Energy Infrastructure of Tamil Nadu – Wind & Solar Power, TNEB Restructuring 2024 (TNPDCL, TNPGCL, TNGECL), Kudankulam, Pumped Storage & Ports | TNPSC Notes

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Tamil Nadu is one of India's pioneering States in **renewable energy**. As per data of the Union Ministry of New and Renewable Energy (MNRE), on **31.03.2026** Tamil Nadu's **wind power capacity was 12,147.23 MW** – **second** in India after Gujarat (15,642.26 MW); solar capacity was 13,579.67 MW; and total renewable capacity including large hydro was **29,108.27 MW**. The power sector was reorganised in 2024: the old TANGEDCO was split into **TNPDCL** (distribution), **TNPGCL** (thermal and gas generation) and **TNGECL** (green energy), with TANTRANSCO handling transmission. As per the new government's Energy Department White Paper (25.06.2026), the debt of the four power companies was **Rs 2,47,130 crore** (31.03.2026).

தமிழில் படிக்க

These notes are written for TNPSC Group 1, 2/2A and 4 aspirants. The topic falls under **Development Administration in Tamil Nadu** (infrastructure, energy), **Geography** (energy resources, ports) and **Science and Technology** (nuclear and renewable energy).

At a Glance

Indicator	Figure	Date / Source
Wind power capacity	12,147.23 MW – 2nd in India (Gujarat 1st)	31.03.2026, MNRE
Solar capacity (ground + rooftop + hybrid)	13,579.67 MW (including rooftop solar 1,532.30 MW)	31.03.2026, MNRE
Bio-power / small hydro / large hydro	1,055.12 / 123.05 / 2,203.20 MW	31.03.2026, MNRE
Total renewable capacity (incl. large hydro)	29,108.27 MW	31.03.2026, MNRE
Debt of power companies	Rs 2,47,130 crore (about 7% of GSDP)	31.03.2026; White Paper 25.06.2026; PRS
Projected peak demand	Above 37,000 MW by 2035-36	Budget Speech 2026-27, para 99
Energy Department allocation	Rs 15,828 crore	Budget Speech 2026-27, para 101

Electricity Board – History and Restructuring

Year	Event
01.07.1957	Tamil Nadu (then Madras) Electricity Board (TNEB) formed
2010	Restructuring under the Electricity Act, 2003: TNEB Limited (holding company), TANGEDCO (generation + distribution), TANTRANSCO (transmission); debt allocation from 01.11.2010
24.01.2024	State Government approved splitting TANGEDCO into three (Tamil Nadu Electricity Restructuring and Transfer Scheme, 2024)
09.02.2024	TNPGCL and TNGECL incorporated
27.06.2024	Union Ministry of Corporate Affairs (Registrar of Companies) approved renaming TANGEDCO as TNPDCL
25.06.2026	New government's Energy Department White Paper

Company	Role	Debt on 31.03.2026 (Rs crore)
TNPDCL – Tamil Nadu Power Distribution Corporation	Distribution, retail supply, power purchase, billing, new connections	1,07,365
TNPGCL – Tamil Nadu Power Generation Corporation	Coal and gas thermal power stations	1,03,128
TNGECL – Tamil Nadu Green Energy Corporation	Hydro, pumped storage, solar / wind / bio; merged with TEDA (Tamil Nadu Energy Development Agency)	5,672
TANTRANSCO	Transmission (unchanged)	30,965

Why restructure? Separate accountability for generation, distribution and green energy; separate fund-raising for green projects; clearer identification of losses. Yet the utilities still depend on State loss funding – Rs 5,000 crore for the distribution company in 2026-27 (PRS; Budget para 101).

Renewable Energy

- **Wind:** winds funnelled through the Palghat Gap (Coimbatore, Tiruppur), the Aralvaimozhi Pass (Kanniyakumari – Muppandal) and the Shencottah Gap (Tenkasi) give high output in the south-west monsoon season (May–September). The Union's **National Institute of Wind Energy (NIWE)** is in Chennai.
- **National share:** India's wind capacity on 31.03.2026 was 56,094.84 MW; Tamil Nadu's share is about 21.7%.
- **Solar:** ground-mounted solar parks (southern districts) and rooftop solar (1,532.30 MW, including PM Surya Ghar); in 2026-27, a subsidy of up to Rs 1 lakh for domestic rooftop solar (Budget para 98).
- **Transmission:** transmission projects able to handle 11,760 MW of renewable power (para 99).

- **Storage:** a new Battery Energy Storage System (BESS) promotion policy (para 97); pumped storage – **Kundah** (Nilgiris, 4 × 125 MW, TNGECL) and the **Vellimalai** pumped storage hydroelectric project (Rs 5,050 crore, para 97).

Thermal and Nuclear Power

Station	Details
Kudankulam Nuclear Power Plant (Tirunelveli district)	Nuclear Power Corporation of India (NPCIL); Russian cooperation; VVER pressurised water reactors. Unit 1 – 1,000 MW (gross), commercial operation 31.12.2014; Unit 2 – commercial operation 31.03.2017; Units 3–6 under construction
Kalpakkam (Chengalpattu district)	Madras Atomic Power Station (MAPS); 500 MWe Prototype Fast Breeder Reactor (PFBR) – BHAVINI
Udangudi Stage-I and Ennore SEZ thermal projects	Together add 2,640 MW (Budget 2026-27, para 97)
Neyveli (Cuddalore district)	NLC India – lignite-based thermal power stations

Consumption and Subsidy

- **Consumers:** about 351.73 lakh connections in 2026, of which 250.07 lakh domestic and 23.95 lakh agricultural (White Paper 2026).
- **Agriculture:** free power for farm pump sets – subsidy Rs 7,432 crore in 2026-27 (Budget para 66).
- **Households:** Budget 2026-27 announced raising free electricity from 100 to 200 units (para 101); domestic power subsidy Rs 8,452 crore (PRS).

Ports

Port	Type / Note
Chennai	Major Port; one of the country's oldest artificial harbours
Kamarajar Port (Ennore)	Major Port; the first Major Port registered as a company; coal and LNG
V.O. Chidambaranar Port (Thoothukudi)	Major Port; named after V.O.C., founder of the Swadeshi Steam Navigation Company
Minor ports	Managed by the Tamil Nadu Maritime Board; possibility of new ports to be explored (Budget para 77)

Major ports are under the Union (Chennai and V.O.C. – Major Port Authorities Act, 2021; Kamarajar Port – a Union Government company); minor ports are under the State. In 2026-27 the Highways and Minor Ports Department got Rs 21,524 crore (para 117).

Challenges and Way Forward

Challenge	Way forward
Huge utility debt (Rs 2.47 lakh crore)	Cost-reflective tariffs, loss reduction, subsidy through direct transfer
Intermittent wind and solar power	BESS, pumped storage (Kundah, Vellimalai), stronger transmission
Ageing wind turbines	Repowering – taller, higher-capacity turbines
Rising demand (37,000 MW+ by 2035-36)	New thermal / nuclear / renewable capacity; demand-side management

Mains Answer Writing

"Tamil Nadu's power sector: renewable strength and financial stress" – discuss (about 250 words)

- **Introduction:** TNEB 1957; restructurings of 2010 and 2024.
- **Strength:** wind 12,147 MW (2nd), solar 13,580 MW, total renewable 29,108 MW (31.03.2026); Kudankulam.
- **Stress:** debt Rs 2,47,130 crore; loss funding Rs 5,000 crore; free-power subsidies.
- **Reforms:** TNPDCL / TNPGCL / TNGECL; BESS policy; pumped storage.
- **Conclusion:** fiscal discipline + green transition + grid strengthening.

Practice: Match the Following

Item	Match
TNGECL	Green energy
TNPGCL	Thermal generation
TNPDCL	Distribution
Kundah	Pumped storage, Nilgiris
Muppandal	Wind farms, Kanniyakumari
NIWE	Chennai

Common Mistakes to Avoid

- On 31.03.2026 Tamil Nadu is **second** in wind capacity (Gujarat first) – "first" is an old position.
- TANGEDCO was split into three: TNPDCL (the renamed TANGEDCO), TNPGCL and TNGECL; TANTRANSCO continues separately.
- Kudankulam is in Tirunelveli district; Kalpakkam is in Chengalpattu district.
- Kamarajar Port = Ennore; V.O.C. Port = Thoothukudi.

Key Terms – Tamil / English

Tamil	English
புதுப்பிக்கத்தக்க எரிசக்தி	Renewable energy
நீரேற்று மின் சேமிப்பு	Pumped storage
மின்கல ஆற்றல் சேமிப்பு	Battery Energy Storage System (BESS)
மின் விநியோகம் / கடத்தல்	Distribution / Transmission
கூரைச் சூரிய மின்	Rooftop solar
உச்ச மின் தேவை	Peak demand

Quick Revision Table

Date / Year	Event
01.07.1957	TNEB
2010	TNEB Ltd, TANGEDCO, TANTRANSCO
31.12.2014	Kudankulam Unit 1 commercial operation
31.03.2017	Kudankulam Unit 2 commercial operation
24.01.2024	Restructuring approved
09.02.2024	TNPGCL, TNGECL incorporated
27.06.2024	TANGEDCO → TNPDCL renaming approved
31.03.2026	Wind 12,147 MW; solar 13,580 MW; debt Rs 2,47,130 crore
25.06.2026	Energy White Paper
05.08.2026	Budget: 200 free units, BESS policy, Vellimalai

TNPSC Key Points (PYQ-style facts)

- Wind capacity: Tamil Nadu 2nd (12,147.23 MW, 31.03.2026, MNRE).
- TNEB – 01.07.1957; 2024 restructuring – TNPDCL, TNPGCL, TNGECL.
- TNGECL – merged with TEDA; hydro, pumped storage, solar, wind.
- Kudankulam – NPCIL, Russian VVER; Unit 1 commercial operation 31.12.2014.
- NIWE – Chennai; Muppandal – Kanniyakumari.
- Three Major Ports in Tamil Nadu: Chennai, Kamarajar (Ennore), V.O.C. (Thoothukudi).

Related notes: Tamil Nadu Economy, Agriculture Development in Tamil Nadu, e-Governance in Tamil Nadu, V. O. Chidambaram Pillai.

Frequently Asked Questions

What is Tamil Nadu's rank in wind power capacity?

As per MNRE, on 31.03.2026 Tamil Nadu's wind capacity was 12,147.23 MW – second after Gujarat (15,642.26 MW); about 21.7% of India's wind capacity.

How was TANGEDCO restructured?

Following Government approval on 24.01.2024, TANGEDCO was split into three: TNPDCL for distribution (the renamed TANGEDCO), TNPGCL for thermal power and TNGECL for green energy. Transmission stays with TANTRANSCO; TNEB Limited is the holding company.

How much debt do Tamil Nadu's power companies have?

On 31.03.2026 the four power companies owed Rs 2,47,130 crore (about 7% of GSDP): TNPDCL Rs 1,07,365 crore, TNPGCL Rs 1,03,128 crore, TANTRANSCO Rs 30,965 crore and TNGECL Rs 5,672 crore (Energy White Paper 2026).

What should one know about the Kudankulam nuclear plant?

It is a Russian-assisted VVER pressurised water reactor station in Tirunelveli district run by NPCIL. Unit 1 (1,000 MW) began commercial operation on 31.12.2014 and Unit 2 on 31.03.2017; Units 3–6 are under construction.

Which are the Major Ports in Tamil Nadu?

Chennai, Kamarajar (Ennore) and V.O. Chidambaranar (Thoothukudi) – all three are Union Major Ports. Minor ports are managed by the Tamil Nadu Maritime Board.

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Practice questions

1. As on 31.03.2026, what is Tamil Nadu's rank in wind power capacity?

A. Second
B. First
C. Third
D. Fourth

2. About how much was Tamil Nadu's wind capacity on 31.03.2026?

A. 8,500 MW
B. 12,147 MW
C. 10,600 MW
D. 15,642 MW

3. On which date was TNEB formed?

A. 15.08.1947
B. 01.07.1957
C. 01.11.1956
D. 01.11.2010

4. Which company was created for green energy in the 2024 restructuring?

A. TNPDCL
B. TNPGCL
C. TANTRANSCO
D. TNGECL

5. What is the new name of TANGEDCO?

A. TNPDCL
B. TNPGCL
C. TNGECL
D. TEDA

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6. Which company took over the thermal power stations?

A. TNPDCL
B. TNPGCL
C. TNGECL
D. TANTRANSCO

7. Which agency was merged with TNGECL?

A. SIPCOT
B. TIDCO
C. TEDA
D. ELCOT

8. On which date were TNPGCL and TNGECL incorporated?

A. 24.01.2024
B. 09.02.2024
C. 27.06.2024
D. 01.04.2025

9. What was the total debt of the four power companies on 31.03.2026?

A. Rs 2,47,130 crore
B. Rs 1,59,823 crore
C. Rs 1,07,365 crore
D. Rs 3,12,000 crore

10. In which district is the Kudankulam nuclear power plant?

A. Thoothukudi
B. Tirunelveli
C. Kanniyakumari
D. Ramanathapuram

11. Kudankulam reactors were built with which country's cooperation?

A. France
B. USA
C. Russia
D. Canada

12. When did Kudankulam Unit 1 begin commercial operation?

A. 22.10.2013
B. 31.12.2014
C. 31.03.2017
D. 01.07.2018

13. Where is the National Institute of Wind Energy (NIWE)?

A. Chennai
B. Bengaluru
C. Ahmedabad
D. Pune

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14. The Muppandal wind area is linked with which pass?

A. Palghat Gap
B. Aralvaimozhi Pass
C. Shencottah Gap
D. Bodi Pass

15. In which district is the Kundah pumped storage project?

A. Dindigul
B. Theni
C. The Nilgiris
D. Salem

16. As per Budget 2026-27, how much capacity will Udangudi Stage-I and Ennore SEZ thermal projects add together?

A. 1,320 MW
B. 2,000 MW
C. 3,960 MW
D. 2,640 MW

17. To what level did Budget 2026-27 announce raising free household electricity?

A. 200 units
B. 150 units
C. 100 units
D. 300 units

18. Where is Kamarajar Port?

A. Thoothukudi
B. Ennore
C. Nagapattinam
D. Cuddalore

19. Which body manages the minor ports of Tamil Nadu?

A. Indian Ports Authority
B. Directorate General of Shipping
C. Tamil Nadu Maritime Board
D. Chennai Port Authority

20. Which pumped storage hydroelectric project was announced in Budget 2026-27?

A. Kundah
B. Papanasam
C. Mettur
D. Vellimalai

Answers with explanations

1. A) Second – Second after Gujarat (MNRE).

2. B) 12,147 MW – 12,147.23 MW; 15,642 MW is Gujarat.

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3. B) 01.07.1957 – 01.07.1957.

4. D) TNGECL – Tamil Nadu Green Energy Corporation (TNGECL).

5. A) TNPDCL – TNPDCL – renaming approved on 27.06.2024.

6. B) TNPGCL – TNPGCL – coal and gas stations.

7. C) TEDA – Tamil Nadu Energy Development Agency (TEDA).

8. B) 09.02.2024 – 09.02.2024; Government approval was 24.01.2024.

9. A) Rs 2,47,130 crore – Rs 2,47,130 crore; Rs 1,07,365 crore is TNPDCL alone.

10. B) Tirunelveli – Tirunelveli district.

11. C) Russia – Russia – VVER pressurised water reactors.

12. B) 31.12.2014 – 31.12.2014; grid connection was 22.10.2013.

13. A) Chennai – Chennai.

14. B) Aralvaimozhi Pass – Kanniyakumari district – Aralvaimozhi Pass.

15. C) The Nilgiris – The Nilgiris; 4 × 125 MW; TNGECL.

16. D) 2,640 MW – 2,640 MW (para 97).

17. A) 200 units – From 100 to 200 units (para 101).

18. B) Ennore – Ennore – the first Major Port registered as a company.

19. C) Tamil Nadu Maritime Board – The Tamil Nadu Maritime Board; Major Ports are under the Union.

20. D) Vellimalai – Vellimalai – Rs 5,050 crore (para 97).

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