



مكتب التنظيم و الرقابة  
Regulation & Supervision Bureau



GUIDE FOR MAJOR  
DEVELOPERS AND NEW  
LICENSED ENTRANTS  
TO THE WATER,  
WASTEWATER AND  
ELECTRICITY SECTOR  
IN THE EMIRATE OF  
ABU DHABI

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Issued by  
the Regulation and  
Supervision Bureau



This publication is intended to provide private developers and new licensed entrants with information on the conditions and regulations which apply to the provision of water, wastewater and electricity utility services in the Emirate of Abu Dhabi.

It is issued by the Regulation and Supervision Bureau (the Bureau) for guidance only. Further details on the Sector, its laws and regulations are available on [www.rsb.gov.ae](http://www.rsb.gov.ae).

The Bureau is established in law to exclusively regulate and supervise the Emirate's water, wastewater and electricity sectors.

# THE SECTOR

## Sector laws

The Sector is governed by the following laws:

- **Water and Electricity**

Law No (2) of 1998 concerning the Regulation of the Water and Electricity Sector in the Emirate of Abu Dhabi, as amended.

- **Wastewater**

Law No (17) of 2005 concerning the establishment of the Abu Dhabi Sewerage Services Company, as amended.

The Bureau makes certain that all sector related activities are undertaken in accordance with these Laws, with a primary duty to ensure continued availability of potable water and electricity and sewerage services to the people of the Emirate of Abu Dhabi.

## The Regulation and Supervision Bureau

Our duties and responsibilities are too numerous to list in this publication, but the key ones with regard to major developments and licence applications are:

- Customer representation and price protection.
- Duty to ensure non-discrimination between sector parties and customers.
- Security of supply of water or electricity and removal of wastewater products.
- The operation and development of a safe, efficient and economic sector.

In order to regulate and supervise the sector, the Bureau has powers to issue:-

- |             |   |
|-------------|---|
| Licences    | - Issued to a person (companies / organisations) to undertake one or more Regulated Activities.     |
| Regulations | - Published by the Bureau and enforceable in law.   |
| Consents    | - Issued by the Bureau to a person to undertake certain activities, normally subject to conditions. |

In addition, Operational Codes are maintained by certain licence holders. An overview of the various key controlling documents is given in the following diagram.

## Relevant governing instruments

Activity	Electricity and Water Sector				Customer	Wastewater Sector			
	Production	Transmission	Distribution	Sale		Collection	Treatment	Disposal	
Laws	Law number (2) of 1998								
	Law number (19) of 2007						Law number (17) of 2005		
							Law number (18) of 2007		
							Law number (12) of 2008		
	Law number (9) of 2009						Law number (12) of 2009		
Licensed Activity	Generation Desalination	Transmission of electricity and water	Distribution of electricity and water	Supply (sale) of electricity and water		Sewerage collection	Wastewater treatment	Disposal of wastewater products	
Regulations	Water Quality Regulations								
	Incident Reporting Regulations								
	Above-ground Fuel Storage Tank Regulations								
	Streetworks and Access Regulations								
			Water Supply Regulations						
			Electricity Supply Regulations						
			Electricity Wiring Regulations						
			Customer Metering Regulations						
			Guaranteed and Overall Service Standards						
							Trade Effluent Control Regulations		
						Recycled Water and Biosolids Regulations			
Codes	Metering and Data Exchange								
		Transmission							
			Distribution						

## Regulated activities

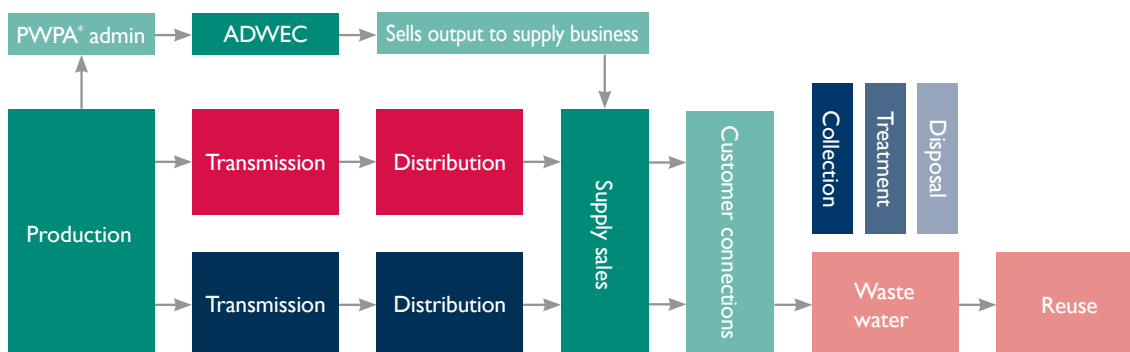
The law lists Regulated Activities and states that only licensed or exempted persons (bodies) may conduct a Regulated Activity.

- Generation of electricity
- Desalination of water
- Transmission, distribution and supply (sale) of electricity
- Transmission, distribution and supply (sale) of water
- The bulk supply of water or electricity
- Storage of water
- Collection of wastewater
- Treatment of wastewater
- Disposal of wastewater

Regulated Activities are neither time- nor size-limited or dependent. The Law makes no distinction between so-called 'temporary' works and any other type of works. For example, a small-scale mobile wastewater treatment operation, which will operate for one year before being decommissioned or re-sited, will be subject to regulatory scrutiny as is a large-scale power project and will require a licence issued by the Bureau.

## Sector structure

The structure is illustrated in terms of its supply chain components and Regulated Activities and all companies undertaking the activities shown are in possession of a licence issued by the Bureau.



\* PVPA = Power and Water Purchase Agreement

Production of power and water is mainly in private hands and connects directly to the strategic transmission company (TRANSCO) to enable the efficient movement of bulk supplies of water and electricity to major demand and load centres throughout the Emirate. All water and power output is purchased by a single buyer, the Abu Dhabi Water and Electricity Company (ADWEC).

The distribution and supply (sale) of water and electricity to customers is undertaken by distribution companies who are in possession of a Distribution and Supply Licence. Currently, there are two distribution companies in the sector: Al Ain Distribution Company (AADC) which covers the old municipality region of Al Ain and Abu Dhabi Distribution Company (ADDC) which covers the old municipality region of Abu Dhabi including Al Gharbia (the Western Region).

However, with the change in law following the issue of Law No (9) of 2009, the Bureau can, subject to terms, issue supply licences to other entities operating in the Sector.

The wastewater collection network and treatment plants are predominantly owned and operated by the Abu Dhabi Sewerage Services Company (ADSSC), with disposal of recycled water to municipal departments.

## Sector economics

### Power and water

The economic structure of the sector requires ADWEC, the single buyer of all power and water output from production companies, to sell power and water to licensed distribution operators in sufficient quantities to meet their needs. ADWEC sells power and water via a bulk supply tariff (BST), which is approved each year by the Bureau.

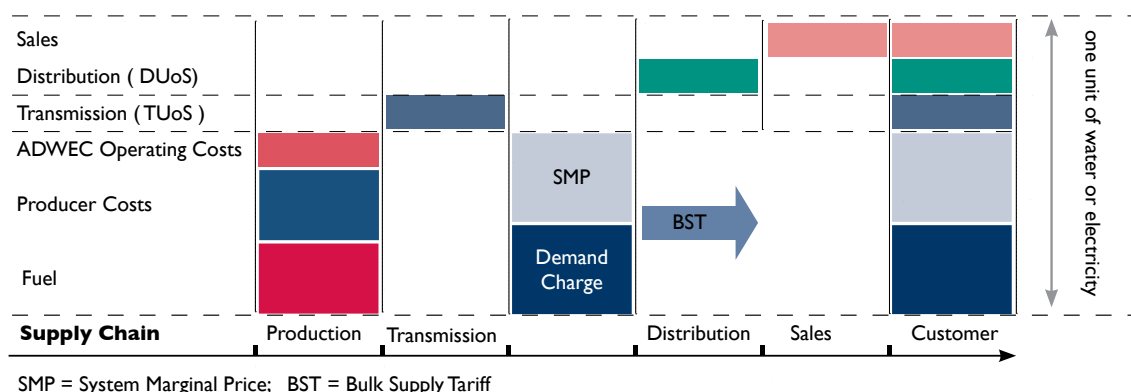
TRANSCO charges distribution companies a transmission use-of-system charge (TUoS) for carrying bulk supplies of water and power.

Distribution companies recover all sector costs from customers via a published tariff. The difference between the true economic sector cost and the published tariff is made up by a Government subsidy paid to the distribution companies.

All tariffs are approved by the Bureau, which also advises Government representatives on the true economic cost of a unit of water or electricity.

Economic drivers are applied by the Bureau to all monopoly activities including network companies, by what are known as Price-Control Reviews. These cap the amount of revenue that monopoly companies can earn. Production costs are economically driven by an external bidding process.

The cost-component parts of a unit of water or electricity are illustrated in the following diagram. The bulk supply tariff (BST) consists of two components: a demand charge which is a fixed charge applied at the time of system peaks and a system marginal price (SMP) which varies and is applied to all units throughout the year.



## Wastewater

At present, there are no tariffs attached to the provision of sewerage services and therefore the costs are entirely made up by a Government subsidy paid to ADSSC. However, the Bureau exercises economic controls over wastewater companies' costs by the application of price controls.

## Customer categories

### Use

All customers will be classed as standard users, unless they meet the criteria for classification as a Large User. A Large User is any customer with a supply:

- of water in excess of 10,000 litres per day; or
- of electricity exceeding one megawatt peak.

### Connection

Industrial and commercial customers may be classed by connection size. This classification is not available to any other customer-type.

An industrial or commercial customer will be classed as having a Standard Connection, unless it meets the criteria for a Large Connection classification. Large Connection status may apply where an industrial or commercial customer is one of the following:

- electricity:
  - directly connected to the transmission system; or
  - connected to a high voltage distribution network; or
  - connected to a low voltage distribution network with a cable of 3 x 1C 630 mm<sup>2</sup> per phase-connection or more.
- water:
  - directly connected to the transmission system; or
  - connected with a supply capacity pipeline of 80mm or larger.

## MAJOR DEVELOPMENTS

Given the rapid expansion plans issued by the Government charting its course up to 2030, there will almost certainly be a wide range of diverse major projects undertaken in the Emirate. Such projects will require the provision of large-scale water, wastewater and electricity networks which may be built, owned and operated by private developers, subject to the issue of a Bureau licence.

### Customer protection

As a general policy, it is not our desire or intention to promote the creation of privately owned and operated networks which may put customers outside the protection of applicable Abu Dhabi Emirate Laws.

“Free zone” areas, if so established, may have conferred upon them special rights and powers, but this guidance document assumes that private developers are building developments within the jurisdiction of the Emirate of Abu Dhabi and existing sector Laws.

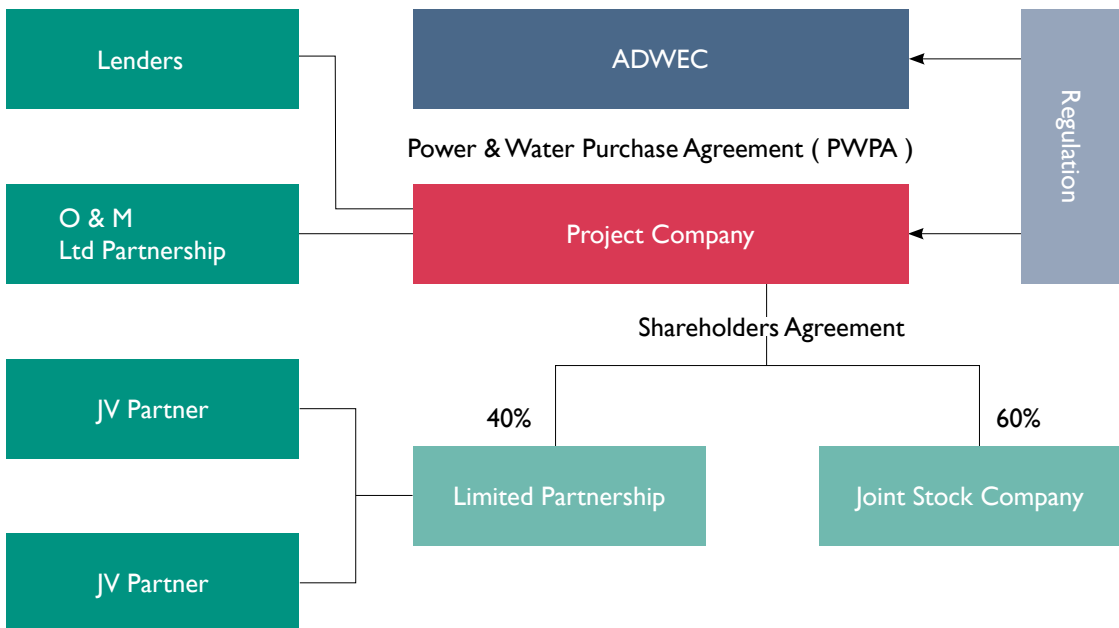
## Water and electricity

### Private production

Private developers may wish to generate their own power or desalinate their own water, either for internal process purposes or to supply to third parties (customers). In either case, a private developer would require a licence from the Bureau to engage in these Regulated Activities and would be subject to the same controls as existing production licence holders.

A typical independent water and power producer arrangement is shown below. A water and/or power purchase agreement between the project company (owner) and ADWEC is necessary for direct connections to the transmission grid. In all cases, the Bureau regulates ADWEC and the project company only.

### Typical IWPP structure



### **BOO type arrangements**

Private developers may wish to build power and water networks and possibly own and operate them (a typical build, own, operate (BOO) arrangement). However, the establishment of a privately owned network 'nested' within another network company's operating area would be economically and legally difficult to support. For example, one distribution company selling to another would introduce two-tier pricing with no discernible customer benefit.

Therefore, privately owned networks would need to take delivery of bulk supplies of power and water directly from a transmission connection and buy from ADWEC under their published bulk supply tariff (BST). In reality, such arrangements would require licensing and be subject to the same controls as existing licence holders.

An alternative to the above is where private network companies generate their own power or produce desalinated water for distribution and supply via their own private networks. However, a licence would still be required to be issued by the Bureau, in this instance for a range of Regulated Activities.

## **Wastewater collection, treatment and disposal**

### **Wastewater**

Private developers may wish to provide sewerage services for their own purposes (for instance for construction of site offices) or for residents within real-estate property. Sewerage services activities consist of the collection of wastewater via a sewerage network, the transfer of wastewater to a sewage treatment works and its treatment, and finally the disposal of wastewater residuals such as (but not limited to) treated sewage effluent, or "recycled water" and biosolids. Where the ultimate disposal of recycled water is to the sea or the natural environment, the Environment Agency – Abu Dhabi (EAD) will need to be involved with regard to the issue of a permit.

In some cases, a private developer may not wish to carry out the full range of sewerage services. For example, it may only want to treat the wastewater at a sewage treatment plant. This is allowable providing an operator is able to satisfy the Bureau that a legal commercial relationship with other licensees exists so as to ensure that the outstanding regulated activities (in the above example the provision of a sewerage network and a means of disposal of recycled water and biosolids) have been considered and are well managed by a licensed entity.

Any of the above arrangements would require a licence and would be subject to the same controls as existing licence holders, and other non-potable uses.

### **Grey water**

The collection, treatment and reuse of grey water is becoming a common proposal within new developments in the Emirate of Abu Dhabi, particularly in relation to reuse for landscape irrigation.

Grey water, although not defined in Law, is regarded as that fraction of domestic wastewater sourced from baths, showers, wash basins and washing machines. The Bureau regards grey water as a component of wastewater with treated grey water classed as recycled water and therefore subject to the current sector laws and regulations.

The collection, treatment and disposal of grey water is classified as a Regulated Activity, and as such anyone wishing to operate a grey water collection, treatment or disposal system will require a licence from the Bureau. The intention is to introduce quality and operational standards to make sure that the treated grey water (recycled water) is regulated to protect public health and the environment.

The introduction of grey water treatment to the sector will naturally impact upon the existing wastewater infrastructure, for example in areas including sewer design and operation. Developers wishing to practise grey water treatment will need to satisfy the Bureau and the wastewater sector that robust demand management, flow modelling and forecasting have been carried out, and that contingency plans are in place regarding flows from the development to the main sewerage network. This is essential to allow existing wastewater licensees to plan for future network and treatment capacity in the Emirate.

### **Commercial use of non-potable water**

Opportunities are likely to arise for companies to treat wastewater for use in commercial and industrial processes, for instance as feed and make-up water for district cooling. Where the use of recycled water is confined to a process activity, the treatment and reuse activity may not require a licence from the Bureau as it will have no impact on the health, safety and well-being of the general public or the environment. However, the company must approach the Bureau to discuss its proposals in order to confirm this and to determine whether a form of operational process control is required instead.

There will inevitably be some waste stream from certain process activities, for instance the blow-down from a district cooling process, and depending on the route for disposal of this final wastewater, it will need to be regulated by an appropriate body. If the final disposal route is to the sea or the natural environment, then the Environment Agency – Abu Dhabi (EAD) will need to be involved. However, if the final use is for irrigation or other reuse in the built environment, then the Bureau will be required to issue a licence for this ‘disposal of wastewater’ activity. In addition, this activity would also be subject to regulations related to treatment quality.

The same policy applies to the use of desalinated water in industrial processes and again, companies are advised to approach the Bureau to discuss their proposals in order to determine whether they are undertaking a regulated activity.

### **Network designs – security**

The design and installation of private networks must meet the standards and planning security requirements of the existing Distribution Code and other appropriate requirements.

The Distribution Code is maintained by all distribution licence holders. TRANSCO maintains both the water and electricity Transmission Codes and the Metering and Data Exchange Code.

Where BOO arrangements are not to be pursued, networks will ultimately be adopted by the local distribution company, assuming that the network has been designed to a standard that is consistent and compatible with the existing network. This outcome should involve liaison and agreement between the two parties during the network design phase. Any innovative or non-standard network designs must be capable of meeting the requirements of the various applicable codes, and must receive the approval of the local distribution company prior to any work proceeding.

The key driver in all designs is that the level of network security and safety must be no less than the network companies’ existing security standards. Considerations associated with capital maintenance and operating costs are also of a high priority.

### **Development construction arrangements**

Where a developer does not consider the private network route attractive, there are two possible arrangements for the construction of infrastructure applicable to commercial large-scale developments.

#### **Build and Transfer**

1. A developer appoints an approved contractor to construct the electricity, water and wastewater infrastructure, in parallel with other infrastructure assets required by the development.
2. The developer’s contractor must take account of specifications and technical standards required by the appropriate network company.
3. Upon completion, the assets are transferred to the network company and a payment is made (based on market rates/asset values) from the network company to the developer.
4. The adopting network company will still apply connection charges for each final connection in accordance with their current published policy.
5. If the developer receives a grant or payment directly from the Government or a Government Agency, the transfer costs will be reduced accordingly.

### Network Company Build

Alternatively, a developer may request network companies to develop the infrastructure directly.

1. In this case, the network companies affected will liaise closely with the developer in order to meet each other's requirements.
2. The network company will design the development in accordance with their planning and security standards.
3. Upon completion, the network company will apply connection charges for each final connection in accordance with their current published policy.

### Infrastructure and connection costs

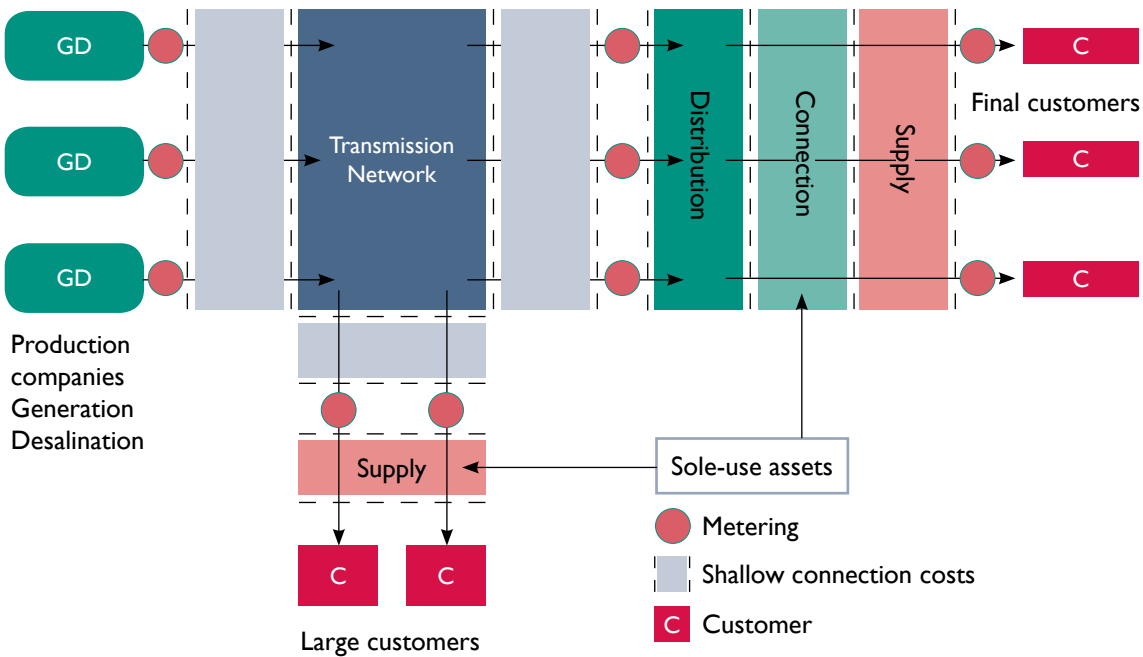
The network companies have a duty to fund infrastructure for developments, but these may be subject to terms, which may not be discriminatory and must be approved by the Bureau.

The financial structure of the sector is such that, for all assets which are required to support major developments, a network owner and operator is able to fully recover its costs, normally over the lifetime of such assets.

Network companies will apply a connection charge for "sole-use" assets only and all other upstream assets will be paid for and recovered by the network company over the life time of the assets. The structure of the sector through price controls will allow each company to recover these capital costs and will also cover operational and maintenance costs. Sole assets are described as those assets used solely by one customer to obtain water or electricity or to discharge wastewater into a network.

All network companies are required to maintain "Charges for Connection Terms" which meet the above criteria.

### Basic block diagram of costs



## Financing arrangements for new developments

With any new development, there may be uncertainty before and during the construction phase as to the extent of future electricity, water and wastewater demand. In these circumstances, it is important to ensure that the potential risks associated with the possibility of creating 'stranded assets' are shared between the parties concerned.

There is the possibility of a projected utility demand for a development not materialising. The network company that will ultimately adopt the assets, may consider requiring the developer to lodge a bank guarantee. This could be drawn down against if demand is not forthcoming. Developers faced with this requirement may approach the Bureau to determine the reasonableness of such a request by a network company.

In the case of developments where electricity, water and wastewater assets are procured directly by a network company, similar arrangements may be necessary to ensure demand risks are allocated appropriately between the developer and licensee. Ultimately, much depends on the size of each project and identified risks associated with it.

## Internal construction standards

The Bureau has produced and issued the Electricity Supply Regulations, the Electricity Wiring Regulations and the Water Supply Regulations, which are applicable to all buildings in the Emirate. In addition, the Government plans to issue plumbing and fittings regulations which will also be applicable to all buildings in the Emirate.

### Electricity Wiring Regulations

Under the Electricity Supply Regulations, holders of a distribution licence have a duty to ensure that new buildings are suitable for connection to a distribution company's network.

Existing procedures require developers, designers and builders to submit electrical drawings for approval by the appropriate distribution company, who will thereafter carry out regular inspections of the works prior to connection.

New procedures are now in place for major developments which allow for the transfer of authority to a builder via a letter of undertaking. Therefore, a building contractor or developer may enter into an undertaking with a distribution company to the effect that all parts of their installation downstream from the incoming connection point to a building will comply with the Electricity Wiring Regulations in force. With this approach, the duty of care rests with the organisation that has control over the building works and not a distribution company.

### Water Supply Regulations

The Water Supply Regulations require holders of distribution licences to ensure that connections to premises comply with the regulations and the Guide to Water Supply Regulations provides technical information on the water fittings. The Regulations are intended to ensure that all connection arrangements, including the water fittings used for the connection of a water supply and tankered water supplies to customers are safe and fit for their intended purpose.

The Guide explains the water connection arrangements and water fitting requirements between the distribution companies and their customers for the purpose of preventing wastage, contamination and undue consumption.

The Regulations also cover metering, ground and roof tanks, internal pumping, backflow and cross connections with regard to the internal part of customers' properties. Developers must ensure compliance with the Regulations and this will involve the use of good industry practices, duty of care and good quality efficient water fittings to prevent water wastage and over consumption.

## LICENSING

Developers may seek to build, own and operate networks or plants and this is subject to licensing by the Bureau. Under the current laws, it is an offence to engage in Regulated Activities unless in possession of a licence, issued by the Regulation and Supervision Bureau.

Should a private developer wish to pursue the possibility of establishing a separate distribution and/or supply company or produce power or desalinate water, then such a company will require a licence.

Initially, where such actions are under consideration, a developer or proposed owner/operator is advised to approach the Bureau as early as possible to determine the feasibility or otherwise of such actions.

### Customer protection

In the matter of licensing private network operators, our primary concern is the protection of consumers' rights under existing legislation. Of utmost importance is to ensure that any privately owned network business meets rigorous health and safety standards and provides a quality-of-product and provision-of-supply to customers at no lesser a standard than they would expect to receive from existing distribution companies.

### Pricing

A key element of non-discrimination is pricing. Only a person (company) holding a supply licence can sell water or electricity, and is subject to the Bureau's regulation and supervision. The same licensing conditions would apply to a private network company. This means that their published subsidised tariffs would be at the same scale as other network companies providing the same product. In addition, private network companies would be subject to regulatory price controls.

Private wastewater network companies would also be subject to the same economic controls as the existing operator.

### Types of Licence

A licence may be for a specific activity or a number of activities. There are three categories: permanent, development and self-supply.

*Permanent licences* are not time-limited. They are either major or small-scale licences. Major licences cover either generation over 50 MW\* or any one generation-set greater than 10 MW. Desalination plants with capacity over 2.5 MGD\* or any one unit with capacity over 500,000 gallons per day require major licences. For wastewater, major licences are required above 10,000 cubic-metres per day.

All other lower-volume regulated activities fall into the small-scale licence category. The difference between major and small-scale helps set licence fees and other charges. The structure of both licence-types is similar.

*Development licences* are used for developments that will generate power, desalinate water or treat wastewater on-site to support the building of their development, for example services to labour camps. These licences will always be time-limited. Their structure is similar to other licences.

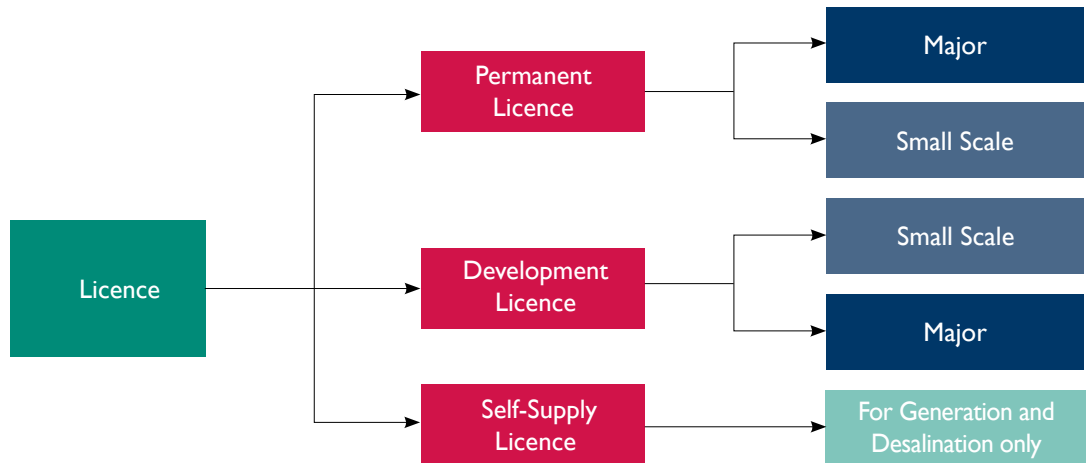
*Self-supply licences* are for companies that intend to generate power and/or desalinate water primarily for internal consumption. These licences may be time-limited or open but are only applicable to the generation of power and the desalination of water. There is no sub-division between Major and Small-Scale.

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\* MW = megawatts

\* MGD = million gallons per day

## Types of Licence



## Application Process

The Bureau's licensing process is divided into three phases:

### *Submission and validation*

New entrants (prospective licensees) are required to submit the appropriate licence application along with a Registration Fee to the Bureau, who will then conduct a high-level assessment of the application to confirm its validity.

### *Evaluation*

This phase assesses applications for legal, financial, managerial and technical competence. The Bureau will endeavour to perform this assessment in-house; however, some applications may involve external consultancy advice. Should this be required, these external costs will be recharged to the applicant in the form of an Evaluation Fee.

### *Grant of Licence*

Once the Bureau is satisfied that an applicant is competent to hold a licence, then, in accordance with its legal obligations, the Bureau will publish a notice of its intention to grant a licence. The notice period is for a minimum of 28 days. If no objections to the notice are received, then a licence will be issued to the applicant and its activities will be regulated in accordance with the licence conditions.

Depending on the nature and complexity of an application, the overall assessment and licensing process may take three to four months. Details of the licensing costs can be found in the Current Scale of Charges and Services published on the Bureau's website.

Any enquiries, regarding the regulated activities or proposals from prospective Licensees to engage in them in the Emirate of Abu Dhabi, should be directed to the Director General at the Regulation and Supervision Bureau (PO Box 32800, Abu Dhabi).

## Network companies in the Emirate of Abu Dhabi



شركة العين للتوزيع

Al Ain Distribution Company

### ALAIN DISTRIBUTION COMPANY (AADC)

Distributes and sells water and electricity in the old municipality area of Al Ain.

<http://www.aadc.ae/>

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شركة أبوظبي للتوزيع

Abu Dhabi Distribution Co.

### ABU DHABI DISTRIBUTION COMPANY (ADDC)

Distributes and sells water and electricity in the old municipality area of Abu Dhabi.

<http://www.addc.ae>

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ADSSC  
Abu Dhabi Sewerage Services Company  
شركة أبوظبي لخدمات الصرف الصحي

### ABU DHABI SEWERAGE SERVICES COMPANY (ADSSC)

The company is responsible for sewage collection, wastewater treatment and disposal throughout the Emirate of Abu Dhabi.

<http://www.adssc.ae/>

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TRANSCO  
ترانسكو  
شركة أبوظبي للنقل والتحكم  
Abu Dhabi Transmission & Despatch Company

### ABU DHABI TRANSMISSION AND DESPATCH COMPANY (TRANSCO)

The company is responsible for all transmission voltages at 400, 220 and 132 kV, including despatch of generation units, water balancing and the bulk movement of water throughout the Emirate.

<http://www.transco.ae/>

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