.4 Tracking implementation progress against national development priorities and sustainable development goals

The energy and water accounts provide relevant data to track progress against priorities and targets contained in national and international development agenda. By producing baseline data and adding subsequent year series using SEEA accounts, tracking of progress against set national and global targets can be achieved. For example, estimates to measure Palau's core SDG indicators on water and energy and SDGs 6 and 7, such as change in energy and water use efficiency over time can be obtained from the energy and water accounts (Table 1). From the accounts the following can be said about the SDG indicators for water and energy:

> *6.4.1 Change in water-use efficiency over time* – the physical efficiency of water use as measured by GDP per liter of water use increased between FY2014 and FY2016 from $0.09 to $0.16. Conversely the economic efficiency of water use decreased as measured by GDP per value of water use from $99 to $62 GDP per dollar of monetary water use.
>
> *6.4.2 Level of water stress* – freshwater withdrawal as a proportion of available freshwater resources. The total volume of water use has declined over time, from 2,871 to 1,990 ML between FY2014 and FY2016. However, the calculation of water stress would require the development of a water asset account, which would show water availability for each year.
>
> *7.1.2 Proportion of population with primary reliance on clean fuels and technology* – the accounts did not provide information on this indicator
>
> *7.2.1 Renewable energy share in the total final energy consumption* – the amount of electricity produced from solar is less than 1% but has increased from 1,397 to 2,907 GJ between FY2014 and FY2016.
>
> 7.3.1 Energy intensity measured in terms of primary energy and GDP – as measured by GJ of energy use per $ million of GDP, energy intensity decreased from 9,049 to 6,280 GJ per $ million of GDP. GDP per KJ of energy use increased from $0.11 to $0.16 per KJ between FY2014 and FY2016.

4. NEXT STEPS

These experimental accounts are the first attempt towards accounting for water and energy supply and use in Palau. It has shown that existing data can be used to produce a set of experimental energy and water accounts, notwithstanding some limitations, and they are suitable for government use.

While valuable information can be derived from the current compilation, further development of the energy and water accounts will facilitate more complete analysis of important policy questions, including reducing energy and water use and increasing use of renewables. Additional issues, such as disaster preparedness may also be explored by the water and energy accounts, as well as, the addition of other types of accounts.

As such potential future work could include:

- Disaggregating main economic activity so that energy and water use can be matched as closely possible to the International Standard Industrial Classification (ISIC), e.g.: Agriculture, Fisheries, Construction, Transport, Wholesale and Retail Trade to capture the amount of electricity and fuel energy and water use, and intensity of use, in different industries. Given the significance of the tourism sector, disaggregated data on accommodation and food services activities is critical for facilitating policy considerations and measure of sustainable tourism;
- Accounting for additional water (e.g. wells, rainwater harvest) and energy sources (e.g. cooking gas, renewable energy, fuel wood, generators) to understand more completely total energy and water production and use;
- Additional investigation of fuel wholesaling supply by customer type (both volume and value) to ensure that the monetary and physical use of energy are better accounted;
- Additional investigation of use of energy by domestic and international marine transport and fishing industries;
- Updating the water and energy accounts at regular intervals, ideally annually but recognizing that frequency of production will be constrained by human and financial resources. To support this, a working group or an arrangement of regular contact with the main provider PPUC will be helpful. Such a working arrangement (through email and other communication means), will create better understanding of information needed and use of accounts;
- Developing a water asset account, to enable, among other things, calculation of the SDG indictor 6.4.2 on water stress; and
- Production of addition types of accounts, for example, greenhouse gas emission accounts (which follow naturally from energy accounts) and land accounts which may be useful for biodiversity conservation and understanding susceptibility to climate change.

At a technical level, several issues were identified including:

- Water and energy suppliers to be encouraged to use ISIC for industry classifications and the sector classification of the SNA and SEEA. A specific start towards this would be coding the customers of PPUC to ISIC;
- Information of wholesale and retail sales of fossil fuel products is needed to split the amount supplied to households, ROP, government and industries;
- Data on fossil fuel inventories. No existing sources were identified and the change in inventories is a residual calculation;

- Data on the amount of fuel wood, renewable technologies, personal generators are needed to develop estimates of the energy used from these sources. Information from existing Survey's and Censuses can be mined for this task; and
- Closer coordination between Bureau of Budget and Planning, relevant government agencies and utility companies will ensure consistency between different information sources.

5. ACKNOWLEDGEMENTS

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A dedicated team of staff led by Muriell Sinsak, Hazel L. Tesei, A-ichea Yamada and Eve Morei produced the experimental accounts, with technical support from Michael Vardon of the Australian National University and Sanjesh Naidu of UNESCAP, Subregional Office for the Pacific.

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ANNEX 1. ENERGY AND WATER ACCOUNTS – TABLES

TABLE A1. ENERGY MONETARY SUPPLY AND USE TABLE, PALAU, FY2016 (US$ MILLION, CURRENT PRICE)

Monetary supply table	Industries				Government and ROP			Households	Environment	Rest of the World Imports (Blue Bay and IP&E)	Total supply at basic price	Net taxes and subsidies	Transport and trade margins	TOTAL SUPPLY (purchase price)
	Electricity	Accomondation and food service	All other industries	*Subtotal industries*	Government	ROP	*Subtotal government and ROP*							
Natural resources														
Solar									**0.139**					**0.139**
Firewood														
Total natural resources									*0.139*					*0.139*
Products														
Fossil fuels	-	-	-	-	-	-	-	-		**29.750**	**29.750**	**3.277**	**27.236**	**60.263**
Diesel	-	-	-	-	-	-	-	-		13.604	13.604	1.334	11.098	26.036
Gasoline	-	-	-	-	-	-	-	-		8.523	8.523	1.271	10.852	20.646
Aviation gas	-	-	-	-	-	-	-	-		5.692	5.692	0.515	4.375	10.582
Cooking gas	-	-	-	-	-	-	-	-		1.324	1.324	0.110	0.647	2.080
Other	-	-	-	-	-	-	-	-		0.607	0.607	0.047	0.265	0.919
Electricity	**20.332**	-	-	***20.332***	-	-	-	-		**-**	**20.332**	**-**	**-**	**20.332**
Total energy products	*20.332*	-	-	*20.332*	-	-	-	-		*29.750*	*50.082*	*3.277*	*27.236*	*80.595*
TOTAL SUPPLY	**20.332**	**-**	**-**	***20.332***	**-**	**-**	**-**	**-**	**0.139**	**29.750**	**50.082**	**3.277**	**27.236**	**80.734**

Monetary use table	Industries				Government and ROP			Households	Environment	Rest of the World Exports (Blue Bay and IP&E)	Change in inventories	TOTAL USE (purchase price)
	Electricity	Accomondation and food service	All other industries	*Subtotal industries*	Government	ROP	*Subtotal government and ROP*					
Natural resources												
Solar				***0.086***	**0.023**	**0.009**	***0.032***	**0.021**				**0.139**
Firewood												
Total natural resources				*0.086*	*0.023*	*0.009*	*0.032*	*0.021*				*0.139*
Products												
Fossil fuels	**13.438**	**1.352**	**19.461**	***34.251***	**2.844**	**-**	***2.844***	**5.321**		**11.846**	**6.000**	**60.263**
Diesel	13.438	-	7.424	*20.862*	0.711	-	*0.711*	0.218		1.305	2.940	26.036
Gasoline	-	-	11.197	11.197	2.133	-	*2.133*	4.358		1.115	1.843	20.646
Aviation gas	-	-	-	-	-	-	**-**	-		9.365	1.217	10.582
Cooking gas	-	1.352	-	*1.352*	-	-	**-**	0.728		-	-	2.080
Other	-	-	0.840	0.840	-	-	**-**	0.017		0.061	-	0.918
Electricity	**-**	**-**	**-**	**8.237**	**1.069**	**5.526**	***6.595***	**5.500**		**-**	**-**	**20.332**
Total energy products	*13.438*	*1.352*	*19.461*	*42.488*	*3.913*	*5.526*	*9.439*	*10.821*		*11.846*	*6.000*	*80.595*
TOTAL USE	**13.438**	**1.352**	**19.461**	***42.574***	***3.936***	***5.535***	***9.471***	***10.842***		**11.846**	**6.000**	**80.734**

TABLE A2. ENERGY MONETARY SUPPLY AND USE TABLE, PALAU, FY2015 (US$ MILLION, CURRENT PRICE)

Monetary supply table	Industries				Government and ROP			Households	Environment	Rest of the World Imports (Blue Bay and IP&E)	Total supply at basic price	Net taxes and subsidies	Transport and trade margins	TOTAL SUPPLY (purchase price)
	Electricity	Accomondation and food service	All other industries	*Subtotal industries*	Government	ROP	*Subtotal government and ROP*							
Natural resources														
Solar									**0.046**					**0.046**
Firewood														
Total natural resources									*0.046*					*0.046*
Products														
Fossil fuels	-	-	-	**-**	-	-	**-**	-		**34.714**	**34.714**	3.486	32.236	**70.435**
Diesel	-	-	-	**-**	-	-	-	-		17.437	17.437	1.571	14.898	33.906
Gasoline	-	-	-	**-**	-	-	-	-		8.702	8.702	1.207	11.093	21.001
Aviation gas	-	-	-	**-**	-	-	-	-		6.546	6.546	0.548	5.332	12.427
Cooking gas	-	-	-	**-**	-	-	-	-		1.474	1.474	0.119	0.690	2.283
Other	-	-	-	**-**	-	-	-	-		0.555	0.555	0.041	0.223	0.818
Electricity	**21.907**	**-**	**-**	***21.907***	-	-	-	-		-	**21.907**	-	-	21.907
Total energy products	*21.907*	-	-	*21.907*	-	-	-	-		*34.714*	*56.621*	3.486	32.236	*92.342*
TOTAL SUPPLY	**21.907**	**-**	**-**	***21.907***	**-**	**-**	**-**	**-**	**0.046**	**34.714**	**56.621**	**3.486**	**32.236**	**92.388**

Monetary use table	Industries				Government and ROP			Households	Environment	Rest of the World Exports (Blue Bay and IP&E)	Change in inventories	TOTAL USE (purchase price)
	Electricity	Accomondation and food service	All other industries	*Subtotal industries*	Government	ROP	*Subtotal government and ROP*					
Natural resources												
Solar				***0.027***		**0.002**	***0.002***	**0.017**				**0.046**
Firewood												
Total natural resources				*0.027*		*0.002*	*0.002*	*0.017*				*0.046*
Products												
Fossil fuels	**14.570**	**1.484**	**36.576**	***52.630***	**1.747**	-	***1.747***	**5.979**		**15.869**	**(5.791)**	**70.434**
Diesel	14.570	-	20.900	35.470	0.437	-	*0.437*	0.363		1.310	(3.673)	33.906
Gasoline	-	-	14.913	*14.913*	1.310	-	*1.310*	4.801		1.177	(1.200)	21.001
Aviation gas	-	-		-	-	-	-	-		13.323	(0.898)	12.425
Cooking gas	-	1.484	-	*1.484*	-	-	-	0.799		-	-	2.283
Other	-	-	0.763	*0.763*	-	-	-	0.016		0.059	(0.020)	0.818
Electricity	-	-	-	***9.022***	1.231	6.050	***7.281***	5.604		-	-	**21.907**
Total energy products	*14.570*	*1.484*	*36.576*	*61.652*	*2.978*	*6.050*	*9.028*	*11.583*		*15.869*	*(5.791)*	*92.341*
TOTAL USE	***14.570***	***1.484***	***36.576***	***61.679***	***2.978***	***6.052***	***9.030***	***11.600***		***15.869***	**(5.791)**	**92.387**

TABLE A3. ENERGY MONETARY SUPPLY AND USE TABLE, PALAU, FY2014 (US$ MILLION, CURRENT PRICE)

Monetary supply table	Industries				Government and ROP			Households	Environment	Rest of the World Imports (Blue Bay and IP&E)	Total supply at basic price	Net taxes and subsidies	Transport and trade margins	TOTAL SUPPLY (purchase price)
	Electricity	Accomondation and food service	All other industries	***Subtotal industries***	Government	ROP	***Subtotal government and ROP***							
Natural resources														
Solar									**0.018**					**0.018**
Firewood														
Total natural resources									*0.018*					*0.018*
Products														
Fossil fuels	-	-	-	**-**	-	-	-	-		***55.182***	***55.182***	***3.733***	***15.570***	***74.485***
Diesel	-	-	-	**-**	-	-	-	-		30.262	30.262	1.754	6.316	38.332
Gasoline	-	-	-	**-**	-	-	-	-		13.813	13.813	1.286	6.546	21.645
Aviation gas	-	-	-	**-**	-	-	-	-		9.094	9.094	0.535	1.797	11.426
Cooking gas	-	-	-	**-**	-	-	-	-		1.478	1.478	0.116	0.674	2.268
Other	-	-	-	**-**	-	-	-	-		0.535	0.535	0.041	0.237	0.814
Electricity	27.684	-	-	***27.684***	-	-	-	-		-	27.684	-	-	**27.684**
Total energy products	*27.684*	-	-	*27.684*	-	-	-	-		55.182	82.866	*3.733*	*15.570*	*102.169*
TOTAL SUPPLY	**27.684**	**-**	**-**	***27.684***	**-**	**-**	**-**	**-**	**0.018**	**55.182**	**82.866**	**3.733**	**15.570**	**102.187**

Monetary use table	Industries				Government and ROP			Households	Environment	Rest of the World Exports (Blue Bay and IP&E)	Change in inventories	TOTAL USE (purchase price)
	Electricity	Accomondation and food service	All other industries	***Subtotal industries***	Government	ROP	***Subtotal government and ROP***					
Natural resources												
Solar				***0.005***			**-**	**0.013**				**0.018**
Firewood												
Total natural resources				*0.005*				*0.013*				*0.018*
Products												
Fossil fuels	**18.652**	**1.474**	**27.750**	***47.876***	**2.385**	**-**	***2.385***	**6.946**		**14.353**	**2.924**	**74.484**
Diesel	18.652	-	13.960	*32.612*	0.596	-	*0.596*	0.335		1.864	2.924	38.332
Gasoline	-	-	13.045	*13.045*	1.789	-	*1.789*	5.801		1.010	-	21.645
Aviation gas	-	-	-	-		-	**-**	-		11.426	-	11.426
Cooking gas	-	1.474	-	*1.474*	-	-	**-**	0.794		-	-	2.268
Other	-	-	0.745	*0.745*	-	-	**-**	0.015		0.053	-	0.813
Electricity	**-**	**-**	**11.283**	**11.283**	**1.955**	**7.538**	***9.493***	**6.908**		**-**	**-**	**27.684**
Total energy products	*18.652*	*1.474*	*39.033*	*59.159*	*4.340*	*7.538*	*11.878*	*13.854*		*14.353*	*2.924*	*102.168*
TOTAL USE	**18.652**	**1.474**	**39.033**	***59.164***	**4.340**	**7.538**	***11.878***	**13.867**		**14.353**	**2.924**	**102.186**

TABLE A4. ENERGY PHYSICAL SUPPLY AND USE TABLE, PALAU, FY2016 (GJ)

Physical supply table	Industry				Government and ROP			Households	Rest of the World		Environment	TOTAL
	Electricity*	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*		Imports (Blue Bay and IP&E)			
Natural resources												
Solar											14,535	**14,535**
Firewood												
Total natural resources											**14,535**	**14,535**
Products												
Fossil fuels												
Diesel	-	-	-	-	-	-	-	-	1,271,365			**1,271,365**
Gasoline	-	-	-	-	-	-	-	-	264,661			**264,661**
Aviation gas	-	-	-	-	-	-	-	-	214,288			**214,288**
Cooking gas	-	-	-	-	-	-	-	-	4,876			**4,876**
Other	-	-	-	-	-	-	-	-	-			**-**
Subtotal fossil fuels		-	-	-	-	-	-	-	*1,755,190*			***1,755,190***
Electricity												
From diesel	189,996	-	-	189,996	-	-	-	-	-			**189,996**
From solar**	-	-	1,031	1,031	276	1,281	1,557	319	-			**2,907**
Subtotal electricity	*189,996*	-	*1,031*	*191,027*	*276*	*1,281*	*1,557*	*319*	-			***192,903***
Total energy products	**189,996**	-	**1,031**	**191,027**	**276**	**1,281**	**1,557**	**319**	**1,755,190**			**1,948,093**
Residuals												
Losses* **	646,118		4,124	*650,242*	1,104	5,124	*6,228*	1,276				**657,746**
Heat		3,169	473,752	*476,921*	61,551	47,063	*108,614*	137,459				**722,995**
Total residuals	*646,118*	*3,169*	*477,876*	*1,127,163*	*62,655*	*52,187*	*114,842*	*138,735*				***1,380,741***
TOTAL SUPPLY	**836,114**	***3,169***	***478,907***	**1,318,190**	**62,931**	**53,468**	**116,399**	**139,054**	**1,755,190**		**14,535**	**3,343,369**

Physical use table	Industry				Government and ROP			Households	Rest of the World	Change in Inventory	Environment	TOTAL
	Electricity*	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*		Exports (Blue Bay and IP&E)			
Natural resources												
Solar			5,155	*5,155*	1,380	6,405	*7,785*	1,595				**14,535**
Firewood												
Total natural resources			**5,155**	**5,155**	**1,380**	**6,405**	**7,785**	**1595**				**14,535**
Products												
Fossil fuels												
Diesel	836,114	-	256,497	1,092,611	24,564	-	24,564	7,529	45,091	101,570		**1,271,365**
Gasoline	-	-	143,076	143,076	27,256	-	27,256	66,295	-	28,035.15		**264,661**
Aviation gas	-	-	-	-	-	-	-	-	214,288	-		**214,288**
Cooking gas	-	3,169	-	3,169	-	-	-	1,707	-	-		**4,876**
Other	-	-	-	-	-	-	-	-	-	-		**-**
Subtotal fossil fuels	*836,114*	*3,169*	*399,573*	*1,238,856*	*51,819*	-	*51,819*	*75,530*	*259,379*	*129,605*		***1,755,190***
Electricity												
From diesel			73,148	*73,148*	9,456	45,782	*55,238*	61,610	-	**-**		**189,996**
From solar**			1,031	*1,031*	276	1,281	*1,557*	319				**2,907**
Subtotal electricity			*74,179*	*74,179*	*9,732*	*47,063*	*56,795*	*61,929*	-	-		***192,903***
Total energy products	**836,114**	**3,169**	**473,752**	**1,313,035**	**61,551**	**47,063**	**108,614**	**137,459**	**259,379**	**129,605**		**1,948,093**
Residuals												
Losses* **											657,746	**657,746**
Heat											722,995	**722,995**
Total residuals											**1,380,741**	**1,380,741**
TOTAL USE	**836,114**	**3,169**	**478,907**	**1,318,190**	**62,931**	**53,468**	**116,399**	**139,054**	**259,379**	**129,605**	**1,380,741**	**3,343,369**

*State owned enterprise

**Own-account production and use

***Includes losses in distribution and conversion

Grey = nil by definition

TABLE A5. ENERGY PHYSICAL SUPPLY AND USE TABLE, PALAU, FY2015 (GJ)

Physical supply table	Industry				Government and ROP			Households	Rest of the World		Environment	TOTAL
	Electricity*	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*		Imports (Blue Bay and IP&E)			
Natural resources												
Solar											8,665	**8,665**
Firewood												
Total natural resources											8,665	**8,665**
Products												
Fossil fuels												
Diesel	-	-	-	-	-	-	-	-	1,144,583			**1,144,583**
Gasoline	-	-	-	-	-	-	-	-	272,397			**272,397**
Aviation gas	-	-	-	-	-	-	-	-	247,643			**247,643**
Cooking gas	-	-	-	-	-	-	-	-	5,491			**5,491**
Other	-	-	-	-	-	-	-	-	-			**-**
Subtotal fossil fuels	-	-	-	-	-	-	-	-	**1,670,114**			***1,670,114***
Electricity												
From diesel	231,883	-	-	*231,883*	-	-		-	-			**231,883**
From solar**			303	*303*	3	1,186	*1,189*	241				**1,733**
Subtotal electricity	*231,883*	-	*303*	*232,186*	*3*	*1,186*	*1,189*	*241*	-			***233,616***
Total energy products	**231,883**	**-**	**303**	***232,186***	**3**	**1,186**	***1,189***	**241**	**1,670,114**			**1,903,730**
Residuals												
Losses* **	630,617		1,212	*631,829*	12	4,744	*4,756*	964				**637,549**
Heat		3,569	624,414	*627,983*	36,103	61,838	*97,941*	136,549				**862,473**
Total residuals	*600,231*	*3,569*	*625,626*	*1,229,426*	*36,115*	*66,582*	*102,697*	*137,513*				**1,469,636**
TOTAL SUPPLY	**832,114**	**3,569**	**625,929**	***1,461,612***	**36,118**	**67,768**	***103,886***	**137,754**	**1,670,114**		**8,665**	**3,382,031**

Physical use table	Industry				Government and ROP			Households	Rest of the World	Change in Inventory	Environment	TOTAL
	Electricity*	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*		Exports (Blue Bay and IP&E)			
Natural resources												
Solar	-	-	1,515	*1,515*	15	5,930	*5,945*	1,205	-			**8,665**
Firewood	-	-	-		-	-		-	-			**-**
Total natural resources	**-**	**-**	**1,515**	***1,515***	**15**	**5,930**	**5,945**	**1,205**	**-**			**8,665**
Products												
Fossil fuels												
Diesel	832,114	-	337,747	*1,169,861*	7,058	-	*7,058*	5,866	21,170	(59,372)		**1,144,583**
Gasoline	-	-	193,428	*193,428*	16,994.79	-	*16,995*	62,272	15,266	(15,564)		**272,397**
Aviation gas	-	-		-	-	-	-		265,498	(17,855)		**247,643**
Cooking gas	-	3,569		*3,569*	-	-	-	1,922	-	-		**5,491**
Other	-	-		-	-	-	-	-	-	-		**-**
Subtotal fossil fuels	*832,114*	*3,569*	*531,175*	*1,366,858*	*24,053*	-	*24,053*	*70,060*	*301,934*	*(92,791)*		***1,670,114***
Electricity												
From diesel			92,936	*92,936*	12,047	60,652	*72,699*	66,248	-	-		**231,883**
From solar**			303	*303*	3	1,186	*1,189*	241	-	-		**1,733**
Subtotal electricity			*93,239*	*93,239*	*12,050*	*61,838*	*73,888*	*66,489*	-	-		***233,616***
Total energy products	**832,114**	**3,569**	**624,414**	***1,460,097***	***36,103***	***61,838***	***97,941***	***136,549***	***301,934***	***(92,791)***		**1,903,730**
Residuals												
Losses* **											637,549	**637,549**
Heat											862,473	**862,473**
Total residuals											1,469,636	***1,469,636***
TOTAL USE	**832,114**	**3,569**	**625,929**	***1,461,612***	**36,118**	**67,768**	**103,886**	**137,754**	**301,934**	**(92,791)**	**1,469,636**	**3,382,031**

*State owned enterprise

**Own-account production and use

***Includes losses in distribution and conversion

Grey = nil by definition

TABLE A6. ENERGY PHYSICAL SUPPLY AND USE TABLE, PALAU, FY2014 (GJ)

Physical supply table	Industry				Government and ROP			Households	Rest of the World Imports (Blue Bay and IP&E)		Environment	TOTAL
	Electricity*	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*					
Natural resources												
Solar											6,895	**6,895**
Firewood												
Total natural resources											**6,895**	**6,895**
Products												
Fossil fuels												
Diesel	-	-	-	-	-	-	-	-	1,192,393			**1,192,393**
Gasoline	-	-	-	-	-	-	-	-	439,549			**439,549**
Aviation gas	-	-	-	-	-	-	-	-	348,720			**348,720**
Cooking gas	-	-	-	-	-	-	-	-	5,801			**5,801**
Other	-	-	-	-	-	-	-	-	-			**-**
Subtotal fossil fuels									*1,986,463*			***1,986,463***
Electricity												
From diesel	241,770	-	-	*241,770*	-	-	-	-	-			**241,770**
From solar**	-		46	*46*	1	1,198	1,199	134	-			**1,379**
Subtotal electricity	*241,770*	-	*46*	*241,816*	*1*	*1,198*	*1,199*	*134*	-			***243,149***
Total energy products	**241,770**	-	**46**	***241,816***	**1**	**1,198**	**1,199**	**134**	**1,986,463**			**2,229,612**
Residuals												
Losses* **	522,027		184	*522,211*	4	4,792	***4,796***	536				**527,543**
Heat		3,771	662,703	*666,473*	65,419	64,497	***129,916***	195,920				**992,309**
Total residuals	*522,027*	*3,771*	*662,887*	*1,188,684*	65,423	69,289	***134,712***	196,456				***1,519,852***
TOTAL SUPPLY	**763,797**	**3,771**	**662,933**	***1,430,500***	**65,424**	**70,487**	***135,911***	**196,590**	**1,986,463**		**6,895**	**3,756,360**

Physical use table	Industry				Government and ROP			Households	Rest of the World Exports (Blue Bay and IP&E)	Change in Inventory	Environment	TOTAL
	Electricity*	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*					
Natural resources												
Solar			230	*230*	5	5,990	*5,995*	670				**6,895**
Firewood				*0*								
Total natural resources			**230**	**230**	**5**	**5990**	***5995***	**670**				**6,895**
Products												
Fossil fuels							-					
Diesel	763,797	-	304,029	*1,067,826*	12,985.43	-	12,985	7,305	40,595	63,681		**1,192,393**
Gasoline	-	-	264,907	*264,907*	36,325	-	36,325	117,808	20,510			**439,549**
Aviation gas	-	-	-	-	-	-	-	-	348,720			**348,720**
Cooking gas	-	3,771		*3,771*	-	-	-	2,031	-			**5,801**
Other	-	-	-	-	-	-	-	-	-			**-**
Subtotal fossil fuels	*763,797*	*3,771*	*568,936*	*1,336,503*	*49,310*	-	*49,310*	*127,144*	*409,825*	*63,681*		***1,986,463***
Electricity									-	-		
From diesel			93,721	*93,721*	16,108	63,299	*79,407*	68,642	-	-		**241,770**
From solar**			46	*46*	1	1,198	*1,199*	134	-	-		**1,379**
Subtotal electricity			*93,767*	*93,767*	*16,109*	*64,497*	*80,606*	*68,776*	-	-		***243,149***
Total energy products	**763,797**	**3,771**	**662,703**	***1,430,270***	**65,419**	**64,497**	***129,916***	**195,920**	**409,825**	**63,681**		**2,229,612**
Residuals												
Losses* **											527,543	**527,543**
Heat											992,309	**992,309**
Total residuals											*1,519,852*	***1,519,852***
TOTAL USE	**763,797**	**3,771**	**662,933**	**1,430,500**	**65,424**	**70,487**	***135,911***	**196,590**	**409,825**	**63,681**	**1,519,852**	**3,756,360**

*State owned enterprise

**Own-account production and use

***Includes losses in distribution and conversion

Grey = nil by definition

TABLE A7. WATER MONETARY SUPPLY AND USE TABLE, PALAU, FY2016 (US$ MILLION)

Physical supply table							Government and ROP			Households	TOTAL SUPPLY (basic price = purchase price)
		Water supply	Sewerage	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government*		
Products											
	Natural water	*5.022*	-	-	-	*5.022*	-	-	-	-	**5.022**
	Sewerage	-	1.126	-	-	*1.126*	-	-	-	-	**1.126**
	Total water and sewerage products	*5.022*	*1.126*	-	-	*6.148*	-	-	-	-	**6.148**
TOTAL SUPPLY		**5.022**	**1.126**	**-**	**-**	***6.148***	**-**	**-**	**-**	**-**	**6.148**

Physical use table							Government and ROP			Households	TOTAL USE (basic price = purchase price
		Water supply	Sewerage	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government*		
Products											
	Natural water	**-**	-	-	2.444	*2.444*	0.242	0.323	*0.565*	2.013	**5.022**
	Sewerage	-	-	-	0.894	*0.894*	0.042	0.114	*0.156*	0.076	**1.126**
	Total water and sewerage products	**-**	**-**	**-**	*3.338*	*3.338*	0.284	0.437	*0.721*	*1.158*	**6.148**
TOTAL USE		**-**	**-**	**-**	***3.338***	***3.338***	**0.284**	**0.437**	***0.721***	***1.158***	**6.148**

TABLE A8. WATER MONETARY SUPPLY AND USE TABLE, PALAU, FY2015 (US$ MILLION)

Physical supply table							Government and ROP			Households	TOTAL SUPPLY (basic price = purchase price)
		Water supply	Sewerage	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government*		
Products											
	Natural water	*3.235*	-	-	-	*3.235*	-	-	-	-	**3.235**
	Sewerage	-	0.775	-	-	*0.775*	-	-	-	-	**0.775**
	Total water and sewerage products	*3.235*	*0.775*	-	-	*4.010*	-	-	-	-	**4.010**
TOTAL SUPPLY		**3.235**	**0.775**	**-**	**-**	***4.010***	**-**	**-**	**-**	**-**	**4.010**

Physical use table							Government and ROP			Households	TOTAL USE (basic price = purchase price
		Water supply	Sewerage	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*		
Products											
	Natural water	**-**	-	-	1.426	*1.426*	0.235	0.159	*0.394*	1.415	**3.235**
	Sewerage	-	-	-	0.615	*0.615*	0.037	0.050	*0.087*	0.073	**0.775**
	Total water and sewerage products	**-**	**-**	**-**	*2.041*	*2.041*	0.272	0.209	*0.481*	*1.488*	**4.010**
TOTAL USE		**-**	**-**	**-**	***2.041***	***2.041***	**0.272**	**0.209**	***0.481***	***1.488***	**4.010**

TABLE A9. WATER MONETARY SUPPLY AND USE TABLE, PALAU, FY2014 (US$ MILLION)

Physical supply table							Government and ROP			Households	TOTAL SUPPLY (basic price = purchase price)
		Water supply	Sewerage	Accomondation and food service	All other industries	***Subtotal industry***	Government	ROP	***Subtotal government***		
Products											
	Natural water	*2.498*	-	-	-	*2.498*	-	-	-	-	**2.498**
	Sewerage	-	0.727	-	-	*0.727*	-	-	-	-	**0.727**
	Total water and sewerage products	*2.498*	*0.727*	-	-	*3.225*	-	-	-	-	**3.225**
TOTAL SUPPLY		**2.498**	**0.727**	**-**	**-**	***3.225***	**-**	**-**	**-**	**-**	**3.225**

Physical use table							Government and ROP			Households	TOTAL USE (basic price = purchase price
		Water supply	Sewerage	Accomondation and food service	All other industries	***Subtotal industry***	Government	ROP	***Subtotal government***		
Products											
	Natural water	**-**	-	-	-	*1.134*	0.177	0.100	*0.277*	1.087	**2.498**
	Sewerage	-	-	-	-	*0.571*	0.017	0.076	*0.093*	0.063	**0.727**
	Total water and sewerage products	**-**	**-**	**-**	-	*1.705*	0.194	0.176	*0.370*	*1.150*	**3.225**
TOTAL USE		**-**	**-**	**-**	**-**	***1.705***	**0.194**	**0.176**	***0.370***	***1.150***	**3.225**

TABLE A10. WATER PHYSICAL SUPPLY AND USE TABLE, PALAU, FY2016 (ML)

Physical supply table		Industry					Government and ROP			Households	Rest of the World	Environment	TOTAL
		Water supply	Sewerage	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*				
Natural resources													
	Water from reservoirs											5,606	**5,606**
	Other surface water											-	**-**
	Groundwater											83	**83**
	Rainwater tanks											84	**84**
	Total natural resources											**5,773**	**5,773**
Products													
	Natural water	1,990				***1,990***	-	-	-	-	-		**1,990**
	Sewerage						-	-	-	-	-		**-**
	Total water and sewerage products	***1,990***	**-**	**-**	**-**	***1,990***	**-**	**-**	**-**	**-**	**-**		**1,990**
Return flows													
	To surface water												**-**
	To groundwater*	2,735				***2,735***							**2,735**
	To sea												**-**
	Total return flows	***2,735***	**-**	**-**	**-**	***2,735***							***2,735***
TOTAL SUPPLY		**4,725**	**-**	**-**	**-**	***4,725***	**-**	**-**	**-**	**-**	**-**	**5,773**	**10,498**

Physical use table		Industry					Government and ROP			Households	Rest of the World	Environment	TOTAL
		Water supply	Sewerage	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*				
Natural resources													
	Water from reservoirs	5,606	**-**	**-**	**-**	***5,606***	**-**	**-**	**-**	**-**	**-**		**5,606**
	Other surface water	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		**-**
	Groundwater	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**83**	**-**		**83**
	Rainwater tanks	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**84**	**-**		**84**
	Total natural resources	**5,606**	**-**	**-**	**-**	***5,606***	**-**	**-**	**-**	**167**	**-**		**5,773**
Products													
	Natural water					***705***	46	89	***135***	**1,150**			**1,990**
	Sewerage												
	Total water and sewerage products					***705***	**46**	**89**	**135**	**1,150**	**-**		**1,990**
Return flows													
	To surface water												
	To groundwater*											2,735	**2,735**
	To sea												
	Total return flows											***2,735***	**2,735**
TOTAL USE		***5,606***	**-**	**-**	**-**	***6,311***	***46***	***89***	***135***	***1,317***	**-**	***2,735***	***10,498***

*Losses in distribution (e.g. from leaky pipes)

Grey = nil by definition

TABLE A11. WATER PHYSICAL SUPPLY AND USE TABLE, PALAU, FY2015 (ML)

Physical supply table		Industry					Government and ROP			Households	Rest of the World	Environment	TOTAL
		Water supply	Sewerage	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*				
Natural resources													
	Water from reservoirs											5,647	**5,647**
	Other surface water											-	**-**
	Groundwater											63	**63**
	Rainwater tanks											63	**63**
	Total natural resources											**5,773**	**5,773**
Products													
	Natural water	2,914				***2,914***	-	-	-	-	-		**2,914**
	Sewerage						-	-	-	-	-		**-**
	Total water and sewerage products	***2,914***	**-**	**-**	**-**	***2,914***	**-**	**-**	**-**	**-**	**-**		**2,914**
Return flows													
	To surface water												**-**
	To groundwater*	2,650				***2,650***							**2,650**
	To sea												**-**
	Total return flows	***2,650***	**-**	**-**	**-**	***2,650***							***2,650***
TOTAL SUPPLY		**5,564**	**-**	**-**	**-**	***5,564***	**-**	**-**	**-**	**-**	**-**	**5,773**	**11,337**

Physical use table		Industry					Government and ROP			Households	Rest of the World	Environment	TOTAL
		Water supply	Sewerage	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*				
Natural resources													
	Water from reservoirs	5,647	**-**	**-**	**-**	***5,647***	**-**	**-**	**-**	**-**	**-**		**5,647.00**
	Other surface water	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		**-**
	Groundwater	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**63**	**-**		**63**
	Rainwater tanks	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**63**	**-**		**63**
	Total natural resources	**5,647**	**-**	**-**	**-**	***5,647***	**-**	**-**	**-**	**126**	**-**		**5,773**
Products													
	Natural water					***1,099***	118	113	***157***	**1,658**			**2,914**
	Sewerage												
	Total water and sewerage products					***1,099***	**118**	**113**	**157**	**1,658**	**-**		**2,914**
Return flows													
	To surface water												
	To groundwater*											2,650	**2,650**
	To sea												
	Total return flows											***2,650***	**2,650**
TOTAL USE		***5,647***	**-**	**-**	**-**	***6,746***	***118***	***113***	***157***	***1,784***	**-**	***2,650***	***11,337***

*Losses in distribution (e.g. from leaky pipes)

Grey = nil by definition

TABLE A12. WATER PHYSICAL SUPPLY AND USE TABLE, PALAU, FY2014 (ML)

Physical supply table		Industry					Government and ROP			Households	Rest of the World	Environment	TOTAL
		Water supply	Sewerage	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*				
Natural resources													
	Water from reservoirs											5,531	**5,531**
	Other surface water											-	**-**
	Groundwater											58	**58**
	Rainwater tanks											58	**58**
	Total natural resources											**5,647**	**5,647**
Products													
	Natural water	2,871				***2,871***	-	-	-	-	-		**2,871**
	Sewerage						-	-	-	-	-		**-**
	Total water and sewerage products	***2,871***	**-**	**-**	**-**	***2,871***	**-**	**-**	**-**	**-**	**-**		**2,871**
Return flows													
	To surface water												**-**
	To groundwater*	2,655				***2,655***							**2,655**
	To sea												**-**
	Total return flows	***2,655***	**-**	**-**	**-**	***2,655***							***2,655***
TOTAL SUPPLY		**5,526**	**-**	**-**	**-**	***5,526***	**-**	**-**	**-**	**-**	**-**	**5,647**	**11,173**

Physical use table		Industry					Government and ROP			Households	Rest of the World	Environment	TOTAL
		Water supply	Sewerage	Accomondation and food service	All other industries	*Subtotal industry*	Government	ROP	*Subtotal government and ROP*				
Natural resources													
	Water from reservoirs	5,531	**-**	**-**	**-**	***5,531***	**-**	**-**	**-**	**-**	**-**		**5,531.00**
	Other surface water	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		**-**
	Groundwater	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**58**	**-**		**58.00**
	Rainwater tanks	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**58**	**-**		**58.00**
	Total natural resources	**5,531**	**-**	**-**	**-**	***5,531***	**-**	**-**	**-**	**116**	**0**		**5,647.00**
Products													
	Natural water					***1,176***	85	72	***157***	**1,538**			**2,871**
	Sewerage												
	Total water and sewerage products						**85**	**72**	**157**	**1,538**	**-**		**2,871**
Return flows													
	To surface water												
	To groundwater*											2,655	**2,655**
	To sea												
	Total return flows											***2,655***	**2,655**
TOTAL USE		***5,531***	**-**	**-**	**-**	***5,531***	***85***	***72***	***157***	***1,654***	**-**	***2,655***	***11,173***

*Losses in distribution (e.g. from leaky pipes)

Grey = nil by definition

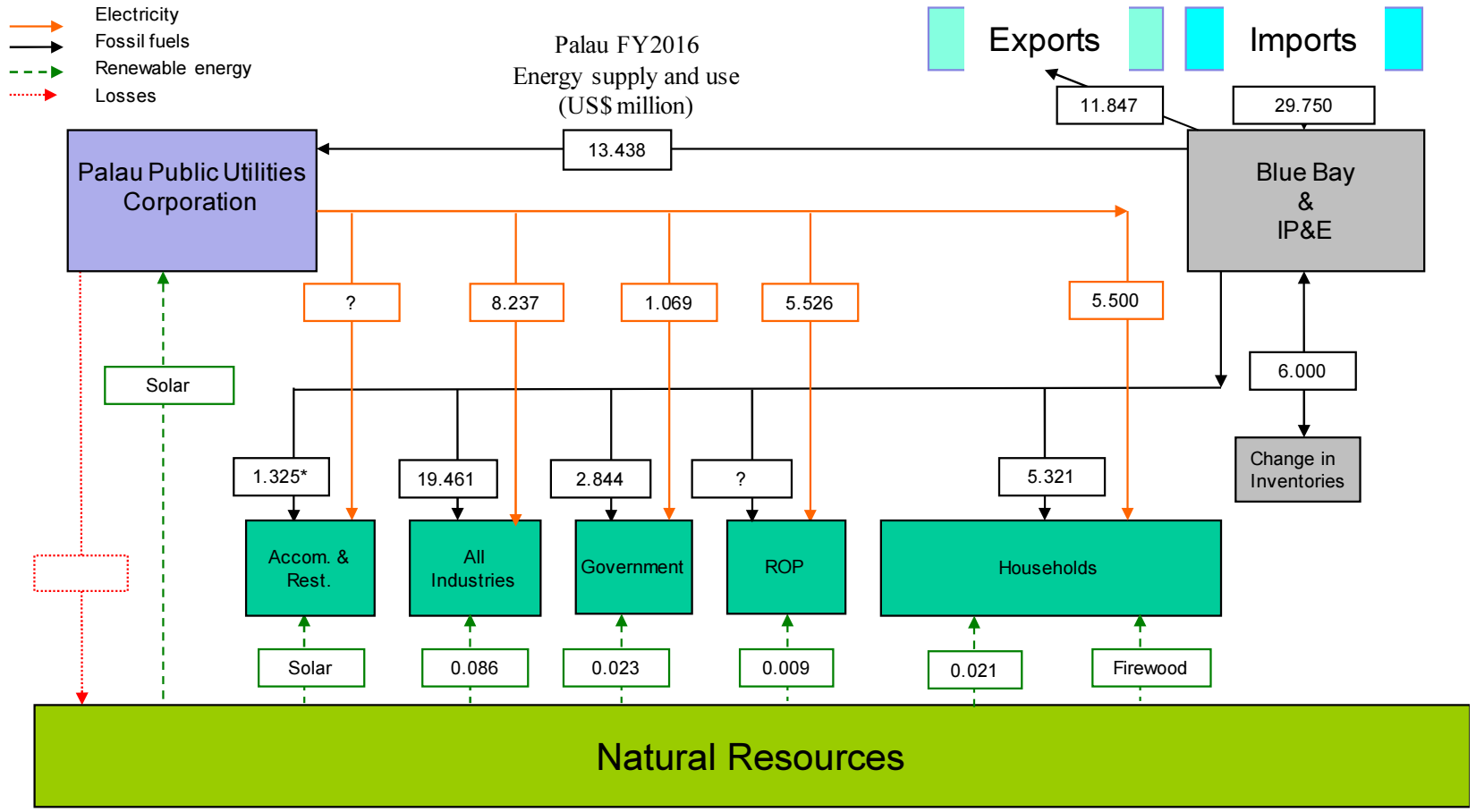
TABLE A13. PALAU PUBLIC UTILITIES CORPORATION, EXPERIMENTAL MONETARY ASSET ACCOUNT FOR ELECTRICITY, WATER SUPPLY AND SEWERAGE INFRASTRUCTURE, FY2014, FY2015 AND FY2016 (US$ MILLION, CURRENT PRICES)

	PPUC			
	Electricity	Water supply	Sewerage	**TOTAL**
Openning value FY2014 (1 Oct 2013)	**29.118**	**21.397**	**19.406**	**69.921**
Fixed capital formation	14.630	0.433	0.722	15.785
Depreciation	-	-	-	-
Other changes	-	-	-	-
Closing value FY2014 (30 Sep 2014)	**43.748**	**21.831**	**20.129**	**85.708**
Net change	*14.630*	*0.434*	*0.723*	*15.787*
Openning value FY2015 (1 Oct 2014)	**43.748**	**21.831**	**20.129**	**85.708**
Fixed capital formation	0.199	0.324	-	0.523
Depreciation	(2.350)	-	-	(2.350)
Other changes	-	-	-	-
Closing value FY2015 (30 Sep 2015)	**41.597**	**22.155**	**20.129**	**83.881**
Net change	*(2.151)*	*0.324*	-	*(1.827)*
Openning value FY2016 (1 Oct 2015)	**41.597**	**22.155**	**20.129**	**83.881**
Fixed capital formation	0.458	1.321	0.559	2.338
Depreciation				
Other changes				
Closing value FY2016 (30 Sep 2016)	**42.055**	**23.476**	**20.688**	**86.219**
Net change	*0.458*	*1.321*	*0.559*	*2.338*

Source: PPUC Financial Statements, Additional Information and Independent Auditors' Report FY2015, page 29; FY2016, page 28
Note: These are just the infrastructure assets. Energy assets is plant and excludes distribution network.

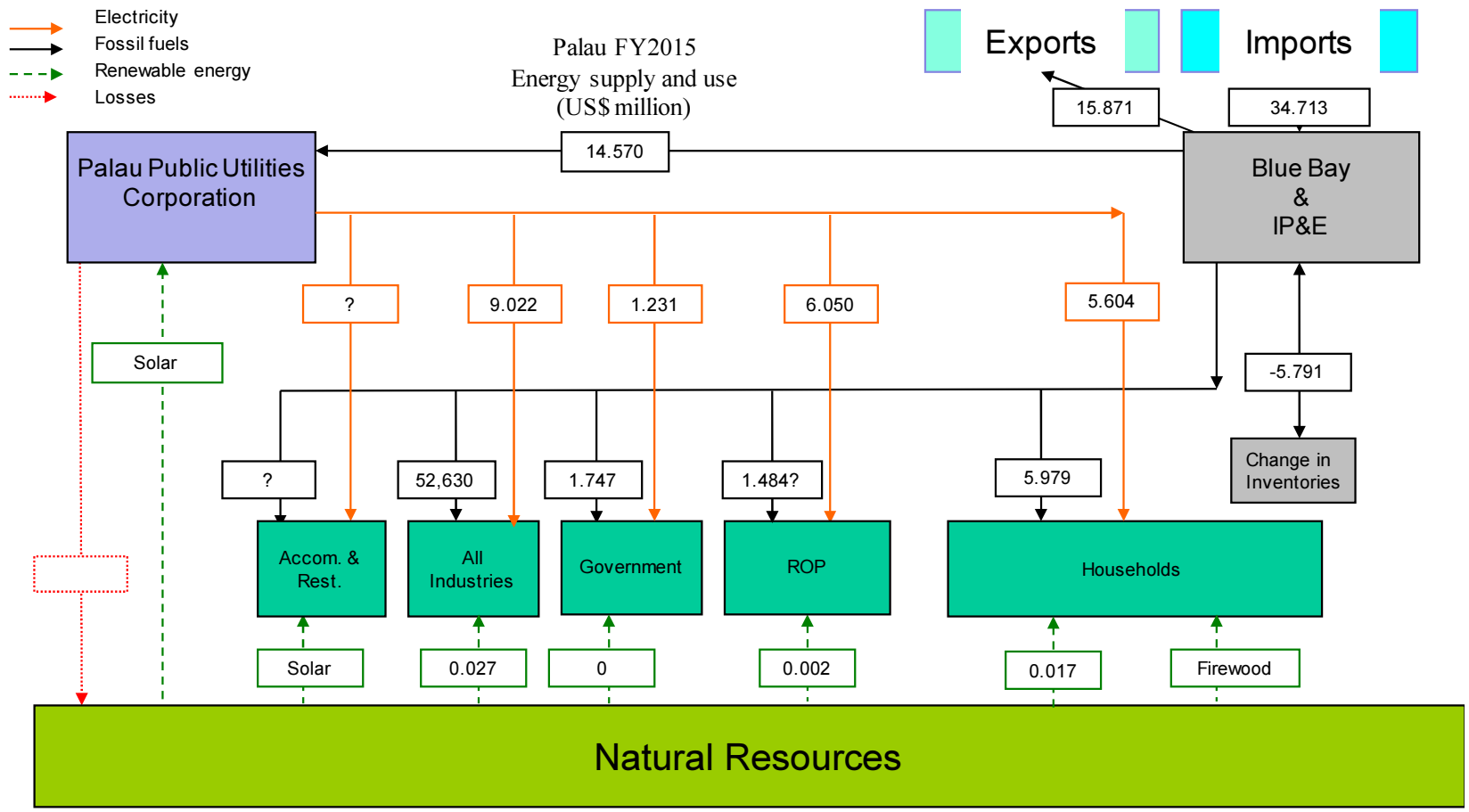
ANNEX 2. ENERGY AND WATER ACCOUNTS – FIGURES

FIGURE A1. MONETARY ENERGY FLOWS, PALAU, FY2016 (US$ MILLION)



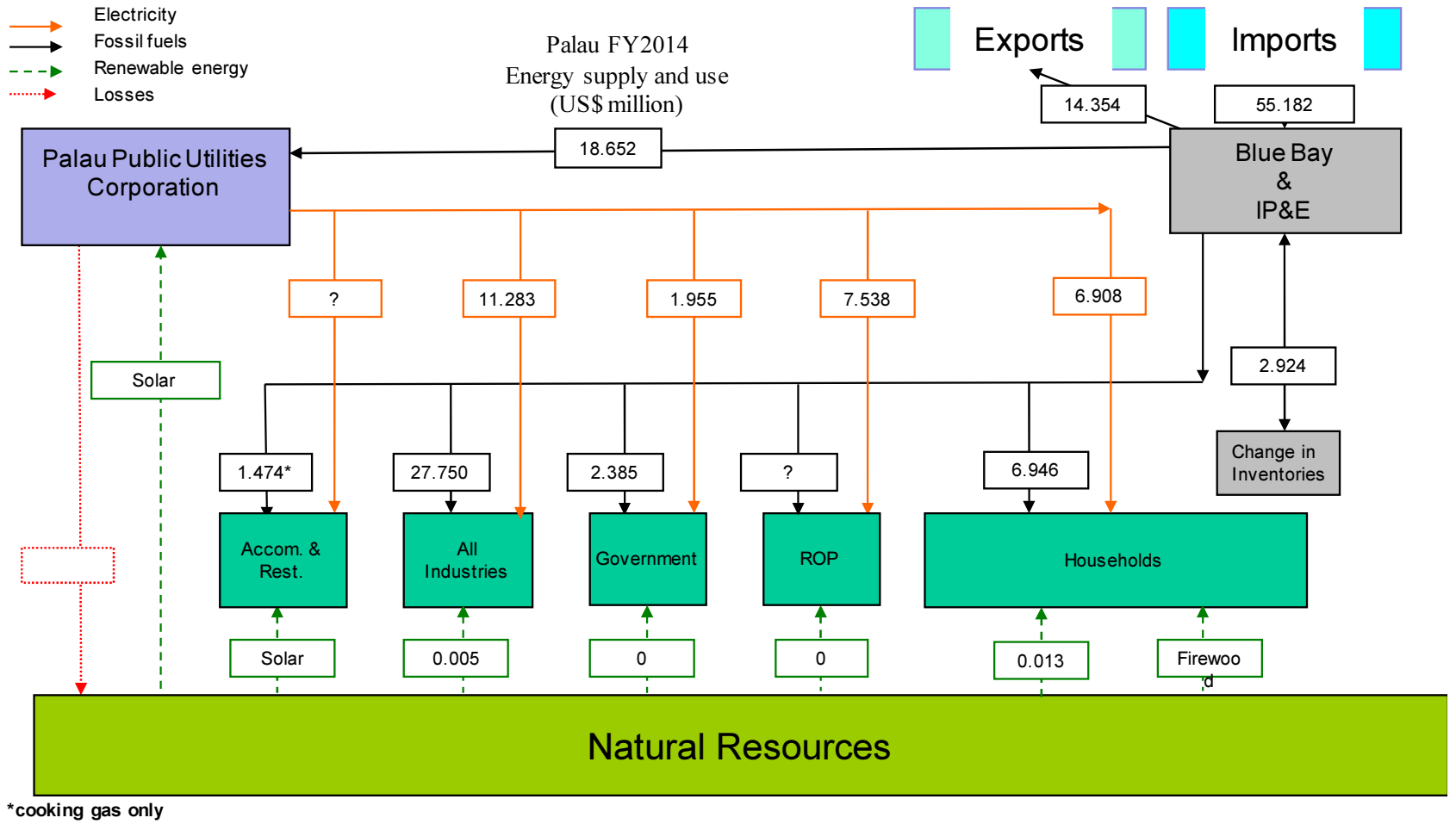
*cooking gas only

FIGURE A2. MONETARY ENERGY FLOWS, PALAU, FY2015 (US$ MILLION)



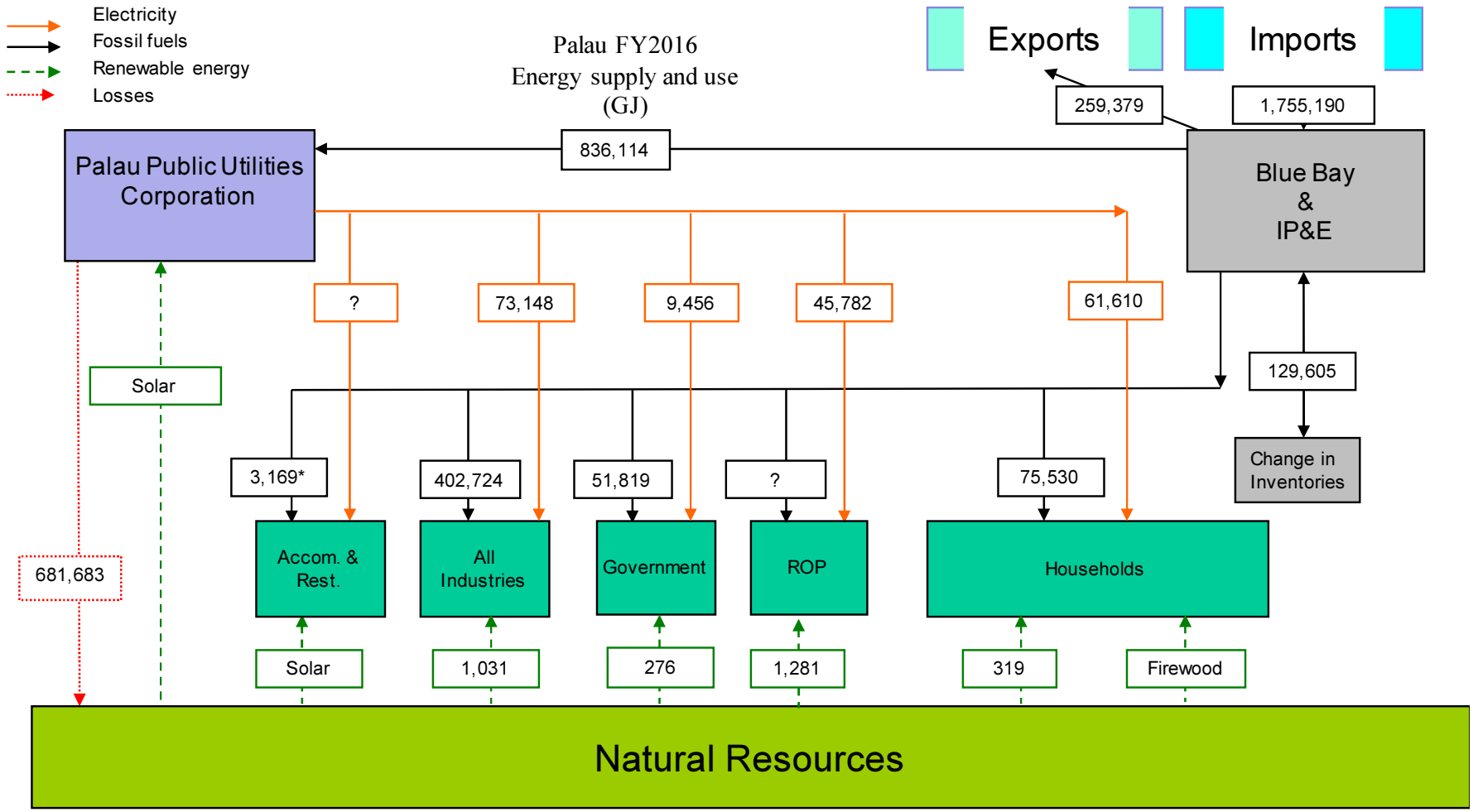
*cooking gas only

FIGURE A3. MONETARY ENERGY FLOWS, PALAU, FY2014 (US$ MILLION)



*cooking gas only

FIGURE A4. PHYSICAL ENERGY FLOWS, PALAU, FY2016 (GJ)



*cooking gas only

FIGURE A5. PHYSICAL ENERGY FLOWS, PALAU, FY2015 (GJ)

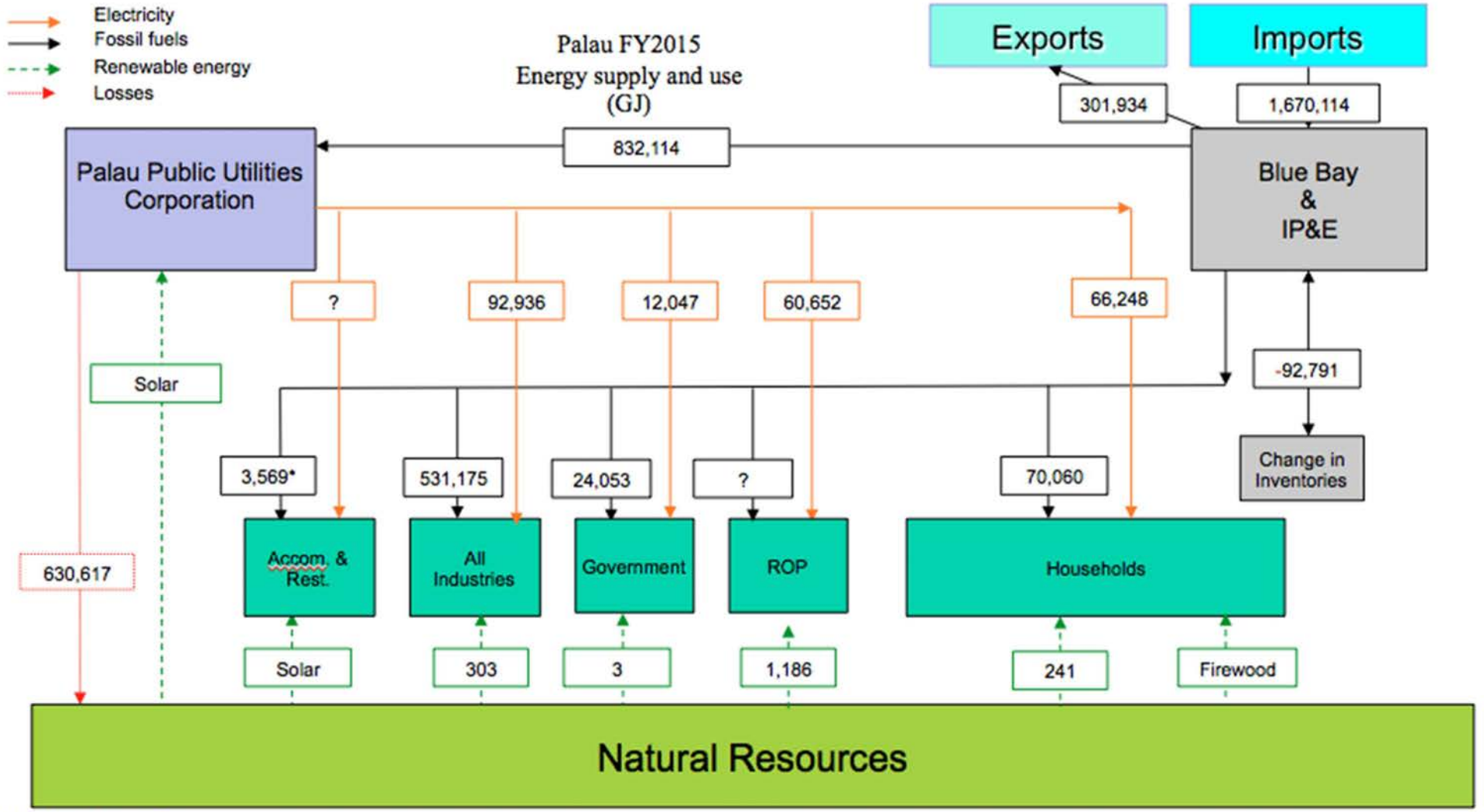


FIGURE A6. PHYSICAL ENERGY FLOWS, PALAU, FY2014 (GJ)

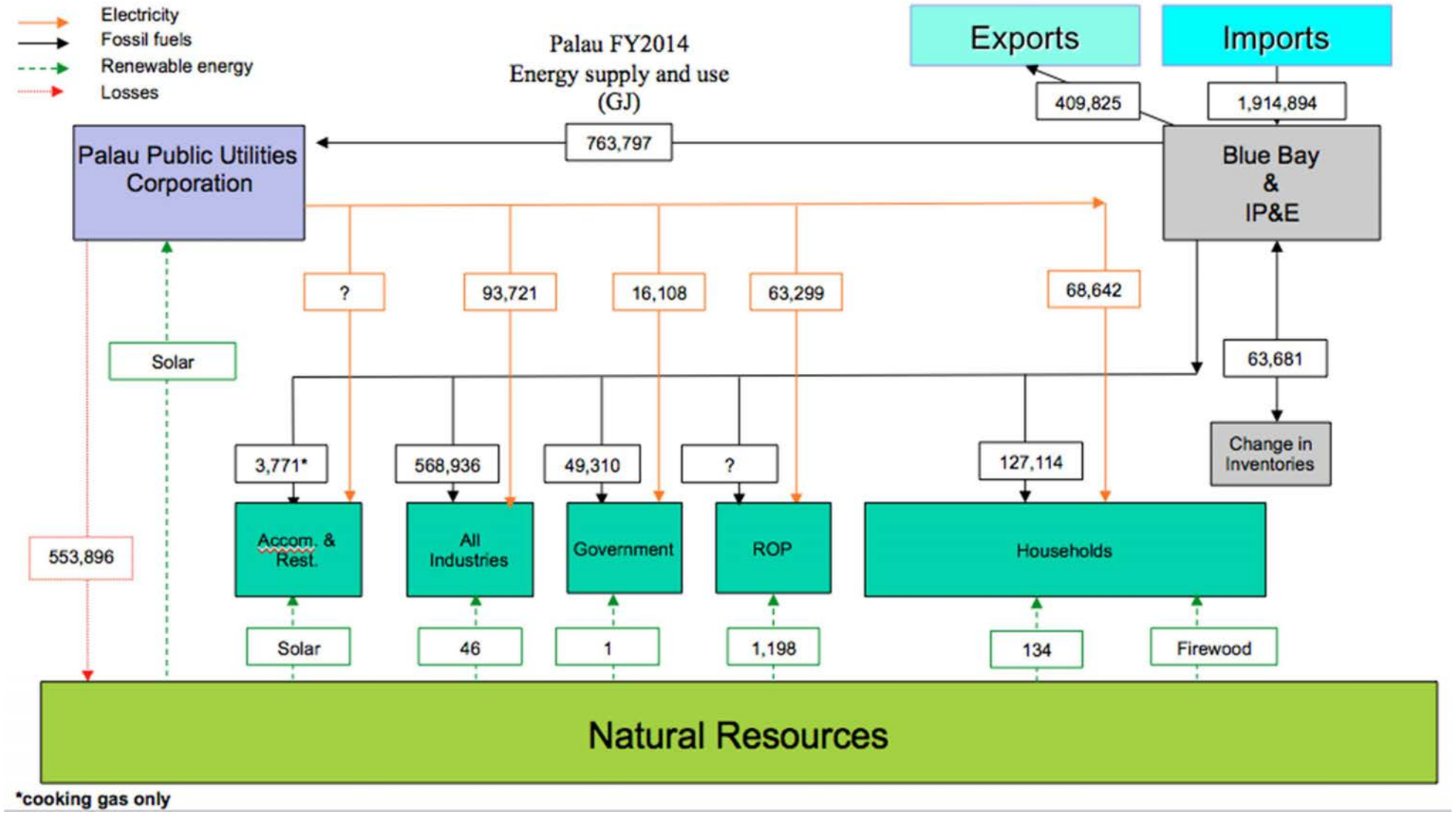


FIGURE A7. MONETARY WATER FLOWS, PALAU, FY2016 (US$ MILLION)

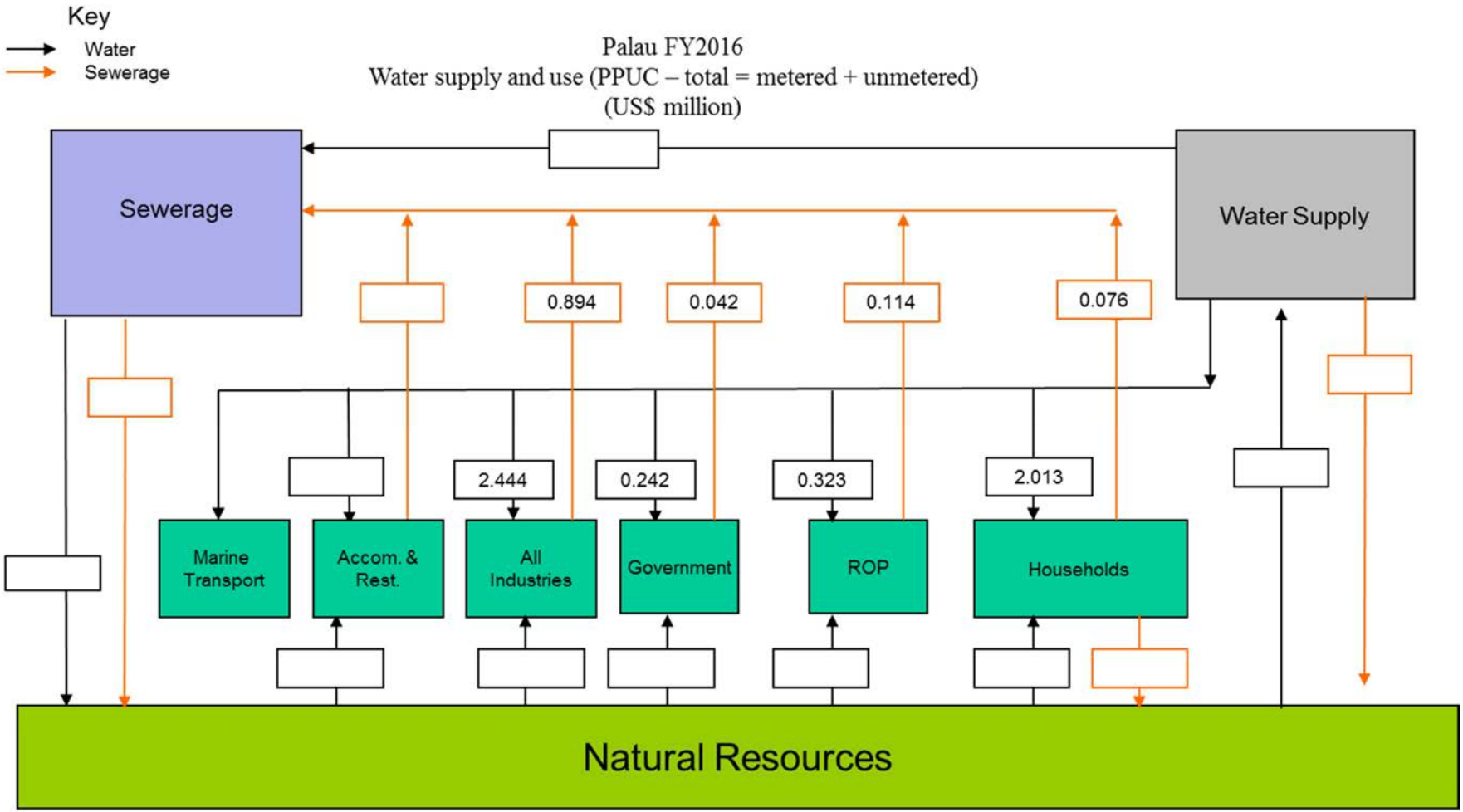


FIGURE A8. MONETARY WATER FLOWS, PALAU, FY2015 (US$ MILLION)

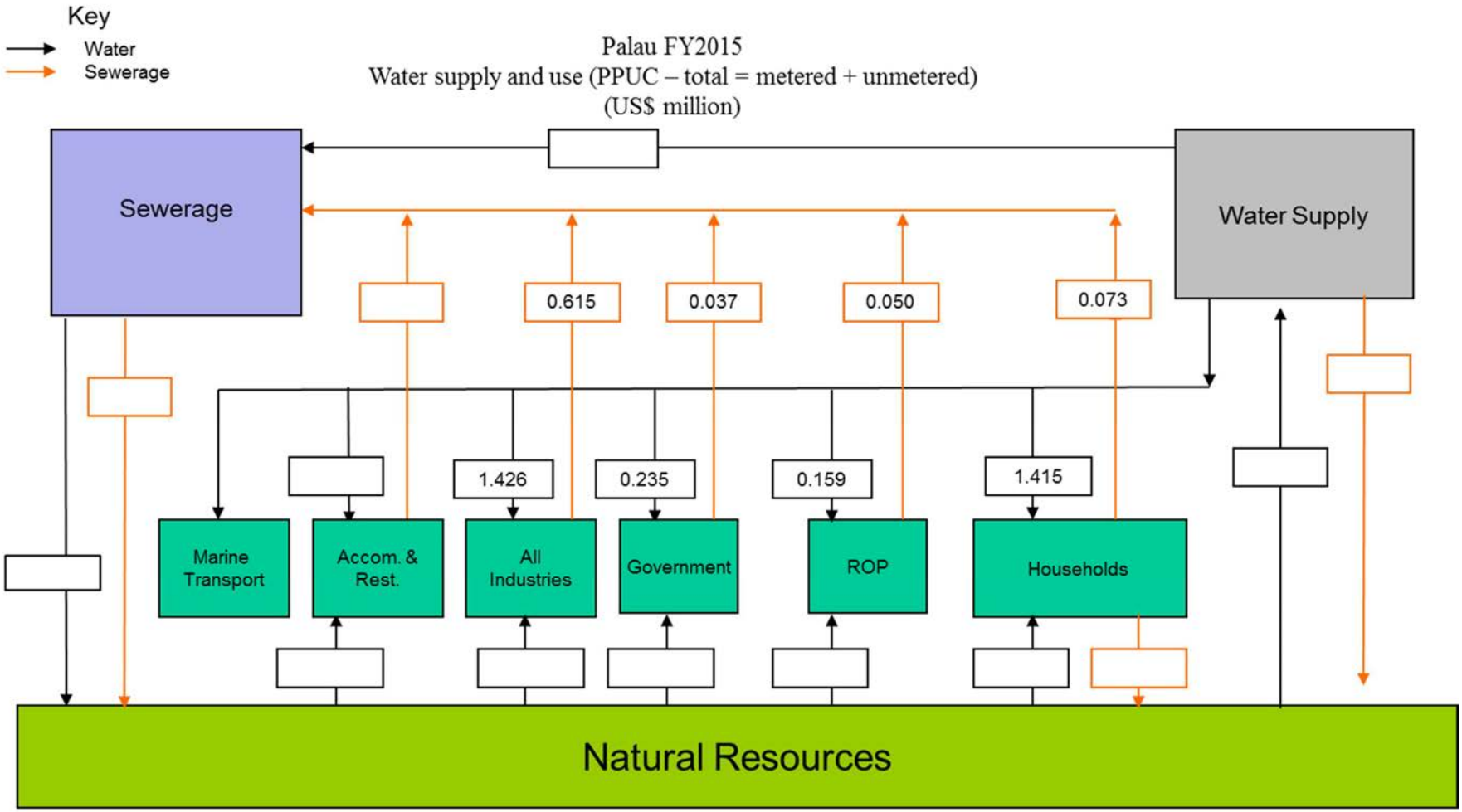


FIGURE A9. MONETARY WATER FLOWS, PALAU, FY2014 (US$ MILLION)

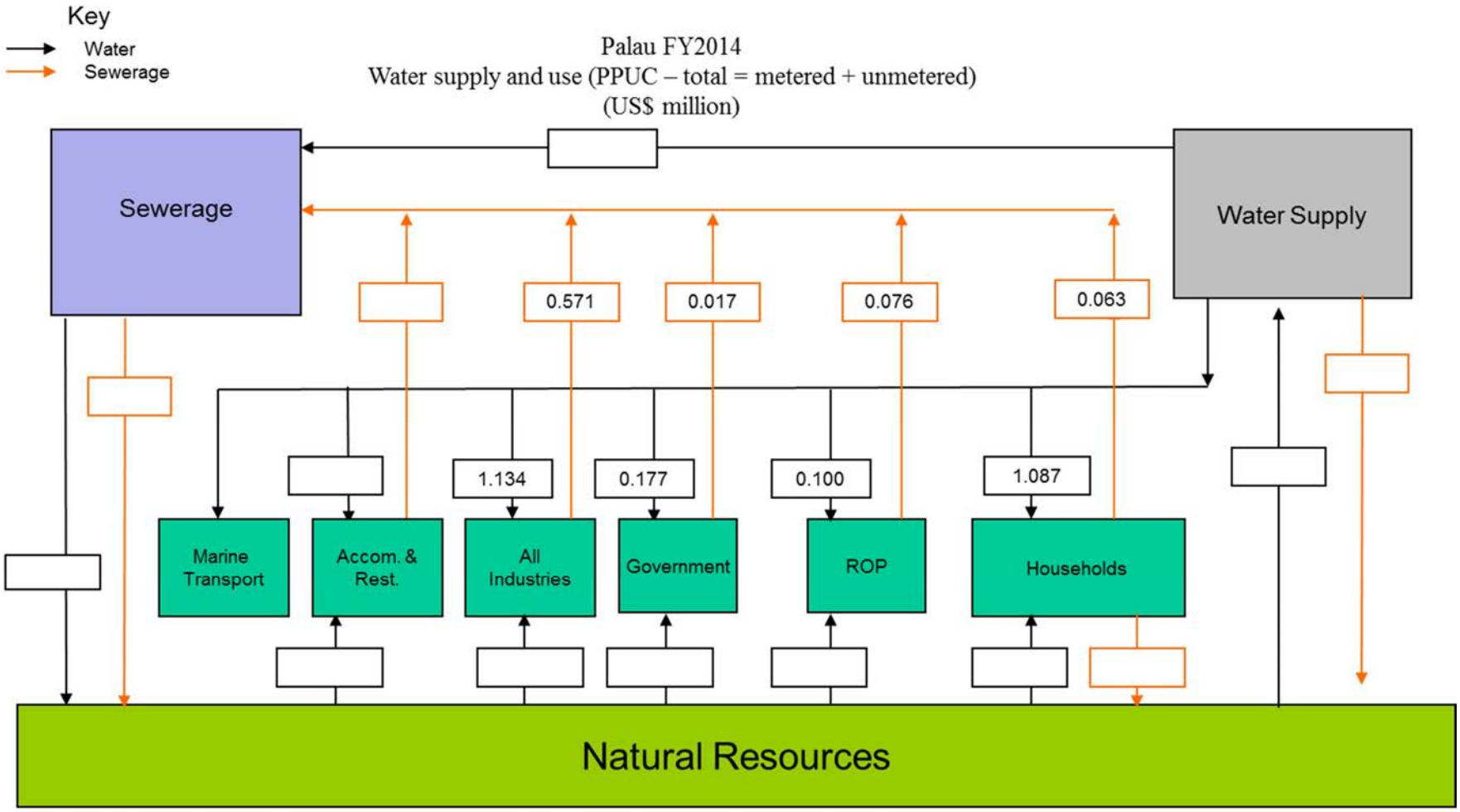


FIGURE A10. PHYSICAL WATER FLOWS, PALAU, FY2016 (ML)

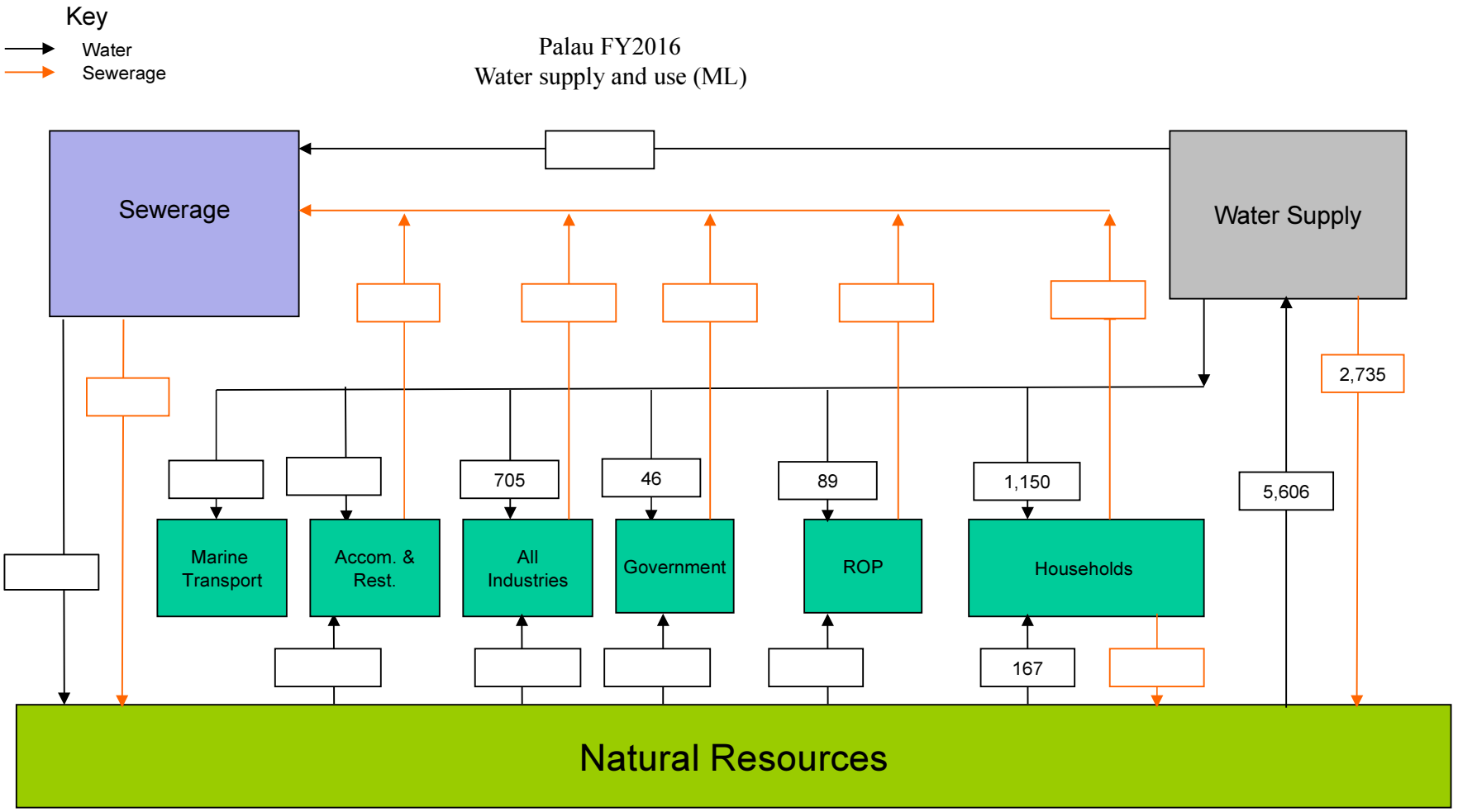


FIGURE A11. PHYSICAL WATER FLOWS, PALAU, FY2015 (ML)

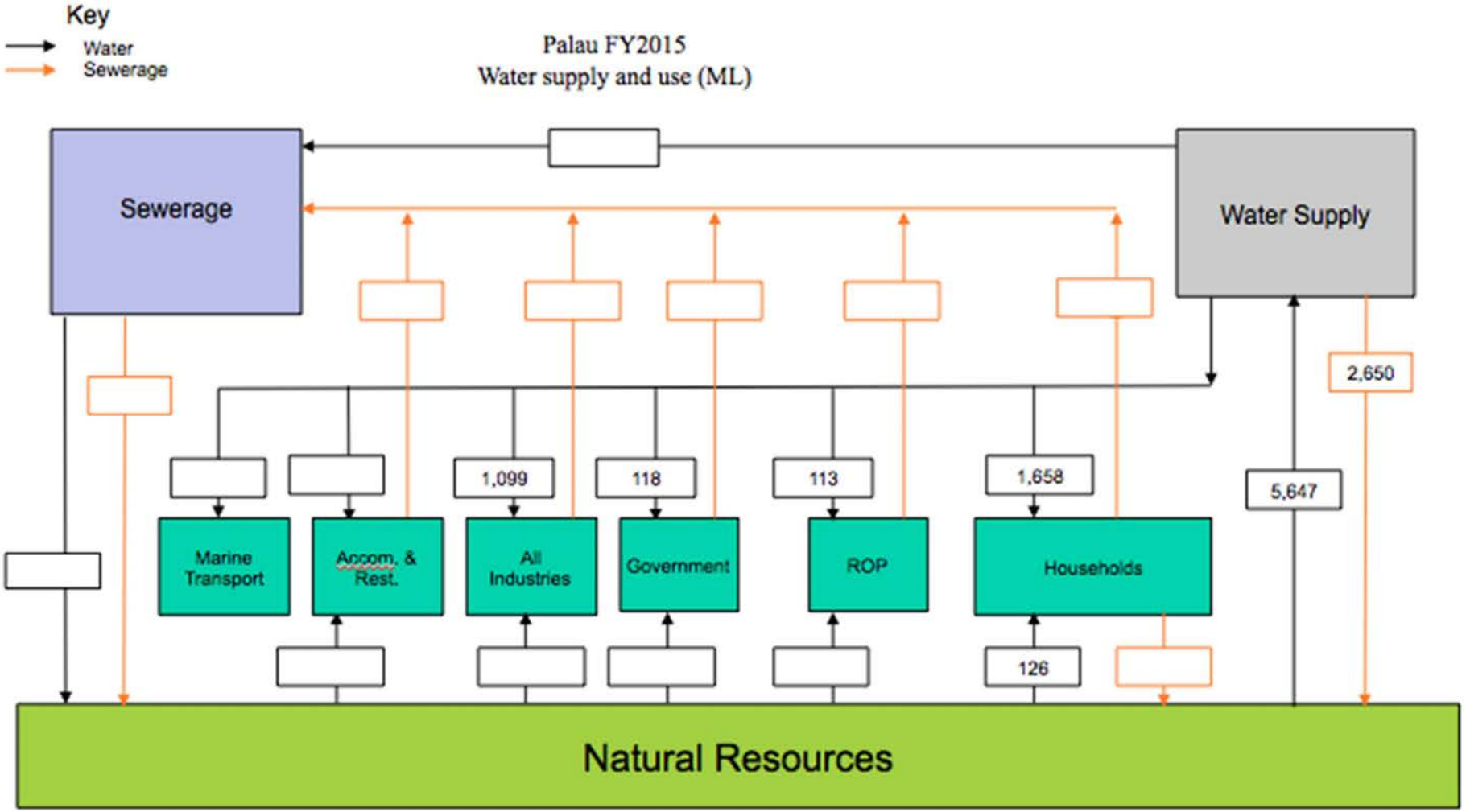
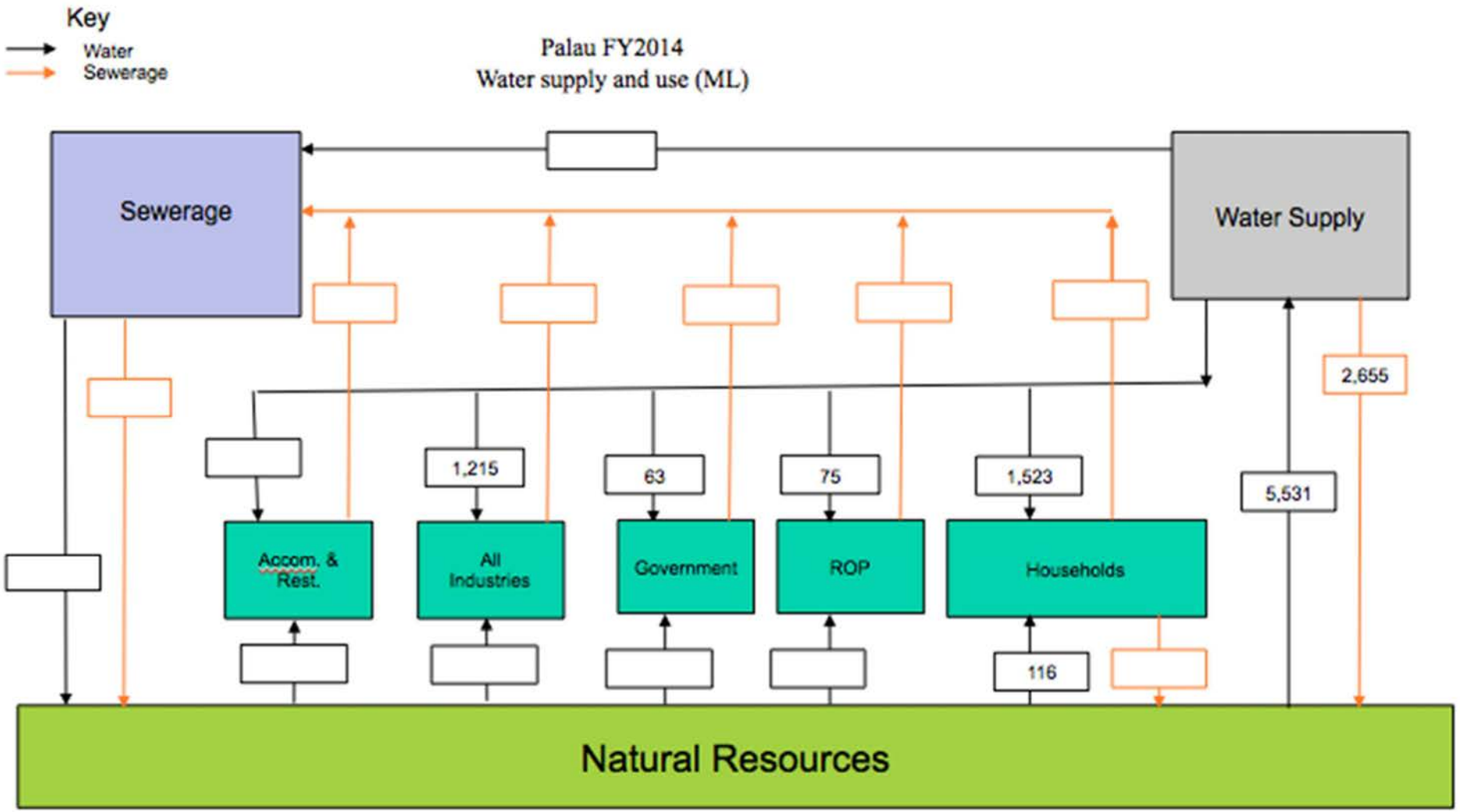


FIGURE A12. PHYSICAL WATER FLOWS, PALAU, FY2014 (ML)



ANNEX 3. CONCEPTS, DATA SOURCES AND METHODS

CONCEPTS

SYSTEM OF ENVIRONMENTAL-ECONOMIC ACCOUNTING

The accounts prepared are based on the international System of Environmental-Economic Accounting (SEEA). The SEEA defines the concepts and provided the basic structure for the energy and water accounts, and in this case the supply and use table. Key identities in this table include:

Supply = Use

Supply = Output + Imports

Use = Intermediate consumption by industries + Household final consumption + Gross capital formation + Exports

The accounts presented are modified versions of the supply and use tables in the SEEA Central Framework 2012[11]. The tables have been simplified to take account of the limited data that were available as well as designed to show issues of policy interest, with the use of renewable energy of particular interest.

DATA SOURCES

A range of data sources were used in the preparation of the accounts. The main general sources are described below with the sources used in the calculation of estimates mentioned in the relevant methods section.

WATER, ENERGY AND SEWERAGE SUPPLY BY PPUC

The Palau Public Utilities Corporation (PPUC) publically reports on the revenue received, operating expenses and assets related to its energy supply, water supply and sewerage service activities.

Additional data on the physical and monetary use of water and energy was requested and supplied by PPUC. The information on water and energy use obtained from PPUC is classified as: commercial, government, ROP and residential. The category of commercial is equivalent to industry in the SEEA/SNA classification and residential to households.

[11] https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf

PALAU NATIONAL ACCOUNTS

The national accounts for Palau are published annually by the Bureau of Budget and Planning[12] and summary data are found in Annex 4. In addition to the published accounts, a range data used in the compilation of the national accounts were also available. Such information included information on imports and exports of products and especially of fossil fuels.

PALAU CENSUS OF POPULATION, HOUSING AND AGRICULTURE

In addition to the number of people and households, the 2015 Census[13] provided a range of additional information used in the accounts, including the number of household connected to the sewerage system and sources of water.

METHODS FOR WATER ACCOUNTS

PHYSICAL AND MONETARY ESTIMATES OF WATER SUPPLY AND USE OF NATURAL WATER

The data obtained from the PPUC on the supply of water was used to make estimates of water use by sector (households and government) and industries. In this, PPUC provided customer information aggregation aggregated to sector and industries aligned with the coding used in accounting (and the same information was used in the construction of the national economic accounts – see Annex 4).

Nearly all households are connected to the water supply network (see Table A3.1 below) and it is

ESTIMATION OF WATER LOSSES BY THE WATER SUPPLY INDUSTRY

The PPUC does not report the amount of water abstracted from reservoirs. However, water lost in distribution is identified as approximately 48% of daily production in the PPUC *Financial Statements, Additional Information and Independent Auditors Report for FY2014* (page 6). Losses are called non-revenue water in the report (and elsewhere in the water supply industry). Similar information on losses was not found in the PPUC FY2015 report and the FY2016 report was not yet available. As such losses of 48% are assumed for all years: FY2014, FY2015 and FY2016.

Total supply (or production) was estimated to be the amount supplied to users in each year, which represented 52% of total supply, plus the 48% lost, as represented by the equation:

$$TS = Su + \left(\frac{Su}{52}\right) \times 48$$

Where TS is total supply and S*u* is the amount supplied to users.

[12] http://palaugov.pw/wp-content/uploads/2017/05/National-Accounts.pdf

[13] http://palaugov.pw/wp-content/uploads/2017/02/2015-Census-of-Population-Housing-Agriculture-.pdf

RETURNS TO ENVIRONMENT

The return flows from the water supply industry were the losses calculated (see above) and shown as a return to groundwater as most is assumed to have leaked into the ground.

Information on the return flows from the sewerage industry to the environment were not available, apart from that the discharge is to sea. A large sewerage infrastructure project[14] is underway and additional data may be forthcoming to enable this information to be added to the accounts.

ESTIMATION OF WATER ABSTRACTED BY HOUSEHOLDS FROM THE ENVIRONMENT

In 2015, there were 4,713 households in Palau of which 153 were not connected to the public water supply system (Table A3.1). An additional 361 were connected to public system but also had an alternative water source.

Estimates of the amount of water abstracted directly by households were made for the 153 households not connected to the public network as well as for the 361 which used alternative water sources in addition to the public network.

Table A3.1 Water sources of Palau households

	Number of households	Percent of households
Public system only	4,199	
Public system and cistern	361	
Total households connected to public system		*99.97%*
A cistern, tank or drums only	105	
A public standpipe	9	
Other water source (e.g. well or spring)	39	
Total households not connected to public system	*153*	*0.03%*
Total households	**4,713**	**100%**

Source: 2015 Palau Census of Population and Housing, Table H06 Plumbing and Water Characteristics.

It should be noted that the PPUC records supplying 3,421 customers with water connections or wastewater services plus 423 business, 130 government units and 115 ROP for a total of 4,089 customers (*Financial Statements, Additional Information and Independent Auditors Report for FY2015,* page 3). It is assumed that more than one household can be part of a PPUC connection.

[14] Koror-Airai Sanitation Project https://www.adb.org/projects/42439-013/main#project-documents

ESTIMATION OF WATER ABSTRACTED BY INDUSTRY FROM THE ENVIRONMENT

No estimates of water directly abstracted by industries were made. Like households, nearly all business, including the hotel and restaurant industries, are connected to the water supply network although data verifying this was not secured in time for this report. In some cases, businesses and households are co-located and will hence some businesses may access and use water from rainwater tanks. The amount of rain water or other water directly abstracted from surface and ground water sources is likely to be small. Going forward this is an area for further investigation.

METHODS FOR ENERGY ACCOUNTS

ENERGY CONVERSATION FACTORS

All energy products were converted to joules according to the factors shown in Table A3.2.

Table A3.2 Conversation factors for energy products

Energy type	Original unit	Conversation factor to megajoules
Diesel	US Gallon	144.944577
Gasoline	US Gallon	127.109109
Jet fuel/kerosene	US Gallon	148.652461527907
Natural gas (cooking gas)	m^3	4.18679774
Electricity	kWh	3.59985055

Source: United States Energy Information Administration[15] and the IRES (pp. 60-61, Table 4.1).

SOLAR

Data on the use of solar energy was provided by PPUC. These data showed use of electricity generated from photovoltaic cells and its use in industries, Government, ROP and households. This is shown in the separately in the accounts as own-account production and use of electricity from solar and a corresponding natural input of energy was recorded. This is a departure from the SEEA Central Framework (see paragraphs 3.160 to 3.164) and was done as this is an area of special policy interest.

[15] US EIA energy conversion calculator
http://www.eia.gov/energyexplained/index.cfm/index.cfm?page=about_energy_conversion_calculator

The solar energy input was calculated using a conversion efficiency of 20%. That is, of the energy in solar radiation "falling" on the solar panels, 20% is converted to electrical energy. Conversion rates are between 6 and 44% but commercial systems typically have 15-20% conversion efficiency[16].

The difference between supply of the natural input and the supply of the electricity generated from solar is shown as a conversion loss under residual flows.

ELECTRICITY SUPPLY

Electricity supply shown in the accounts is net of transmission losses. That is, electricity supply is equal to the energy use of intermediate and final consumers. The SEEA Central Framework, paragraphs 3.174, notes that transmission losses (or losses in distribution) should be attributed as a use by the producer, however, no information on transmission losses were available from PPUC and hence this recording was not possible. Transmission losses were recorded in the residual flows from the electricity industry (see below).

LOSSES IN THE ELECTRICITY INDUSTRY

Physical losses in conversion and distribution of energy are shown under residual flows. For the electricity industry, these losses were calculated as a residual: the use of diesel in GJ less the amount of electricity supplied in GJ.

While residual flows from the electricity industry are shown as losses, a part of these losses will be the heat generated from their own intermediate use of energy. Data to be able to breakdown the residual flows into losses from conversion or transmission and to heat were not available. Since it is likely that the majority of these flows were losses in conversion or transmission, all residual flows from the electricity industry were allocated to this.

HEAT

The residual flows of heat were calculated as the amount of energy products used for all industries, except the electricity industry. Household supply of heat was calculated the same way.

[16] Solar cell efficiency https://en.wikipedia.org/wiki/Solar_cell_efficiency

ANNEX 4. PALAU 2016 ECONOMIC STATISTICS

Table 6 Current price GDP(P) production by industry, FY2000-FY2016

	(US$ millions)	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016[1]
Aa	Agriculture and forestry	2.3	2.3	2.6	2.5	2.6	2.7	2.7	2.7	3.1	3.3	3.1	3.2	3.2	3.5	3.4	3.5	3.7
Af	Fishing	4.3	4.0	3.8	3.6	4.2	4.9	5.8	5.1	5.3	4.6	4.4	5.6	6.0	5.5	5.3	5.3	5.6
B	Mining and quarrying	1.4	1.5	1.3	0.8	0.9	1.2	1.2	1.0	1.2	0.9	0.6	0.6	0.7	0.5	0.7	1.1	1.3
C	Manufacturing	4.2	4.9	7.2	2.9	1.5	1.5	1.5	1.5	1.9	1.6	1.5	1.8	2.1	2.4	2.5	2.7	2.8
D	Electricity, gas, steam and air conditioning supply	3.2	3.8	2.8	2.6	2.1	1.2	0.0	1.6	1.3	4.7	5.6	5.3	2.7	6.2	4.8	3.2	2.6
E	Water supply; sewerage, waste management and r	1.0	1.1	1.1	1.2	1.2	1.1	1.2	1.2	1.3	1.2	1.1	1.1	1.0	2.0	1.3	1.1	1.3
F	Construction	13.9	19.1	24.8	22.8	22.9	23.8	20.1	16.2	10.8	7.9	9.1	9.9	9.0	7.3	8.9	12.6	15.0
G	Wholesale and retail trade; repair of motor vehicles	20.4	22.2	20.5	21.0	22.1	25.3	24.5	25.0	27.7	25.5	22.9	27.1	31.2	32.5	35.1	56.7	53.1
H	Transportation and storage	7.9	8.4	7.8	7.9	8.8	10.8	11.0	11.9	11.6	11.4	11.6	12.2	12.8	13.3	15.6	18.6	20.2
I	Accommodation and food service activities	11.2	10.4	9.8	12.4	16.2	16.9	17.5	19.3	21.1	19.8	19.2	23.8	26.7	31.5	33.6	37.6	41.5
J	Information and communication	6.9	5.8	6.1	5.1	5.9	5.7	6.2	6.4	6.9	6.9	6.5	7.0	7.6	7.5	7.6	9.1	10.5
K	Financial Intermediation	6.8	6.8	5.8	5.9	5.7	7.1	8.3	8.6	7.7	6.6	5.9	5.8	6.1	6.1	6.5	6.8	7.6
L	Real estate activities	5.7	6.5	5.7	5.2	11.1	17.5	19.6	18.6	17.9	16.5	14.3	14.8	14.4	15.0	15.3	16.8	18.9
M	Professional, scientific and technical activities	3.3	3.2	2.7	2.4	2.4	2.5	3.1	2.9	2.7	2.3	2.8	2.4	2.3	2.5	3.8	5.3	5.8
N	Administrative and support service activities	2.8	3.1	2.9	2.4	2.9	3.3	2.7	2.6	2.5	2.0	2.4	2.8	3.0	3.2	3.8	4.3	4.9
O	Public Administration	24.0	25.0	26.1	27.3	27.2	26.8	28.5	29.2	30.6	31.9	30.6	31.6	32.8	33.6	35.6	38.0	41.6
P	Education	8.4	8.3	8.7	8.9	9.2	8.8	9.1	9.3	9.6	9.8	9.9	10.1	10.5	10.2	10.6	11.1	11.2
Q	Human health and social work activities	5.1	5.4	5.4	5.7	5.7	5.6	5.8	6.1	6.1	6.1	6.2	6.2	6.3	6.8	7.8	8.1	8.6
R	Arts, entertainment and recreation	1.0	1.2	1.4	1.7	2.0	2.1	2.2	3.2	3.8	3.5	3.8	4.8	8.4	9.6	11.1	15.4	12.1
S	Other service activities	1.3	1.4	1.5	1.5	1.4	1.6	2.0	2.3	2.5	2.5	2.4	2.9	3.1	3.1	3.5	3.6	3.8
T	Private Households With Employed Persons	1.4	1.7	1.8	2.4	3.1	3.7	4.0	4.1	4.0	3.8	3.8	3.5	3.1	2.8	2.9	3.9	3.6
	less intermediate FISIM	-2.2	-2.4	-2.1	-2.4	-2.3	-2.4	-2.3	-2.7	-2.7	-2.6	-2.3	-2.7	-2.5	-2.1	-1.9	-1.6	-1.5
	GDP at basic prices	**134.0**	**143.6**	**147.8**	**144.1**	**156.7**	**171.9**	**174.7**	**176.2**	**176.9**	**170.5**	**165.5**	**179.7**	**190.8**	**203.0**	**217.8**	**263.2**	**274.4**
	Taxes on products	15.2	15.2	13.8	13.9	16.7	19.8	18.4	18.8	20.6	18.3	18.5	20.4	24.3	25.4	29.0	34.5	36.0
	less subsidies	-1.4	-0.7	0.0	-0.1	0.0	-0.4	0.0	-0.1	-0.7	-1.8	-0.7	-0.1	0.0	-0.3	-0.4	-0.1	-0.1
	GDP at purchasers prices	**147.8**	**158.2**	**161.6**	**158.0**	**173.4**	**191.3**	**193.1**	**194.8**	**196.7**	**186.9**	**183.3**	**200.1**	**215.1**	**228.0**	**246.4**	**297.6**	**310.2**

Source: Bureau of Budget and Planning

1) Provisional