



City Information Note

Nagpur

EV Readiness

City overview

Nagpur is a major industrial city in the state of Maharashtra, famous for its orange production and acknowledged as the orange city of India. It lies precisely at the centre of the country, with the Zero Mile Marker indicating the geographical centre of India.

Demographics



Population

24.6 Lakhs



Area

227 sq. km.

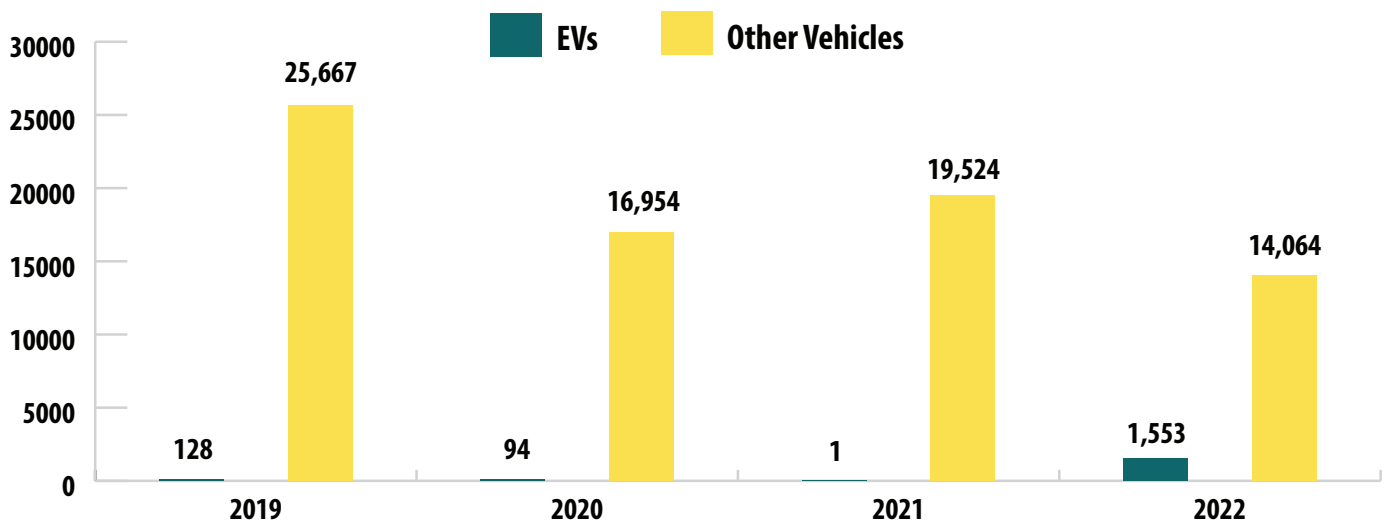


City Type

Tier-II

Vehicles Registered*

The share of EVs in the city's transport sector was 0.5% in 2019, which has increased to almost 10% in 2022, illustrating the gradual adoption of EVs. The number of e-rickshaws have also increased to almost 40% of the registered EVs in the year 2022. The registration trend of EVs vs other vehicles from 2019 to 2022 is given below:



*Information source- VAHAN Dashboard, accessed on 30th September, 2022

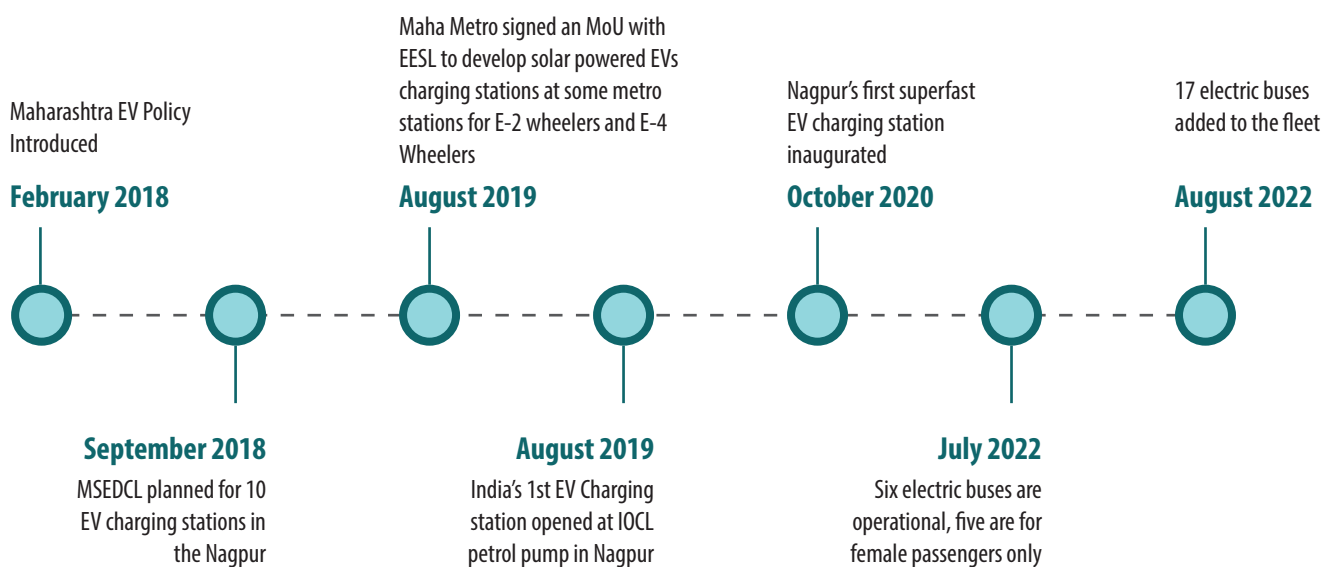
This documentation is a part of the ICLEI South Asia's initiative 'Support Indian cities to take leadership on EVs'. Ten cities including Coimbatore, Gangtok, Kochi, Lakshadweep, Meerut, Nagpur, Panaji, Rajkot, Shimla and Surat were visited and the status of EV transition (till September 2022) was documented.

Background

Electric Mobility revolution is gaining momentum in Indian cities and is being promoted by the central government through various incentives to reduce the country’s reliance on fossil fuels and reduce Greenhouse Gas (GHG) emissions from the transport sector. Indian cities are also aiming to integrate sustainable and low emission alternatives in urban transport. But long-term actions are required for mass adoption of e-mobility in Indian cities. ICLEI South Asia embarked an initiative to “Support Indian Cities in Taking Leadership on Electric Vehicles (EV)” to aid the cities to identify priority interventions and take necessary steps towards accelerated transition to EVs.

This initiative included several interactions and discussions with the city stakeholders during visits to 10 project cities - Coimbatore, Gangtok, Kochi, Lakshadweep, Meerut, Nagpur, Panaji, Rajkot, Shimla and Surat. Consultations with the major stakeholders impacting EV transition in cities included advisory groups, industry experts including the advocacy group, charging infrastructure developers, vehicle technology/OEMs and –financial institutions. As part of the initiative, ICLEI South Asia team visited Nagpur on 22nd and 23rd June 2022 to interact with the stakeholders and understand the existing EV transition situation, challenges and opportunities and to suggest a way forward for the city.

EV related developments in Nagpur



Key stakeholders

The stakeholders in Nagpur with whom interactions were held during city visit are as follows:

	Stakeholders	Roles
State Government stakeholder	Maharashtra State Electricity Distribution Co. Ltd (MSEDCL)	<ul style="list-style-type: none"> • Approvals for electricity connections • Tariff of charging electric vehicles
	MAHA Metro	<ul style="list-style-type: none"> • Metro operations in Nagpur (entire Maharashtra) • Developing charging stations at metro stations.
City Government stakeholder	Nagpur Municipal Corporation (NMC)	<ul style="list-style-type: none"> • Land owner- Providing land for charging infrastructure • Floating tender for development of charging infrastructure.
	Transport Department (NMC)	<ul style="list-style-type: none"> • Floating Tender for procuring E-buses. • Finalising tariff of E-buses
	Town Planning department (NMC)	<ul style="list-style-type: none"> • Policies related to building • Building plan approvals
	RTO	<ul style="list-style-type: none"> • Registers EVs and prioritises registration process for EVs through single-window clearance.
Others	Vehicle Technology/ OEMs	<ul style="list-style-type: none"> • EV and its parts manufacturing and supply
	Builders Association	<ul style="list-style-type: none"> • Ensure development of EV-ready buildings

State EV Policy

Maharashtra Electric Vehicle Policy 2021 key points:

 <p>Objective is to accelerate the adoption of BEVs in the state so that they contribute to 10% of new vehicle registrations by 2025</p>	 <p>Effective for 4 years (July 2021 to March 2025)</p>
 <p>Target of 10% 2 wheelers, 20% 3 wheelers, 5% 4 wheelers, 25% fleet vehicles, 25% E-buses in 5 targeted UAs (Pune, Nagpur, Nashik, Aurangabad and Greater Mumbai) by 2025.</p>	 <p>All new government (owned/leased) vehicles operating within the major cities to be electric from April 2022.</p>
 <p>Subsidy for EV buyers, scrappage incentive, assured buyback (vehicles) and warranty incentives (batteries)</p>	 <p>Incentives for developing charging stations.</p>
 <p>Zero emission vehicle (ZEV) credit programme</p>	 <p>Low emission zones in targeted UAs.</p>
 <p>ULBs to be encouraged to provide lane and parking preferences to EVs, subject to local traffic conditions.</p>	 <p>20% of parking spaces in new residential buildings, 25% of all dedicated off-road parking spaces, 25% of parking space in all institutional and commercial spaces, 100% of all parking space in office complexes to be EV-ready by 2023.</p>
 <p>Steering Committee supported by 6 members of State level departments will monitor implementation of this policy.</p>	

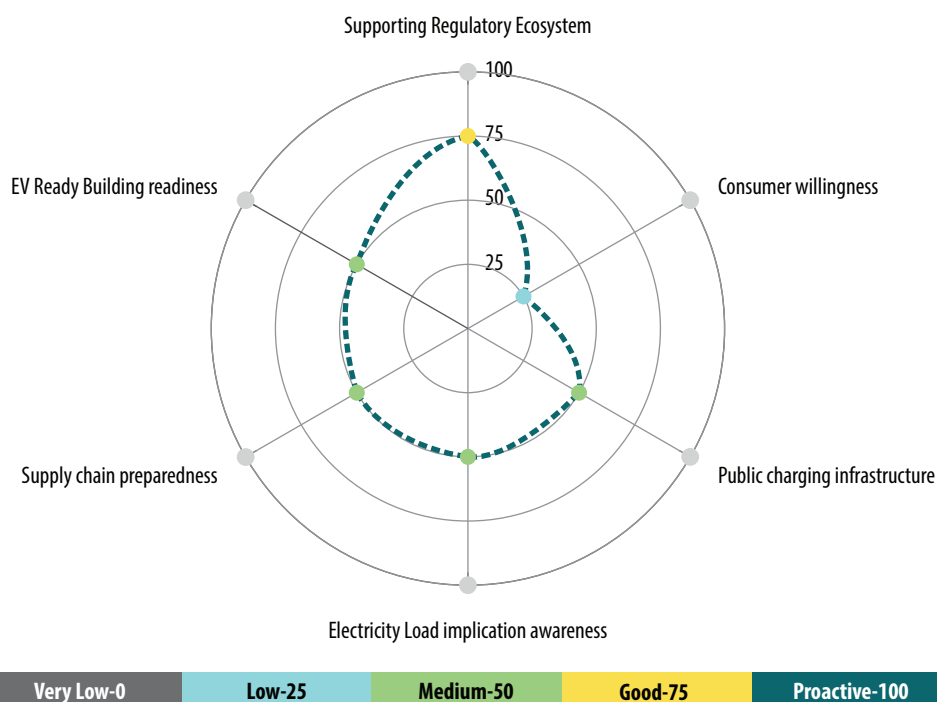
City- EV related actions-status*

This information was collected through interactions and discussions with government and private stakeholders related to EVs during a visit to Nagpur.

<p>Policy and Advocacy</p> <ul style="list-style-type: none"> State level Policy- Yes City level Policy- No Initiatives- No 	<p>Charging Infrastructure</p> <ul style="list-style-type: none"> Public charging stations- Yes Public transport charging depot- Yes (one charging station at the Wardhaman Nagar Bus Depot)
<p>Financial Incentives</p> <p>State level - Yes</p> <ul style="list-style-type: none"> Charging infrastructure - Demand incentive for setting up slow/moderate/fast charging stations, single-window process for approvals EV buyer - financial incentive, exemption of motor vehicle tax, Zero emission vehicle (ZEV) credit programme, scrappage incentive, assured buyback (vehicles) and warranty incentives (batteries) <p>City level- No</p>	<p>Vehicle Technology - Supply chain</p> <ul style="list-style-type: none"> Shortage of EV parts Safety concerns due to e-rickshaw vehicle design which overturns on collision (E-IPT)






City Readiness

Nagpur city's EV readiness was synthesized after the parameters that impact the EV transition were assigned scores. **Twenty- five parameters were listed under 6 categories**, which are supporting regulatory ecosystem, supply chain preparedness, consumer willingness*, public charging infrastructure, EV readiness in buildings and electricity load implication awareness. The scoring of the city was based on the information collected during city visits. The readiness of the city was assessed as follows:



*Consumer willingness has been rated on the basis of the responses of dealers of EVs and discussions with city government officials.

There is a need for the city and the state government, to give a push to the EV transition by improving the existing EV operations to encourage and sensitise the users, and by encouraging EV ready buildings and grid readiness for the same. The observations from the city readiness assessment includes the following:

	<p>The existing regulatory ecosystem requires focus at the city level in addition to a robust EV policy at the state level. The city officials acknowledge the importance of a planned process for transitioning to EVs and of including all stakeholders in decision making process.</p>
	<p>Public charging infrastructure is being developed in commercial spaces, metro stations and other areas for EV users.</p>
	<p>There is low user awareness about EV performance, EV charging tariff and charging station locations, leading to low confidence and consumer willingness.</p>
	<p>The city officials are slightly aware about the expected electricity load implications, but are not prepared for the same.</p>
	<p>The level of awareness and willingness to develop EV ready buildings is high in the city and may rise with the increase in EV users in the city.</p>

Observations

The Nagpur Municipal Corporation has included 23 e-buses in its intra-city bus operations. E-rickshaws are also an important mode providing last-mile connectivity in the city and comprise almost 40% of the total EVs registered.

Government officials acknowledge the need for a long-term roadmap for electrification that spells out the steps of the EV transition.

The key challenges identified after visiting the city and interacting with the stakeholders are as follows:



Lack of city level public charging infrastructure.



Lack of awareness related to electricity grid readiness



Lack of awareness related to EV Ready buildings and EV performance



Location of charging depots for e-buses on the city periphery will increase the dead km.



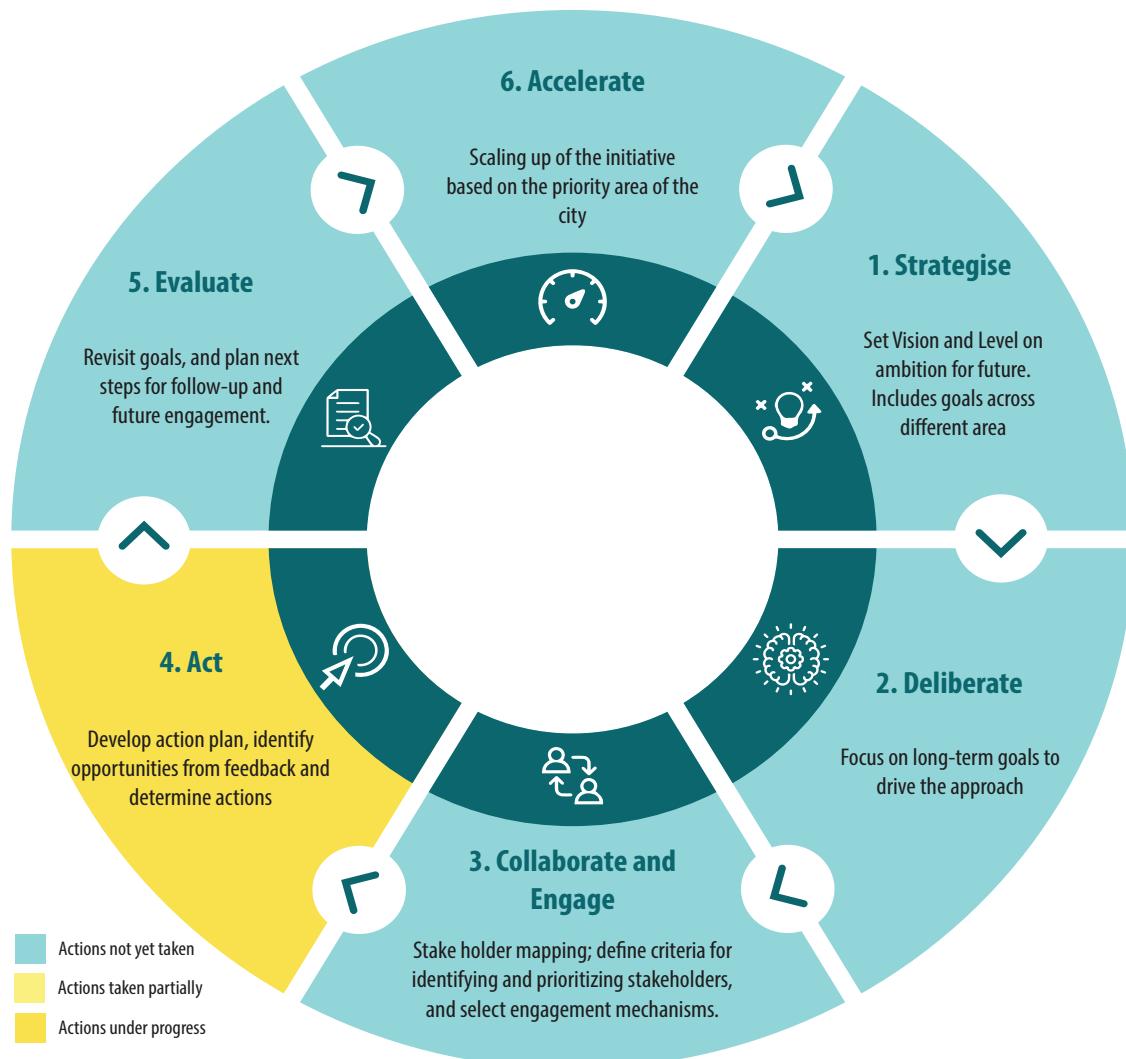
Lack of a mandate for integrating EV charging infrastructure in multistoried buildings

Approach

Discussions and consultations were held with city stakeholders, industry experts and the advisory group were taken to develop the six-step approach:



The six-step approach which Nagpur should preferably follow to address the challenges identified above are as follows:

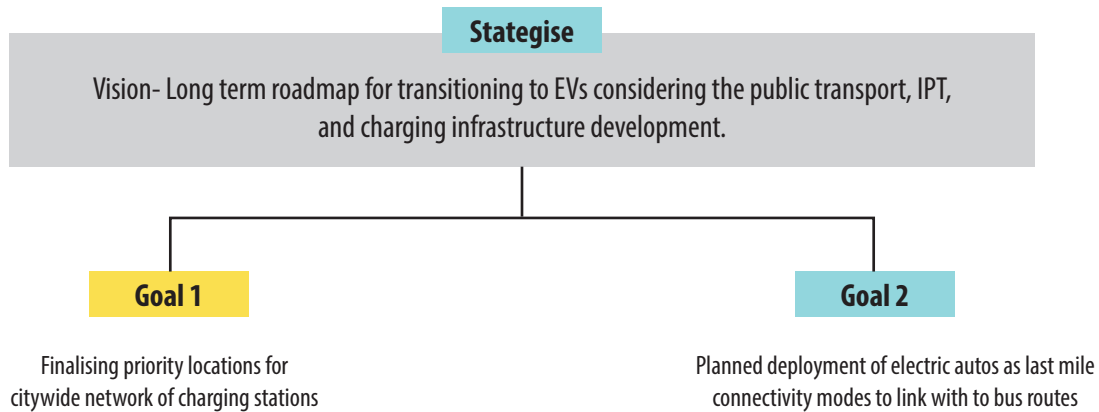


As per the discussions, Nagpur city is currently focusing on the step of 'Act' as evident from the e-bus and e-rickshaw operations. The city needs to focus on the other steps of the approach also, besides developing a clear set of targets and strategies.

Recommendations

The city should appoint a nodal person/ nodal team that leads the EV initiative and is assigned all the tasks related to EV adoption.

Further, planned electrification of last mile connectivity modes and a citywide network of charging stations, are two major recommendations as per an analysis of the city readiness, challenges and opportunities. A broader description of these two strategies as per the 6-step approach recommended for Nagpur is as follows:



Goal 1 - Discussions and consultations were held				
Deliberate	Collaborate and Engage	Act	Evaluate	Accelerate
Location and accessibility	<ul style="list-style-type: none"> NMC MSEDCL Town Planning Department, NMC 	<ul style="list-style-type: none"> Finalising location as per data driven analysis of demand Providing accessibility to the charging locations Guideline for designing the charging station, integrating recreational spaces where the users may wait/ utilise their time till their vehicle is charged. Deciding on fast/slow charger installation decision 	<ul style="list-style-type: none"> Visibility, all time access from roads to the charging stations 	<ul style="list-style-type: none"> Scaling up of the charging network to locations in other areas of the city.
Approvals and additional infrastructure	<ul style="list-style-type: none"> NMC MSEDCL Town Planning Department, NMC Charge Point Operators (CPOs) and E-Mobility Service Provider (e-MSPs) 	<ul style="list-style-type: none"> Ensuring effective electricity grid readiness Getting approvals from NMC, MSEDCL, Town Planning Additional supporting infrastructure required and its implications on related stakeholders 	<ul style="list-style-type: none"> Charging station developed and operating. 	<ul style="list-style-type: none"> Scaling up the charging network to other areas and on a citywide level
Operation and billing	<ul style="list-style-type: none"> Charge Point Operators (CPOs) and E-Mobility Service Provider (e-MSPs) 	<ul style="list-style-type: none"> Finalising the operational model Ensuring operation and maintenance Deciding the tariff and tariff collection Ensuring safety and security of equipment 	<ul style="list-style-type: none"> Charging station developed and operating. 	<ul style="list-style-type: none"> Scaling up the charging network to areas and citywide level

Goal 2 - Planned deployment of electric autos as last mile connectivity modes to link with to bus routes

Deliberate	Collaborate and Engage	Act	Evaluate	Accelerate
Routes and phase out plan for existing IPT vehicle	<ul style="list-style-type: none"> Transport Department, NMC Traffic Police 	<ul style="list-style-type: none"> Preparing the last mile connectivity strategy for existing public transport by e-autos Finalising priority routes and halting areas for e-autos to operate as last mile feeder to buses Getting approvals for land and electricity connections. Developing a phase out plan/ strategy based on the end of life of registered IPT vehicles 	<ul style="list-style-type: none"> Percentage of city area outside the radius of 600m from the nearest public transport mode being served by e-autos. 	<ul style="list-style-type: none"> Scaling up the planned operation of e-autos as last mile connectivity mode to electric buses
Regulated kerbside/ public charging stations	<ul style="list-style-type: none"> NMC Transport Department, NMC MSEDCL Charge Point Operators (CPOs) and E-Mobility Service Provider (e-MSPs) Town Planning department, NMC 	<ul style="list-style-type: none"> Planning and permissions, finalising locations Allocation of land with/without subsidized rate to the CPOs. Installation and commissioning of charging stations Deciding operational model, tariff and tariff collection Ensuring safety and security 	<ul style="list-style-type: none"> Ensure that demand based targets are fulfilled, charging stations at the bus routes. Further, as per Ministry of Power, charging station should be available in 3km x 3km grid in a city 	<ul style="list-style-type: none"> Expansion to citywide public charging network for e-autos as per demand

Way Forward

Nagpur should have a clear set of targets and prioritise on the following actions for accelerate EV adoption:



Finalising priority location for citywide charging infrastructure network



Electrification of IPT modes for last mile connectivity to public transport (buses)



Potential of Renewable energy integration (specially solar energy) for electricity generation



Awareness programme to sensitise public and government officials involved with EV sector



Electrification of Government fleet (Municipal Corporation vehicles)



Planned operation of existing e-bus fleet through data driven scheduling of buses on routes to improve reliability

Acknowledgement

ICLEI South Asia would like to express its sincere gratitude to the officials from Nagpur Municipal Corporation (NMC), Transport Department, Planning Department, Maharashtra State Electricity Distribution Co. Ltd (MSEDCL), RTO Nagpur, MAHA Metro and OEMs in Nagpur for their insights and guidance. The inputs from the Advisory Group members were crucial in finalising the document.

Disclaimer

This document includes preliminary recommendations and the way forward, based on interactions, fieldwork and background research and may require detailing as per the dedicated studies.

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