

#### Migration policy development board: Infrastructure and carrying capacity

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### Scope of public infrastructure



Transport – roads, airport, ports		Energy – generation		Gas, oil and electricity transmission & distribution		Digital in	frastructure
Coastal resilience - flood and erosion risk		Green & blue infrastructure		Social and community – schools, open space, public buildings		Sense of place	
Water supply & sewerage		Research and science		+	++		



#### Challenges

- Upgrading infrastructure to meet demand
- Reach capacity at different points in time
- Different implications
- Challenges for physical and natural environment and policy implications

#### **Opportunities**

- Fiscal levers and demand management policies
- Fit for purpose legislation and regulation
- New technologies and demand management opportunities

#### Predict and provide

- Not a neutral solution
- Expensive eg.
  Additional interconnector
- Significant additional impacts / unintended consequences
- Look and feel
- Natural habitats
- Ecosystems services

#### **Demand Management**

- Will not achieve significant savings alone
  - Energy efficiency -5%
  - Water saving 10%
  - Transport (STP target 15%; achieved 2% reduction at peak time)





Demand for access to resources

Finite resource supply impacts

Security and resilience of infrastructure

# **Electricity & security of supply**

# ELECTRICITY SOURCES

			+2.9%
YEAR	JE	EfW	Import
2010-11	1.8%	<b>2.6</b> %	<b>95.6%</b>
2011-12	2.5%	<b>5.2%</b>	<b>92.3</b> %
2012-13	20.7%	<b>3.9%</b>	<b>75.4</b> %
2013-14	14.9%	<b>4.9%</b>	<b>80.2</b> %
2014-15	1.4%	<b>4.6</b> %	94.0%
2015-16	2.9%	5.5%	<b>91.6</b> %
2016-17	1.5%	<b>5.8</b> %	92.0%
2017-18	0.2%	4.9%	94.9%
	-1.3%	-0.9%	

- 95% imported low carbon and hydro; 2017 supply agreement for 5 years EDF
- 3 sub sea cables
- 245MW of low carbon power available
  - 178MW peak demand March 2018
- SmartSwitch is Jersey Electricity's (JE) five-year, £11m project to install Smart Meters in every premise in the Island
- Carbon neutral by 2030
  - 20k heating for homes
  - 60k vehicles
- Implications?
  - Additional sub station
  - Additional interconnector
  - Renewables and storage



## Water supply & treatment based on +700

- Demand is expected to increase by 17% to 24 million litres a day by 2045.
- If no action is taken, demand would exceed supply by 8.2 million litres a day during severe drought conditions from that year.



# Jersey Evening Post

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# Plan for projected major water shortages by 2045

News | Published: Jun 10, 2019

PLANS to safeguard water supplies – including by building a new reservoir or expanding Val de la Mare – are being considered following projections that climate change and a growing population could cause major water shortages.



### Solid waste disposal

- ERF capacity 105k tonnes; net calorific value (NCV) of 9.2MJ/kg
- Higher NCV means capacity is lower c.90k tonnes
- Current throughput c.70k tonnes
- End of design life 2041
- New plant will be required
- Recycling rates will affect NCV





### Liquid waste treatment





- Based on 118k population
- Sewage treatment works due for completion 2022
- Design life to 2045
- Potential for +20% expansion
- Capacity and security of sewerage network
  - 107 pumping stations

### **Coastal flood and erosion risk**





- 460 properties currently at risk of coastal flooding, increasing to 2822 by 2120 (with present management)
- Additional potential GVA / business disruption losses up to £110m over the next 10 years

Cash Value	Short Term - Epoch 1 (2020-2040) (£m)	Medium Term - Epoch 2 (2040-2070) (£m)	Long Term - Epoch 3 (2070-2120) (£m)	Whole SMP period (100 years) (£m)
Benefit s	113.9	328.9	2,174.3	2,617.1
Costs	36.6	84.4	76.9	197.9
BCR	3.1	3.9	28.3	13.2

#### **Transport network**

Road Space Requirements



- Network is currently at capacity during the peak hours – no more road space available
- Building additional road space is not viable
- New trips will need to be via bus or active travel
- People will not give up the car unless it is more expensive or takes a lot longer than a bus

Population Growth (+700) vs Traffic Congestion







#### Infrastructure Plan 2019

- Scope
- Scenarios
- Modelling
- Options

Demand Management

- No regrets
- Fiscal levers
- Behaviours

#### Compliance

- Legislation & Regulation
  - Drainage Law
  - Electricity
    Law
- MEA's



# Thank you

