

7 March 2017



South Australia's electricity transmission specialist

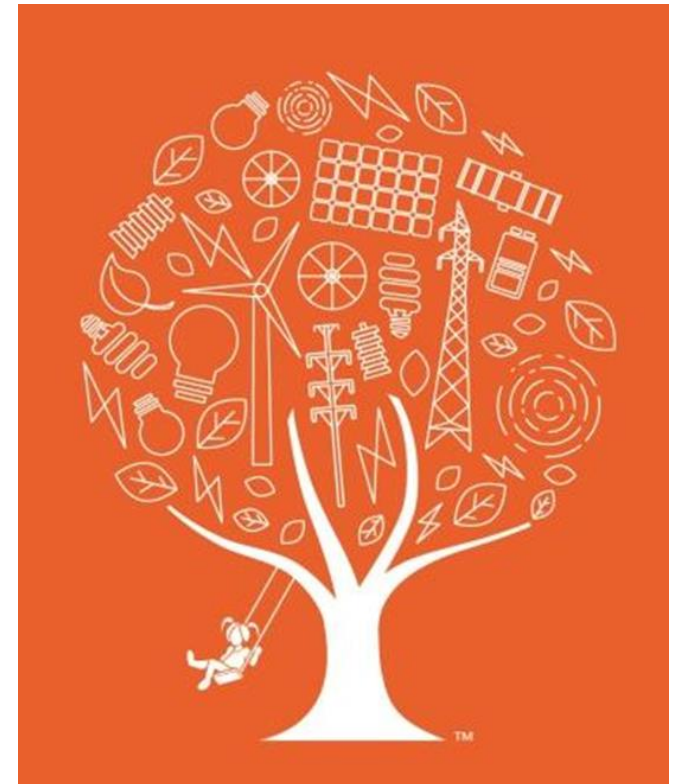
# Eyre Peninsula electricity supply options and South Australian energy transformation

Eyre Peninsula Mineral & Energy Resources  
Community Development Task Force

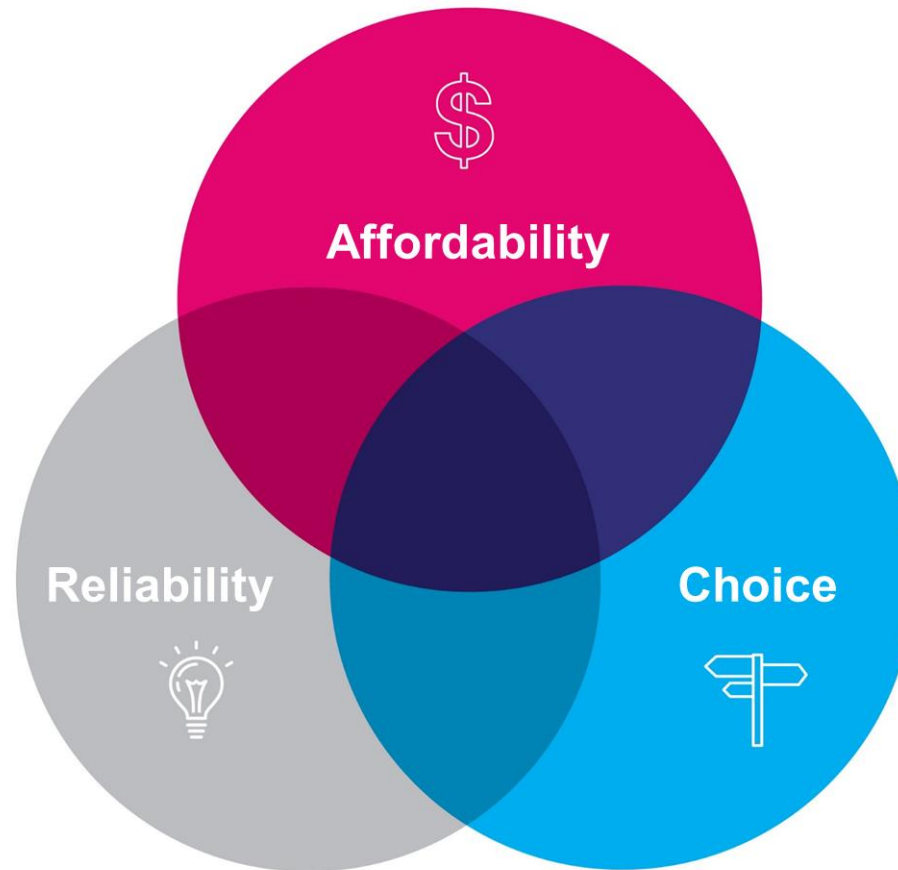
Rainer Korte  
Executive Manager Asset Management

# ElectraNet business snapshot

- > Private company with 3 major shareholders (State Grid Corporation of China, YTL Power and Hastings Funds Management)
- > Total assets of about \$2.5 billion
- > Capital expenditure of about \$400 to \$500 million over next 5 years
- > 91 high voltage substations and over 5,600 km of high voltage transmission lines
- > Asset availability > 99%
- > Staff numbering ~ 260
- > Outsourcing model for construction and maintenance works



# What customers want is central to energy transformation



For more information see [www.electranet.com.au](http://www.electranet.com.au)

# Role of the transmission network

**ElectraNet's vision for South Australia's transmission network is that it will deliver affordable and reliable power supplies that support customer choices for a sustainable future.**

The transmission network will continue to play an important role into the future to support safe, reliable and affordable electricity supply.

The ongoing uptake of distributed energy resources by customer is changing the role of the grid.

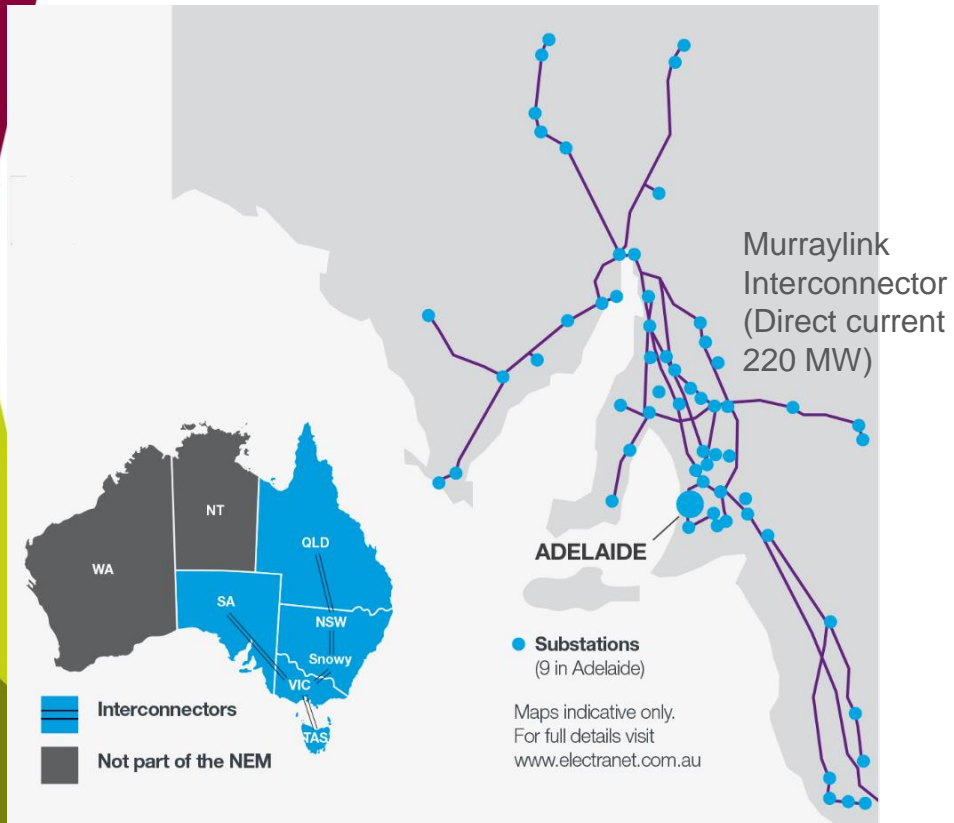
The generation mix is changing, creating new challenges for the secure and reliable operation of the grid.

New technologies are changing the way some network services can be delivered.

For more information see [www.electranet.com.au](http://www.electranet.com.au)

# South Australian context

South Australia (SA) is at the forefront of energy transformation



Heywood Interconnector (650 MW)

NEM – National Electricity Market  
 AEMO – Australian Energy Market Operator

- > Leading integration of intermittent renewable energy with abundant high quality resources
- > Closure of coal fired power stations
- > Reliance on gas generation and impact of higher gas prices
- > Higher wholesale electricity market and futures prices in SA
- > Recent SA separation events and load shedding is leading to heightened concerns about power system security
- > SA Government and AEMO have introduced new measures to manage power system security
- > Ongoing policy drivers to lower carbon emissions, new technology and customer choice are driving energy transformation

# ElectraNet initiatives

ElectraNet is playing a leading role to deliver affordability, reliability and choice for customers



- > South Australian Energy Transformation project, investigating the feasibility of new interconnector options and non-network alternatives to put downward pressure on price and improve system security
- > Eyre Peninsula electricity supply options
- > Proof of concept battery storage project to demonstrate the role of battery storage in providing fast frequency response
- > Synchronous condensers to meet system strength requirements
- > Special protection scheme to ensure successful islanded operation of SA power system when needed

# SA Energy Transformation RIT-T



## South Australian Energy Transformation

RIT-T: Project Specification Consultation Report  
7 November 2016



## South Australian Energy Transformation

RIT-T: Market Modelling Approach and Assumptions Report  
21 December 2016



## South Australian Energy Transformation

PSCR Supplementary Information Paper  
13 February 2017



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## RIT-T – Regulatory Investment Test for Transmission

# Identified need

## Benefits of stronger interconnection and/or non-network options

- > **Improve wholesale market competition** in South Australia and deliver positive price impacts for customers
- > **Improve system security** by reducing the risk of widespread loss of supply when South Australia becomes islanded from the NEM (through loss of the Heywood Interconnector)
- > Provide access to a more diverse range of supply sources, allowing greater **sharing of reserves across regions** and **improving fuel and supply security** for South Australia
- > Open up access to more renewable generation to **help Australia meet its renewable energy targets**



# Options to be considered

A more decentralised power system must be a more interconnected power system



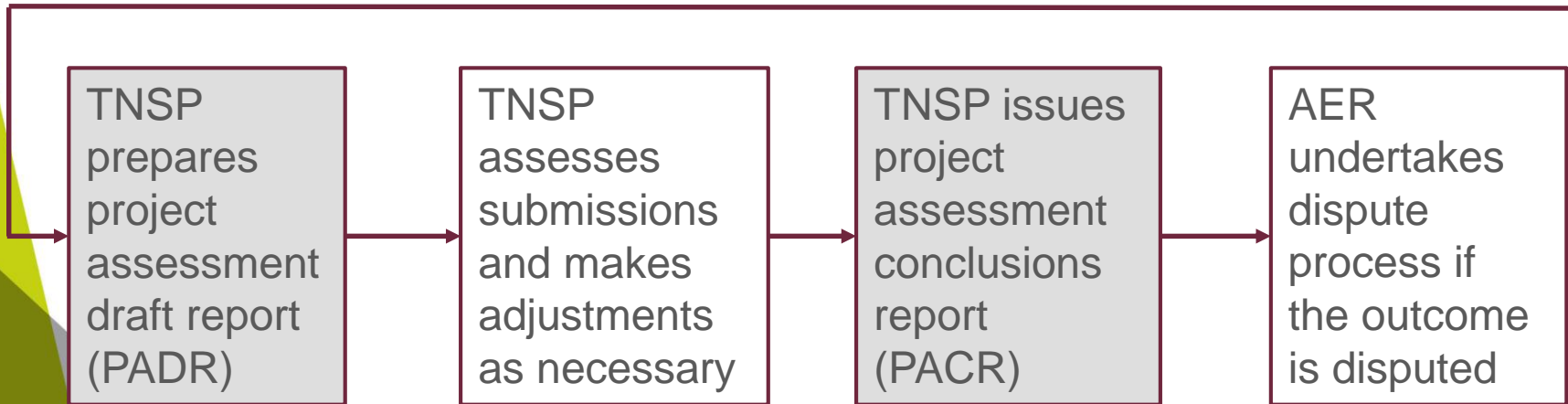
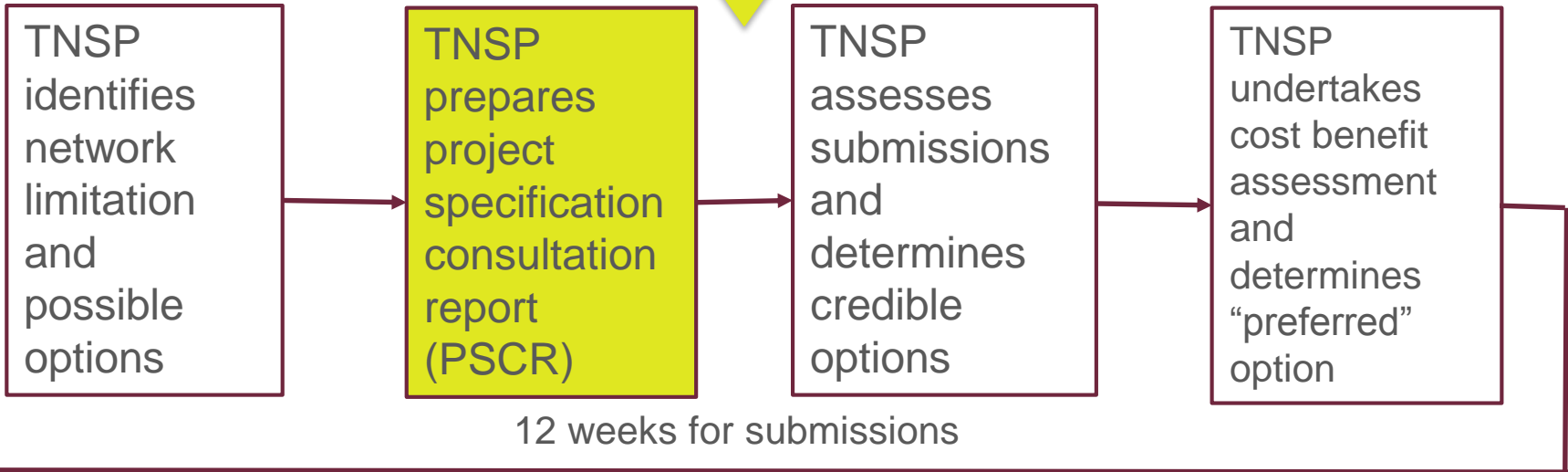
- > Both HVAC and HVDC options are being considered
- > Additional capacity from 300 to 2,000 MW
- > Indicative costs of \$500m to \$2,500m
- > Non-network options are also being considered

HVAC: High voltage alternating current

HVDC: High voltage direct current

# RIT-T process

We are here



30 business days for submissions

30 business days to raise a dispute

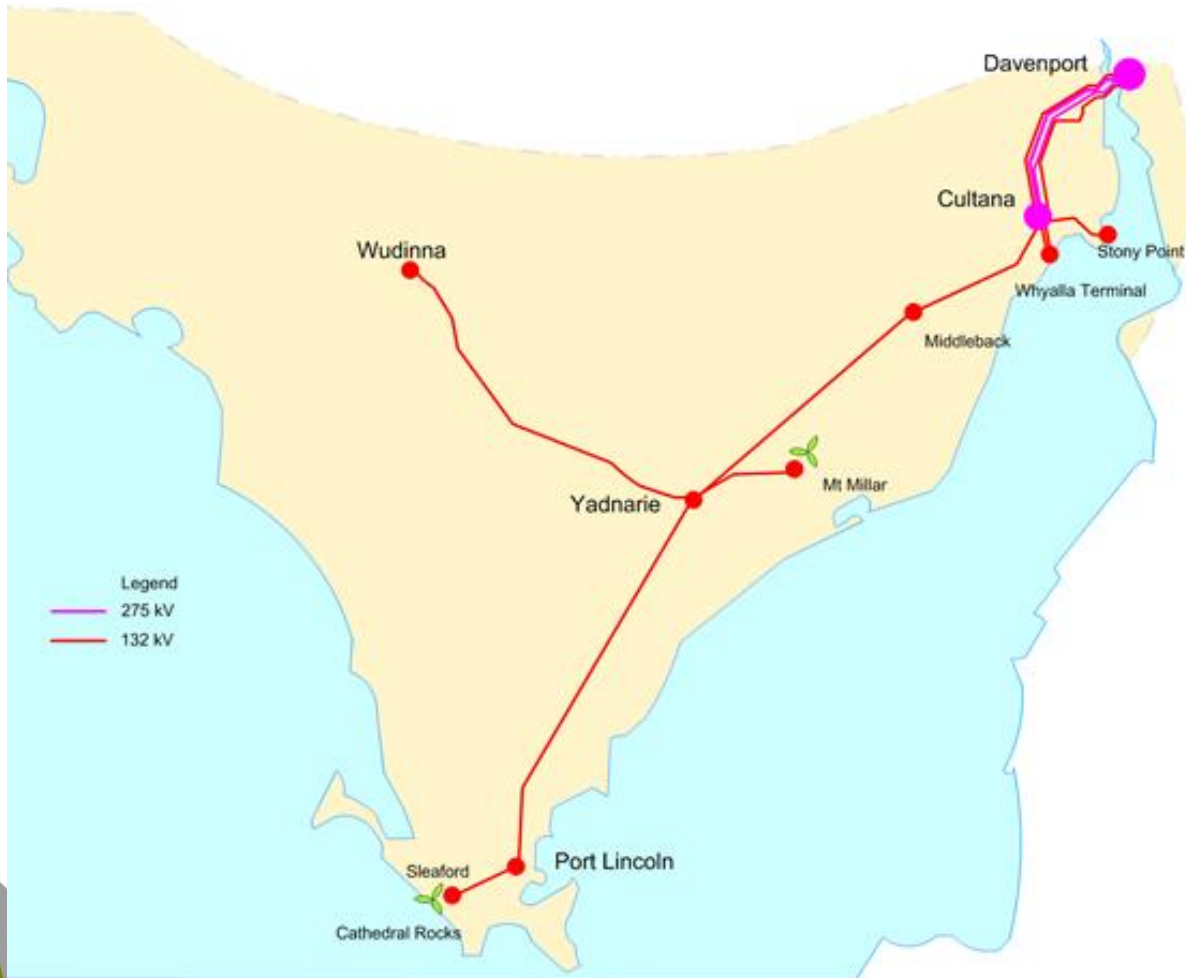
TNSP = Transmission Network Service Provider

# Current status and next steps

ElectraNet is committed to running an open and transparent process to find the best options to support South Australia's energy transformation

Milestone	Timing
Project Specification Consultation Report (PSCR) published	7 Nov 2016
Public forum held	8 Dec 2016
Market Modelling Assumptions Report published for consultation	21 Dec 2016
Supplementary Information Paper to facilitate non-network options published	13 Feb 2017
Submissions closed on PSCR and Market Modelling Assumptions Report	27 Feb 2017 (30+ received)
Draft report (PADR) consultation and public forum	Q2 to Q3 2017
Final report (PACR)	Q3 to Q4 2017

# Eyre Peninsula transmission network



- > Existing 132kV radial line is close to full capacity with limited potential to meet increased demand
- > Asset condition challenges with line >45 years old
- > Port Lincoln supply reliability includes network support from 3 x 25 MW diesel-fired gas turbines

Current demand is about 100 MW south of Cultana with about 50 MW at Port Lincoln

# Background to exploring options

New drivers now exist for looking at Eyre Peninsula electricity supply options

ElectraNet commenced feasibility studies in 2011

Formal economic (RIT-T) assessment

- Draft economic assessment report – Jan 2013
- Found a new higher capacity 275 kV transmission line is economic to meet a demand increase of about 50 MW or more
- Process put on hold pending customer commitment

New drivers now exist for reassessing options

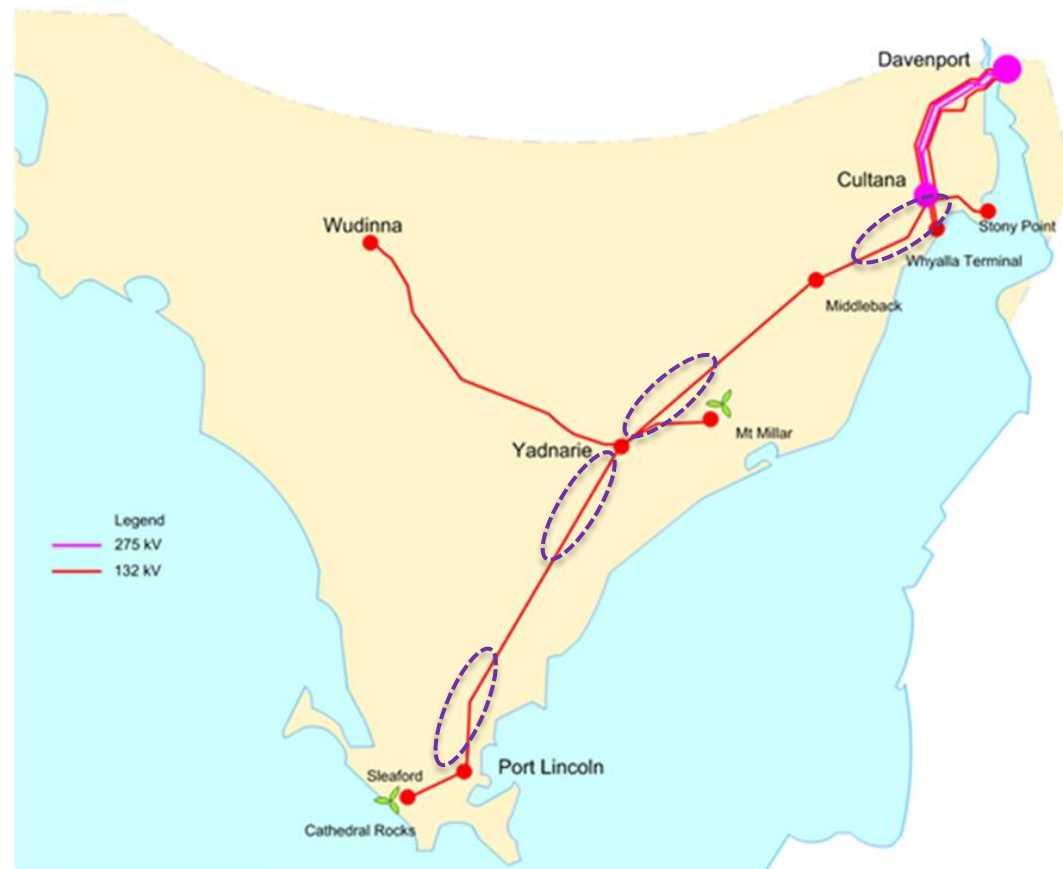
- Condition of existing transmission line
- Expiry of Port Lincoln network support agreement

# Electricity supply to Eyre Peninsula

## Primary options:

- > No major capital works and increasing operating and maintenance costs for existing 132 kV line
- > Partial line replacement (to replace components at end of life)
- > Full rebuild of the transmission line supplying the Eyre Peninsula

Full line replacement would only proceed if the benefits to customers exceed costs



About 120 km of line conductor needs to be replaced in next 5-year regulatory period

# Next steps

ElectraNet is committed to running an open and transparent process to find the best options to support reliable electricity supply for Eyre Peninsula

- > Commence RIT-T process with publication of PSCR by end March 2017...
  - Set out the identified need
  - Present options that could address the identified need
  - Provide details of non-network option requirements
  - Seek submissions and input to the RIT-T process
- > Hold public forum in Adelaide and Port Lincoln – dates to be determined
- > Expect to conclude RIT-T process by early 2018

# Questions





# Thank you

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