# SolarCapital Backend API Documentation

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## AuthController (`/auth`)

### POST `/auth/register`

\*\*Purpose:\*\* Register a new user. Sends an OTP to the provided email for verification.

\*\*Request Body:\*\*

```json

{

"email": "user@example.com",

"password": "yourPassword",

"fullName": "John Doe",

"contact": "9876543210"

}

```

\*\*Response:\*\*

- 200 OK: "Registration successful. OTP sent to email."

- 400 Bad Request: "Email already registered"

\*\*Authentication:\*\* Not required.

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### POST `/auth/verify-otp`

\*\*Purpose:\*\* Verify the OTP sent to the user's email during registration.

\*\*Request Body:\*\*

```json

{

"email": "user@example.com",

"otp": "123456"

}

```

\*\*Response:\*\*

- 200 OK: "OTP verified. You can now log in."

- 400 Bad Request: "Invalid or expired OTP"

\*\*Authentication:\*\* Not required.

---

### POST `/auth/login`

\*\*Purpose:\*\* Authenticate a user and return a JWT token.

\*\*Request Body:\*\*

```json

{

"email": "user@example.com",

"password": "yourPassword"

}

```

\*\*Response:\*\*

- 200 OK: `{ "token": "jwt-token-here" }`

- 400 Bad Request: "User not found" or "Invalid credentials"

\*\*Authentication:\*\* Not required.

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## KycController (`/kyc`)

### POST `/kyc/submit`

\*\*Purpose:\*\* Submit KYC details for the authenticated user.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Request Body:\*\*

- KYC object (fields depend on your KYC entity)

\*\*Response:\*\*

- 200 OK: "KYC submitted and pending approval."

- 400 Bad Request: "User not found"

- 401 Unauthorized: "Missing or invalid Authorization header"

\*\*Authentication:\*\* Required.

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## AdminKycController (`/admin/kyc`)

### POST `/admin/kyc/{id}/approve`

\*\*Purpose:\*\* Approve a KYC request by ID.

\*\*Path Parameter:\*\*

- id: KYC record ID

\*\*Response:\*\*

- 200 OK: "KYC approved."

- 400 Bad Request: "KYC not found"

\*\*Authentication:\*\* Admin only (enforced elsewhere).

---

### POST `/admin/kyc/{id}/reject`

\*\*Purpose:\*\* Reject a KYC request by ID.

\*\*Path Parameter:\*\*

- id: KYC record ID

\*\*Response:\*\*

- 200 OK: "KYC rejected."

- 400 Bad Request: "KYC not found"

\*\*Authentication:\*\* Admin only (enforced elsewhere).

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## ProjectController (`/api/projects`)

### GET `/api/projects/active`

\*\*Purpose:\*\* List all active projects.

\*\*Response:\*\*

- 200 OK: Array of Project objects

\*\*Authentication:\*\* Not required.

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### POST `/api/projects/admin`

\*\*Purpose:\*\* Create a new project (admin only).

\*\*Request Body:\*\*

- Project object (fields: name, location, energyCapacity, subscriptionPrice, etc.)

\*\*Response:\*\*

- 200 OK: Project object (created)

\*\*Authentication:\*\* Admin only (enforced elsewhere).

---

### PUT `/api/projects/admin/{id}`

\*\*Purpose:\*\* Update an existing project (admin only).

\*\*Path Parameter:\*\*

- id: Project ID

\*\*Request Body:\*\*

- Project object (fields to update)

\*\*Response:\*\*

- 200 OK: Project object (updated)

- 404 Not Found: If project does not exist

\*\*Authentication:\*\* Admin only (enforced elsewhere).

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### PATCH `/api/projects/admin/{id}/pause`

\*\*Purpose:\*\* Pause a project (admin only).

\*\*Path Parameter:\*\*

- id: Project ID

\*\*Response:\*\*

- 200 OK: Project object (paused)

- 404 Not Found: If project does not exist

\*\*Authentication:\*\* Admin only (enforced elsewhere).

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## SubscriptionController (`/api/subscriptions`)

### POST `/api/subscriptions`

\*\*Purpose:\*\* Initiate a subscription for a project (mock Cashfree order creation).

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Request Parameter:\*\*

- projectId: Long

\*\*Response:\*\*

- 200 OK: `{ "paymentOrderId": "...", "paymentLink": "..." }`

- 400 Bad Request: "Project not found"

- 401 Unauthorized: "User not found"

\*\*Authentication:\*\* Required.

---

### POST `/api/subscriptions/webhook`

\*\*Purpose:\*\* Handle payment status webhook (mocked).

\*\*Request Parameters:\*\*

- orderId: String

- status: String ("SUCCESS" or "FAILED")

\*\*Response:\*\*

- 200 OK: "Webhook processed"

- 400 Bad Request: "Subscription not found"

\*\*Authentication:\*\* Not required (should be secured in production).

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### GET `/api/subscriptions/history`

\*\*Purpose:\*\* Get the authenticated user's subscription history.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Response:\*\*

- 200 OK: Array of Subscription objects

- 401 Unauthorized: "User not found"

\*\*Authentication:\*\* Required.

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## EnergyController (`/api/energy`)

### POST `/api/energy/record`

\*\*Purpose:\*\* Admin: Record monthly kWh for a project and calculate rewards for all subscribers.

\*\*Request Parameters:\*\*

- projectId: Long

- month: int

- year: int

- kWh: double

\*\*Response:\*\*

- 200 OK: "Rewards calculated and logged for all subscribed users."

- 400 Bad Request: "Project not found"

\*\*Authentication:\*\* Admin only (enforced elsewhere).

---

### GET `/api/energy/rewards/history`

\*\*Purpose:\*\* Get reward history for the authenticated user.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Response:\*\*

- 200 OK: Array of RewardHistory objects

- 401 Unauthorized: "User not found"

\*\*Authentication:\*\* Required.

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## EngagementController (`/engagement`)

### POST `/engagement/reinvest`

\*\*Purpose:\*\* Reinvest credits into a project.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Request Parameters:\*\*

- projectId: Long

- amount: BigDecimal

\*\*Response:\*\*

- 200 OK: "Reinvested X credits in project Y"

- 400 Bad Request: "Project not found" or "Insufficient credits"

- 401 Unauthorized: "Unauthorized"

\*\*Authentication:\*\* Required.

---

### POST `/engagement/donate`

\*\*Purpose:\*\* Donate credits to a project.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Request Parameters:\*\*

- projectId: Long

- amount: BigDecimal

\*\*Response:\*\*

- 200 OK: "Donated X credits to project Y"

- 400 Bad Request: "Project not found" or "Insufficient credits"

- 401 Unauthorized: "Unauthorized"

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### POST `/engagement/gift`

\*\*Purpose:\*\* Gift credits to another user.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Request Parameters:\*\*

- recipientEmail: String

- amount: BigDecimal

\*\*Response:\*\*

- 200 OK: "Gifted X credits to recipient"

- 400 Bad Request: "Recipient not found" or "Insufficient credits"

- 401 Unauthorized: "Unauthorized"

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### GET `/engagement/logs`

\*\*Purpose:\*\* Get credit transfer logs for the authenticated user.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Response:\*\*

- 200 OK: Array of logs (outflows and inflows)

- 401 Unauthorized: "Unauthorized"

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## WalletController (`/wallet`)

### POST `/wallet/reward`

\*\*Purpose:\*\* Add a reward for a user (admin or system action).

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Request Body:\*\*

- RewardHistory object

\*\*Response:\*\*

- 200 OK: "Reward added successfully"

- 400 Bad Request: "User not found"

- 401 Unauthorized: "Missing or invalid Authorization header"

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### GET `/wallet/summary`

\*\*Purpose:\*\* Get wallet summary for the authenticated user (total credits, kWh, CO2 saved).

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Response:\*\*

- 200 OK: `{ "totalCredits": ..., "totalKwh": ..., "co2SavedKg": ... }`

- 400 Bad Request: "User not found"

- 401 Unauthorized: "Missing or invalid Authorization header"

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### GET `/wallet/ledger`

\*\*Purpose:\*\* Get date-wise reward ledger for the authenticated user.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Response:\*\*

- 200 OK: Array of RewardHistory objects (sorted by year, month desc)

- 400 Bad Request: "User not found"

- 401 Unauthorized: "Missing or invalid Authorization header"

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### GET `/wallet/tds-status`

\*\*Purpose:\*\* Check if TDS should be triggered for the current year.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Response:\*\*

- 200 OK: `{ "totalYearly": ..., "tdsRequired": true/false }`

- 400 Bad Request: "User not found"

- 401 Unauthorized: "Missing or invalid Authorization header"

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### GET `/wallet/dashboard`

\*\*Purpose:\*\* Combined dashboard: summary, ledger, TDS info.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Response:\*\*

- 200 OK: `{ "summary": ..., "ledger": ..., "tdsStatus": ... }`

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### POST `/wallet/send-monthly-summary`

\*\*Purpose:\*\* Send monthly summary PDF to user's email.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Response:\*\*

- 200 OK: "Monthly summary PDF sent to user@example.com"

- 400 Bad Request: "User not found"

- 401 Unauthorized: "Missing or invalid Authorization header"

- 500 Internal Server Error: "Failed to generate or send PDF"

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## WithdrawalController (`/withdrawal`)

### POST `/withdrawal/request`

\*\*Purpose:\*\* Request a withdrawal from wallet.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Request Body:\*\*

- WithdrawalRequest object

\*\*Response:\*\*

- 200 OK: "Withdrawal successful and paid via Cashfree"

- 400 Bad Request: "User not found", "KYC not approved", "Monthly withdrawal cap exceeded", "Insufficient wallet balance"

- 401 Unauthorized: "Missing or invalid Authorization header"

- 500 Internal Server Error: "Withdrawal failed at payment gateway"

---

### GET `/withdrawal/history`

\*\*Purpose:\*\* Get withdrawal history for the authenticated user.

\*\*Request Header:\*\*

- Authorization: Bearer `<token>`

\*\*Response:\*\*

- 200 OK: Array of WithdrawalRequest objects

- 400 Bad Request: "User not found"

- 401 Unauthorized: "Missing or invalid Authorization header"

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