

Updated Form 1

(EXTENSION OF VALIDITY OF ENVIRONMENT CLEARANCE)

Of

**483 MW CAPTIVE POWER PLANT
(VADINAR POWER COMPANY LTD.)**

At

Refinery Site, 39 KM, Okha – Jamnagar Highway, Vadinar – 361305,
Gujarat, India

Form - 1

Sr. No.	Item	Details
1.	Name of the project/s	M/s Vadinar Power Company Ltd.
2.	S. No. in the schedule	1(d)
3.	Proposed capacity/area/length/tonnage to be handled/command area/lease area/number of wells to be drilled	Established capacity is 303 MW. Proposed capacity is 180 MW. Total capacity is 483 MW
4.	New/Expansion/Modernization	Not applicable This application is only for validity extension of Existing EC.
5.	Existing Capacity/Area etc.	303 MW/40 Ha
6.	Category of Project i.e. 'A' or 'B'	A
7.	Does it attract the general condition? If yes, please specify.	No
8.	Does it attract the specific condition? If yes, please specify.	No
9.	Location:	
	Plot/Survey/Khasra No.	128, 132, 133, 28, 29/P, 30, 58, 59, 60, 101, 103, 104, 105, 106/P, 107/1P, 107/2,108/P, 109, 110, 111, 112
	Village	Timbadi, Kathidevaliya
	Tehsil	Khambhaliya
	District	Devbhumi Dwarka
	State	Gujarat
10.	Nearest railway station/airport along with distance in km	Nearest Railway station: Jamkhambhaliya(20 km) away Nearest Airport : Jamnagar (30 km)
11.	Nearest Town, city, District Headquarters along with distance in km.	Nearest town : Jamkhambhaliya (20 km) Nearest City: Jamnagar (40 km) District Headquarters :Jamkhambhaliya (20km)
12.	Village Panchayats, Zilla Parishad, Municipal Corporation, Local body (complete postal addresses with telephone nos. to be given)	Timbadi Gram Panchayat Ta. Lalpur, District. Jamnagar
13.	Name of the applicant	Mr. K.B. Makadia
14.	Registered Address	Vadinar Power Company Ltd, Refinery Site, 39 KM, Jamnagar-Okha Highway, Vadinar-361305, Gujarat
15.	Address for correspondence :	
	Name	Prabhanjan Dixit
	Designation (Owner/Partner/CEO)	Head - HSEF
	Address	Essar Oil Limited P.O. Box no.24 Head P.O. Khambhaliya

		District: Devbhumi Dwarka
	Pin Code	361305
	E-mail	Prabhanjan.Dixit@essaroil.co.in
	Telephone No.	+91 2833 661444 2017
	Fax No.	+91 2833 661444 2929
16.	Details of Alternative Sites examined, if any. Location of these sites should be shown on a topo sheet	<p>Not applicable (This application is only for validity extension of Existing EC.) Site alternatives were not considered as existing 303 MW capacity power plant already installed within the refinery premises to meet refinery power requirement as captive power plant. <u>Proposed 180 MW</u> capacity power plant will be installed in the same refinery premises.</p> <p>The four corner co-ordinates of the site are (within Essar Oil Ltd. premises) 22° 19' 25"N & 69° 44' 20"E 22° 19' 37"N & 69° 44' 11"E 22° 19' 09"N & 69° 43' 55"E 22° 19' 22"N & 69° 43' 46"E</p>
17.	Interlinked Projects	Yes
18.	Whether separate application of interlinked project has been submitted?	Yes
19.	If yes, date of submission	Received Environment Clearance vide letter J-11011/320/2006-IA-II(I) dated 16.09.2008
20.	If no, reason	--
21.	Whether the proposal involves approval/clearance under: if yes, details of the same and their status to be given. (a) The Forest (Conservation) Act, 1980? (b) The Wildlife (Protection) Act, 1972? (c) The C.R.Z Notification, 1991?	No. Area of the project is not falling under Forest, Sanctuary & CRZ.
22.	Whether there is any Government Order/Policy relevant/relating to the site?	Not Applicable
23.	Forest land involved (hectares)	No
24.	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No.	No
	(c) Orders/directions of the Court, if any and its relevance with the proposed project.	No

- Capacity corresponding to sectorial activity (such as production capacity for manufacturing, mining lease area and production capacity for mineral production, area for mineral exploration, length for linear transport infrastructure, generation capacity for power generation etc.,)

(I) Activity

1. Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)

S.No.	Information/Checklist confirmation	Yes /No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	No	Not Applicable- This application is only for validity extension of Existing EC. The existing project is in the M/s Essar Oil Ltd. premises & the land is reserved for power plant. The existing land use is for industrial purpose. The land is on lease to Vadinar Power Company Ltd. (VPCL) by Essar Oil Ltd. (EOL) to install a captive power plant.
1.2	Clearance of existing land, vegetation and buildings?	No	No clearance envisaged for existing land, vegetation and building.
1.3	Creation of new land uses?	No	Not Applicable- This application is only for validity extension of Existing EC.
1.4	Pre-construction investigations e.g. bore houses, soil testing?	Yes	The soil testing/investigation studies was carried out during commencement of constructional activities.
1.5	Construction works?	Yes	Following structural activities may mainly be taken up: Turbine Generator building structures, power plant related infrastructure, switch yard, stack, water circulation systems, etc.
1.6	Demolition works?	No	No demolition is envisaged
1.7	Temporary sites used for construction works or housing of construction workers?	No	Labor colony is existing at site.
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	Yes	No major cutting or filling required on site as the land is relatively flat land. In case there is any levelling required, the top soil will be reused for plantation purpose etc.
1.9	Underground works including mining or tunneling?	No	Not Applicable
1.10	Reclamation works?	No	Not Applicable
1.11	Dredging?	No	Not Applicable
1.12	Offshore structures?	No	Not Applicable

1.13	Production and manufacturing processes?	Yes	<p>Existing power plant of 303 MW has below configuration</p> <table border="1" data-bbox="862 296 1435 632"> <tr> <td>Number of Steam Turbines</td> <td>03</td> </tr> <tr> <td>Capacity</td> <td>2 X 105 MW + 1X 92.8 MW</td> </tr> <tr> <td>Capacity of Boilers</td> <td>750 TPH</td> </tr> <tr> <td>Number of boilers</td> <td>02</td> </tr> <tr> <td>Type of Boilers</td> <td>Pulverized Fuel & Oil Fired</td> </tr> <tr> <td>Boiler Technology</td> <td>Sub-critical</td> </tr> </table> <p>The plant is designed to supply the following products.</p> <ul style="list-style-type: none"> • VHP Steam : 110 kg/cm² (g) and 540 Deg C • HP Steam : 40 kg/cm² (g) and 400 Deg C • MP Steam : 12.5 kg/cm² (g) and 260 Deg C • LP Steam : 4.5 kg/cm² (g) and 190 Deg C <p>VHP Steam is generated from both the boilers and it is fed to all three steam turbine through common VHP steam header. HP, MP & LP steam is extracted from steam turbine & same is supplied to Refinery.</p> <p>Over and above there is a pressure reducing station for HP, MP & LP steam. This is to ensure uninterrupted steam availability to refinery.</p> <p>The steam provided to the refinery is consumed, condensed & supplied back to power plant as make up feed water through refinery DM plant.</p> <p>303 MW Power Plant consists following systems.</p> <ul style="list-style-type: none"> • Electrical – All Transformers & Switchgear & MCC room – Cable cellars in PH- 2A • Boiler – All Coal Pulverisers & Feeders • Coal Handling System – 4 km approx. of Coal conveyors & its accessories. • Ash handling system – ESPs, Fly Ash & Bottom Ash collection, conveying, interim storage fly ash silo storage. • Cooling water system, CWPH reservoir & cells 	Number of Steam Turbines	03	Capacity	2 X 105 MW + 1X 92.8 MW	Capacity of Boilers	750 TPH	Number of boilers	02	Type of Boilers	Pulverized Fuel & Oil Fired	Boiler Technology	Sub-critical
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			<p>– water treatment – Chlorination & neutralization system including Chlorine storage area.</p> <p>Coal is imported from Indonesia. Fuel Oil (FO) is utilized from refinery for plant start-up & flame stabilization.</p> <p>Imported coal is unloaded at Bedi Port & transported to site by existing road.</p> <p>The coal requirement of each Steam Generation Unit (SGU) based on maximum continuous rating (MCR) is 150 tph with maximum lump size of around (-) 50 mm.</p> <p>The SGUs are natural circulation drum type. The burners are receiving pulverized coal from four mills.</p> <p>For existing 303 MW power plant</p> <p>2 STG generate (each): 105 MW power. 1 STG generates: 92.8 MW power.</p> <p><u>For proposed 180 MW</u></p> <p>2 STGs will generate (each): 90 MW power.</p> <p>The STGs are connected to 11 kV transformers which are further connected to 220 kV switch yard to step up the voltage & supply electricity to the grid.</p>
1.14	Facilities for storage of goods or materials?	Yes	<p>Storage facilities would be provided with in the existing project premises during construction and operation period.</p> <p>Coal storage in bunkers for 1 day.</p>
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	<p>Solid waste: Fly ash</p> <p>Fly ash – Whatever quantity generated from plant is dispatched directly from silos to cement manufacturers. VPCL is utilizing low ash content coal, daily generation of fly ash is in the range of 200 – 240 MT. There are 2 silos having total capacity of 1400 MT to store the fly ash, which is adequate to store fly ash for 6 to 7 days. From silos the fly ash is directly loaded in the fly ash bulkers of cement manufacturers on daily basis.</p>

			<p>For proposed 180 MW: Approximate 120 to 140 MT ash would be generated, which will be sent to cement industry for disposal.</p> <p>Effluents – CT blow down is disposed through the existing sea water return pipeline of Essar Oil Ltd (EOL) provided with adequate diffuser at a location identified by National Institute of Oceanography (NIO). Boiler blow down is utilized in the cooling tower make up.</p>
1.16	Facilities for long term housing of operational workers?	No	A township for employees near the refinery site is under construction.
1.17	New road, rail or sea traffic during construction or operation?	No	During construction phase, all construction material would be transported by road. Thus marginal increase in road traffic expected during construction phase. However, since the traffic will be plying on the State Highway SH 25 (Jamnagar – Okha), there will be minimal impact on the surrounding community.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No	
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	
1.20	New or diverted transmission lines or pipelines?	No	
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	
1.22	Stream crossings?	No	
1.23	Abstraction or transfers of water from ground or surface waters?	No	Not applicable – This application is only for validity extension of Existing EC.
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	No	
1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	Transport of personnel & materials during both construction & operation phase will be met by existing infrastructure.
1.26	Long-term dismantling or decommissioning or restoration works?	No	
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	No	
1.28	Influx of people to an area in either temporarily or permanently?	Yes	Mostly temporary during construction stage
1.29	Introduction of alien species?	No	

1.30	Loss of native species or genetic diversity?	No	
1.31	Any other actions?	No	

2. Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S.No.	Information/checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data																						
2.1	Land especially undeveloped or agricultural land (ha)	No	Not Applicable – This application is only for validity extension of Existing EC. The power plant is within the refinery premises.																						
2.2	Water (expected source & competing users) unit: KLD	Yes	DM water is supplied by the refinery & sea water is utilized for cooling tower. Water requirement for 483 MW is tabulated as below. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th rowspan="2">Utilization</th> <th colspan="2">Rate (m3/day)</th> <th rowspan="2">Quality</th> </tr> <tr> <th>For existing 303 MW</th> <th>For proposed 180 MW</th> </tr> </thead> <tbody> <tr> <td>Cooling water make-up for condenser and SG & STG auxiliaries.</td> <td>60120</td> <td>38520</td> <td>Sea water</td> </tr> <tr> <td>DM water make up to SG</td> <td>48960</td> <td>32640</td> <td>DM water from EOL</td> </tr> <tr> <td>Water requirement for ash handling system</td> <td>1960</td> <td>1160</td> <td>Service water from EOL</td> </tr> <tr> <td>HVAC make-up, & miscellaneous</td> <td>300</td> <td>180</td> <td>Service water from EOL</td> </tr> </tbody> </table>	Utilization	Rate (m3/day)		Quality	For existing 303 MW	For proposed 180 MW	Cooling water make-up for condenser and SG & STG auxiliaries.	60120	38520	Sea water	DM water make up to SG	48960	32640	DM water from EOL	Water requirement for ash handling system	1960	1160	Service water from EOL	HVAC make-up, & miscellaneous	300	180	Service water from EOL
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2.3	Minerals (MT)	No	Nil																						
2.4	Construction material – stone, aggregates, sand / soil (expected source – MT)	Yes	Construction material such as sand, steel, aggregates etc. will be used. However, the quantification of the materials will be done during detailed engineering stage.																						
2.5	Forests and timber (source – MT)	No	Nil																						
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)	Yes	Coal consumption of equivalent 5.6 MMTPA (85% PLF) for 483 MW power plant.																						

2.7	Any other natural resources (use appropriate standard units)	No	
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3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

S.No.	Information/Checklist confirmation	Yes /No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	Yes	Existing PESO license capacity: Chlorine Tonner – 16 Nos. However, In-built safety features of the plant and machinery would be made adequately in order to avoid hazardous events, if any, causing damage to the life and property.
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	
3.3	Affect the welfare of people e.g. by changing living conditions?	Yes	The power plant has created jobs for skilled & unskilled labors in permanent and contractual category.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,	No	
3.5	Any other causes	No	

4. Production of solid wastes during construction or operation or decommissioning (MT/month)

S.No.	Information/Checklist confirmation	Yes /No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes	Yes	The spoil and earthwork generated during construction shall be reused for construction as well as for filling.
4.2	Municipal waste (domestic and or commercial wastes)	Yes	All municipal solid waste is collected and disposed as per the requirement of the Solid Waste Management Rules.
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	Yes	Used lubricating oil, Discarded empty containers, Waste residue containing oil are the hazardous waste generated during operation. All the quantity of hazardous waste is sent to government authorized recyclers.

4.4	Other industrial process wastes	Yes	Fly ash
4.5	Surplus product	No	
4.6	Sewage sludge or other sludge from effluent treatment	Yes	Sewage treatment plant is provided, treated water is utilized for the gardening.
4.7	Construction or demolition wastes	Yes	This shall be used internally for filling and leveling of the sites within the plant site area.
4.8	Redundant machinery or equipment	No	
4.9	Contaminated soils or other materials	No	
4.10	Agricultural wastes	No	
4.11	Other solid wastes	No	

5. Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)

S.No.	Information/Checklist confirmation	Yes /No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	Exhaust emissions from vehicles and equipment deployed during the constructional phase may result in a marginal increase in the levels of PM, SO ₂ , NO _x and unburnt hydrocarbons.
5.2	Emissions from production processes	Yes	For effective dispersion and dilution of the pollutants 220 meter stack height is provided for 303 MW. Apart from this below Air pollution control measures are in place. To control PM emission high efficiency Electro Static Precipitator has been installed. Low sulphur fuel (coal) is being used to control SO ₂ . Low NO _x burners are installed to control NO _x pollution.
5.3	Emissions from materials handling including storage or transport	No	Coal for the power plant is imported from Indonesia & unloaded at Bedi port. From Bedi port the coal is being transported through dumpers at M/s Essar Bulk Terminal Ltd. (EBTSL). From EBTSL coal is being conveyed through enclosed conveyor belt to the power plant. No emission while coal is conveyed through conveyor belt as dust extraction system is installed at conveyor tippler, throughout conveyor belt & conveyor transfer points. Enclosed conveyor belt & bag filters are installed. Fly ash silos are provided with dust extraction systems.
5.4	Emissions from construction activities including plant and equipment	Yes	Appropriate pollution control measures like water sprinkling on approach roads, will be providing tarpaulin cover during transportation of construction material. Bulk silos for cement & other materials will be provided with dust extraction & control systems.
5.5	Dust or odours from handling of materials including construction materials, sewage and waste	Yes	Fugitive emission from the handling of materials is expected but appropriate control measures like water sprinklers etc. would be installed to keep such emissions to minimum.

5.6	Emissions from incineration of waste	No	
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	
5.8	Emissions from any other sources	No	

6. Generation of Noise and Vibration, and Emissions of Light and Heat:

S.No.	Information/Checklist confirmation	Yes /No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	All the equipments in the plants are designed/ operated on noise level less than 85 to 90 db(A) at source. For high producing noise equipment's appropriate acoustic enclosures are provided for STG units. However, regular maintenance of the equipment will be done help in reducing these noise levels. Necessary PPEs shall be provided to workers.
6.2	From industrial or similar processes	No	
6.3	From construction or demolition	Yes	During site development and construction of the plant, noise would be generated from machineries. However care will be taken to ensure that the ambient noise levels do not cross CPCB norms. Construction work is restricted at night time on the site. No demolition process will be carried out.
6.4	From blasting or piling	No	Not applicable
6.5	From construction or operational traffic	No	
6.6	From lighting or cooling systems	No	
6.7	From any other sources	No	

7. Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:

S.No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	No	In case of oil spillage, separate drainages are available, which are directly connected to Effluent Treatment Plant (ETP) of EOL.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	No	# Sewage from various buildings in the power plant area is treated in STP. # Storm water is collected in dedicated storm water drainage network and the drain is connected to rain water harvesting pond located in EOL. # Boiler blow-down is recycled in the cooling tower make up. # Blow-down from cooling tower is disposed through the existing sea water return pipeline of EOL.
7.3	By deposition of pollutants emitted to	No	

	air into the land or into water		
7.4	From any other sources	No	
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	

8. Risk of accidents during construction or operation of the Project, which could affect human health or the environment

S.No.	Information/Checklist confirmation	Yes /No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	Yes	Fire hazard from oil & coal storage, spills from transportation & storage. Appropriate fire extinguishers and fire hydrant lines will be available to mitigate any emergencies. Site has approved ERDMP is in place.
8.2	From any other causes	No	
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc.)?	No	The proposed project site is in the seismic zone IV, thus the project shall be constructed as per the code IS: 1893.

9. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality

S. No.	Information/Checklist confirmation	Yes /No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
9.1	Lead to development of supporting, utilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: <ul style="list-style-type: none"> • Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.) • housing development • extractive industries • supply industries • other 	No No No No	Not Applicable – This application is for only extension of existing EC.
9.2	Lead to after-use of the site, which could have an impact on the environment	No	
9.3	Set a precedent for later developments	Yes	Improvement in the socio-economic status of the surrounding community.
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	Yes	Major industries in the vicinity of the project are: Essar Oil Ltd., Reliance Industries Ltd. GSFC fertilizer plant, Essar Power Gujarat Ltd.

(II) Environmental Sensitivity

Sr. No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Marine National Park & Marine Sanctuary	~8 km
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Marine National Park & Marine Sanctuary	~8 km
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	Marine National Park & Marine Sanctuary	~8 km
4	Inland, coastal, marine or underground waters	Gulf of Kutch	~8 km
5	State, National boundaries	None	
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	None	
7	Defence installations	None	
8	Densely populated or built-up area	None	
9	Areas occupied by sensitive man-made land uses (<i>hospitals, schools, places of worship, community facilities</i>)	None	
10	Areas containing important, high quality or scarce resources (<i>ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals</i>)	None	
11	Areas already subjected to pollution or environmental damage. (<i>those where existing legal environmental standards are exceeded</i>)	None	
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (<i>earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions</i>)	None	