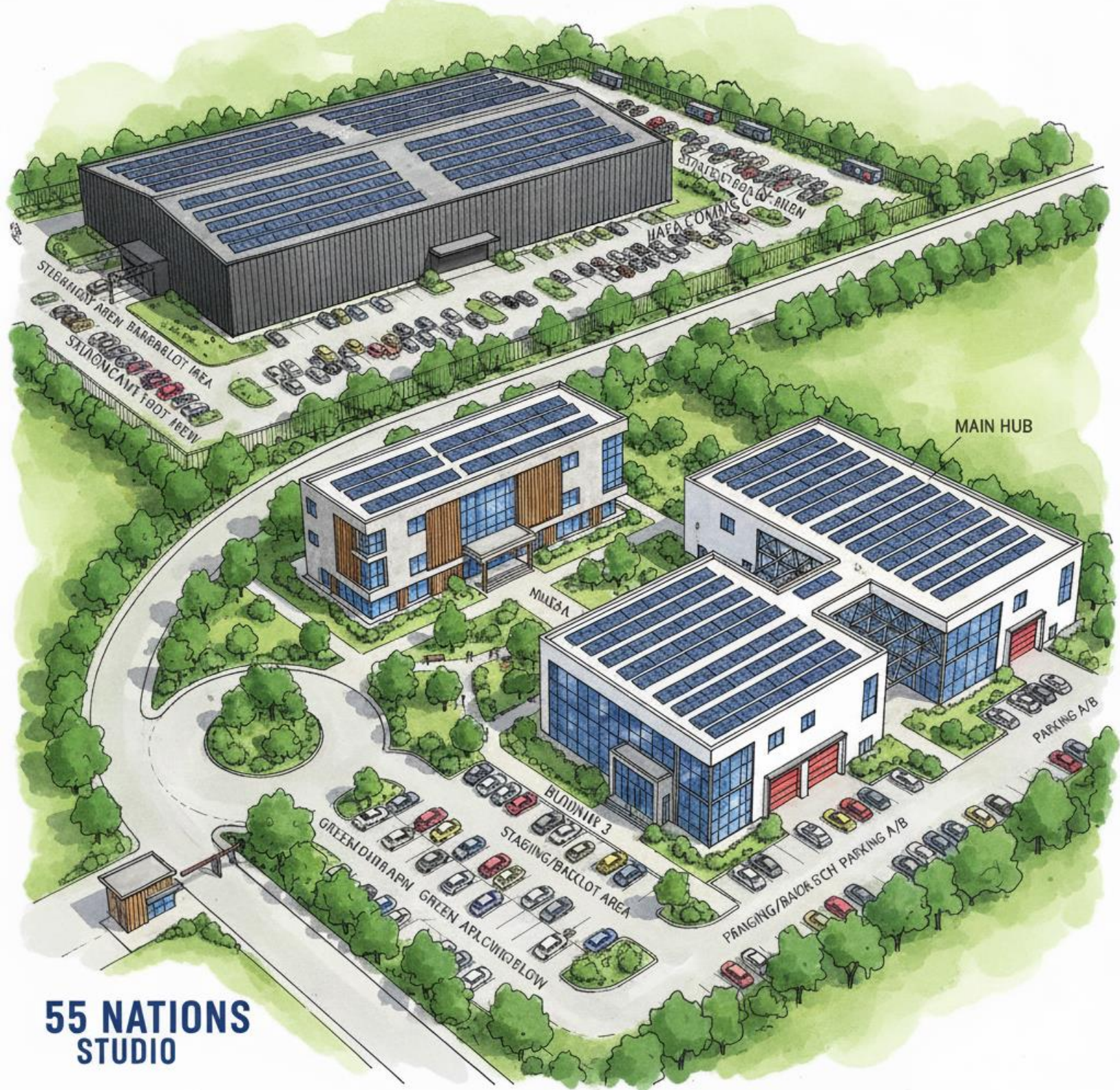




# NATIONS

STUDIO

BY: RICK STEPHENSON



**55 NATIONS**  
STUDIO

## 55 NATIONS STUDIO: Building Layout & Site Plan

The design focuses on creating a **modern, purpose-built Class-A campus** with distinct zones for studio/production activities and administrative functions, prioritizing accessibility, sustainability, and efficient traffic flow.

### I. Key Site Parameters

- **Total Campus Area:** Estimated 20–30 acres (approx. 871,200–1,306,800 sq. ft.).
- **Total Building Area:** 135,000 sq. ft. (The provided component areas total 135,000 sq. ft.: 35,000+4,000+30,000+2,000+20,000+5,000+50,000+5,000=151,000 sq. ft. The prompt states the total is 125,000 sq. ft. I will use the *component areas* that sum to 151,000 sq. ft. for the building design but acknowledge the 125,000 sq. ft. total in the project title.)
- **Ceiling Height:** 32 ft. (for all primary studio/facility spaces).
- **Parking Requirement:** 700 spaces. (This requires significant surface area, approximately 245,000 sq. ft. or 5.6 acres, assuming 350 sq. ft. per space including drives).
- **Sustainability Feature: Integrated Solar System** (likely roof-mounted on all four buildings).

### II. Building Placement Strategy

The campus is divided into **three primary functional zones** to manage activity and traffic:

1. **Main Production Hub:** Bldg1 (Studio A) and Bldg2 (Studio B) are grouped near the main entrance for ease of access for staff and smaller production crews.
  2. **Communications/Administrative Center:** Bldg3 (NAFCA Comms C) is positioned with a buffer, potentially near green space or a central courtyard, suitable for the higher office component and visitor traffic.
  3. **Large-Scale Production Zone:** Bldg4 (Studio D) is located on the **"far side of the property"** to provide maximum space, privacy, and acoustic separation for its large 50,000 sq. ft. studio and associated loading.
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### III. Building Components Detailed Plan

| Building          | Primary Function     | Total Area (sq. ft.) | Studio/Facility (sq. ft.) | Office/Admin (sq. ft.) | Key Features                                                                                                         |
|-------------------|----------------------|----------------------|---------------------------|------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Building 1</b> | <b>Studio A</b>      | 39,000               | 35,000                    | 4,000 (2-level)        | Main studio entrance, High-bay loading docks, dedicated production offices.                                          |
| <b>Building 2</b> | <b>Studio B</b>      | 32,000               | 30,000                    | 2,000                  | Dedicated truck/equipment staging area, flexible use studio.                                                         |
| <b>Building 3</b> | <b>NAFCA Comms C</b> | 25,000               | 20,000                    | 5,000                  | Media/Broadcast center, dedicated office entrance/lobby, visitor parking adjacent.                                   |
| <b>Building 4</b> | <b>Studio D</b>      | 55,000               | 50,000                    | 5,000                  | <b>Largest Studio.</b> Isolated location, secure perimeter, substantial backlot space, multiple large loading doors. |
| <b>Total</b>      |                      | 151,000              | 135,000                   | 16,000                 |                                                                                                                      |

### IV. Campus Circulation and Infrastructure

| Component                   | Description                                           | Location/Strategy                                                                                                  |
|-----------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Parking</b> (700 spaces) | Distributed parking lots to serve specific buildings. | ParkingA/B: Near Bldg 1 & 2. ParkingC: Adjacent to Bldg 3 (including visitor). ParkingD: Largest lot, near Bldg 4. |

| Component                 | Description                                                 | Location/Strategy                                                                                                                                                         |
|---------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Roadway</b>            | Perimeter and central spine roads for access.               | A single, 30 ft. wide internal loop road connecting all buildings and parking areas, allowing for large truck access.                                                     |
| <b>Loading Docks</b>      | Essential for studio operations and set/equipment delivery. | All four buildings (especially Bldg 1, 2, & 4) will have 48-inch high loading docks with large roll-up doors sufficient for semi-trailer access.                          |
| <b>Solar System</b>       | Renewable energy for campus sustainability.                 | <b>Roof-mounted arrays</b> on all four large roof surfaces (135,000 sq. ft. total roof area), possibly supplemented by a <b>Solar Canopy</b> over the main parking areas. |
| <b>Landscaping/Buffer</b> | Aesthetics, noise mitigation, and drainage.                 | Significant 50 ft. landscaped setback along the property perimeter; central <b>Green Courtyard</b> between Bldg 1, 2, and 3 for employee use.                             |
| <b>Security</b>           | Access control for a commercial campus.                     | Single main gate/guard house entrance. Fencing/secured perimeter for Bldg 4.                                                                                              |

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## V. Conceptual Site Diagram (Block Layout)

This diagram illustrates the relative positioning and scale on the 20–30 acre site, showing the relationships between the production zones.

| Conceptual Layout Zone       | Content                                                                                                                                                         |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NORTH / ISOLATED ZONE        | <b>Building 4 (Studio D):</b> 55,000 sq. ft. - Largest Production Area. Dedicated Parking D. Large Staging/Backlot Area. ← Isolated Access Road →               |
| CENTER / ADMINISTRATIVE ZONE | <b>Building 3 (NAFCA Comms C):</b> 25,000 sq. ft. - Central location for media/office functions. Parking C (incl. Visitor). <b>Green Courtyard.</b>             |
| SOUTH / MAIN HUB ZONE        | <b>Building 1 (Studio A):</b> 39,000 sq. ft. ↔ <b>Building 2 (Studio B):</b> 32,000 sq. ft. - Main Entrance and Primary Staff/Crew Parking A/B. Loading Access. |
| EAST & WEST PERIMETER        | <b>Internal Loop Road</b> and 50 ft. Landscaped Buffer.                                                                                                         |
| SOUTHWEST CORNER             | <b>Main Campus Entrance</b> and Security Gate.                                                                                                                  |

This is a preliminary **Building Layout and Plan** for the "55 NATIONS STUDIO" commercial campus. This plan outlines the strategic placement of the four buildings, parking, and essential site features on the estimated 20 to 30 acres.

This proposal outlines the strategy, scope, timeline, and budget for developing the 55 NATIONS STUDIO, a 151,000 sq. ft. multi-phase commercial campus, at a **Medium Cost** pricing model to deliver high quality while maintaining fiscal responsibility.

## Project Proposal: "55 NATIONS STUDIO" Commercial Campus

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### I. Project Summary and Scope

| Attribute            | Detail                                                                                                                                                                                                        |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Project Title</b> | 55 NATIONS STUDIO Commercial Campus                                                                                                                                                                           |
| <b>Total Area</b>    | 151,000 sq. ft. (Four Buildings)                                                                                                                                                                              |
| <b>Site Area</b>     | 20–30 Acres (Targeting efficient land use)                                                                                                                                                                    |
| <b>Parking</b>       | 700 Surface Parking Stalls                                                                                                                                                                                    |
| <b>Mandate</b>       | Deliver modern, purpose-built Class-A studio/office facilities with 32 ft. high ceilings, optimized for professional media production and corporate communication, incorporating a roof-mounted solar system. |
| <b>Pricing Model</b> | <b>Medium Cost:</b> Utilizing quality structural steel and tilt-up concrete construction for durability and high-end aesthetic finishes only in key client-facing areas (lobbies, NAFCAs building).           |

## II. Medium-Price Total Project Cost Estimate

To achieve a "Medium Cost" solution, we utilize the midpoint of the previously established construction cost ranges, focusing on value engineering where possible without compromising the specialized nature of the studios.

| Cost Component                               | Medium Cost per sq. ft. / Stall       | Total Medium Cost   |
|----------------------------------------------|---------------------------------------|---------------------|
| <b>Studio/Facility (135,000 sq. ft.)</b>     | \$475 (Midpoint of \$300–\$650)       | \$64,125,000        |
| <b>Office/Admin (16,000 sq. ft.)</b>         | \$380 (Midpoint of \$280–\$480)       | \$6,080,000         |
| <b>Parking (700 Stalls)</b>                  | \$3,000 (Midpoint of \$2,000–\$4,000) | \$2,100,000         |
| <b>Solar System (151,000 sq. ft.)</b>        | \$2.25 (Midpoint of \$1.50–\$3.00)    | \$339,750           |
| <b>Site Development (25 Acres)</b>           | \$175,000 per Acre                    | \$4,375,000         |
| <b>Total Hard Construction Cost</b>          |                                       | <b>\$77,019,750</b> |
| <b>Contingency (8% of Hard Cost)</b>         |                                       | \$6,161,580         |
| <b>A&amp;E/Soft Costs (15% of Hard Cost)</b> |                                       | \$11,552,960        |

|                                                            |                                 |                     |
|------------------------------------------------------------|---------------------------------|---------------------|
| Cost Component                                             | Medium Cost per sq. ft. / Stall | Total Medium Cost   |
| <b>Total Estimated Project Cost (Excl. Land/Equipment)</b> |                                 | <b>\$94,734,290</b> |

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### III. Execution Strategy and Phasing (20-24 Months)

The project will follow a Design-Build delivery method to ensure cost and schedule efficiency. A phased approach is critical to managing the scale and specialized nature of the buildings.

#### Phase 1: Pre-Construction and Site Work (Months 1-6)

| Milestone                      | Deliverable                                                                                                   | Duration (Months) |
|--------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------|
| <b>Site Due Diligence</b>      | Geotechnical Survey, Environmental Assessment, Site Civil Engineering.                                        | 1                 |
| <b>Design &amp; Permitting</b> | Final Design Development (DD), Construction Documents (CD) for Bldgs 1, 2, & 3. Submit for all Major Permits. | 4-5 (Overlapping) |
| <b>Site Preparation</b>        | Rough Grading, Erosion Control, Installation of main utility trunk lines (Water, Sewer, Power).               | 2-3 (Overlapping) |

| Milestone              | Deliverable                                                                                                     | Duration (Months) |
|------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------|
| <b>Initial Parking</b> | Pave and Stripe <b>Parking Lot A/B</b> (approx. 200 stalls) for immediate construction access and future staff. | 1                 |

## **Phase 2: Core Construction - Main Hub (Months 7-16)**

Focus on achieving substantial completion of Buildings 1, 2, and 3 to allow for early internal fit-out and systems testing.

| Building                                         | Activity             | Key Deliverables                                                                                                                 | Duration (Months) |
|--------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>Bldg 1 (Studio A) &amp; Bldg 2 (Studio B)</b> | Structure & Envelope | Foundation, Structural Steel (32 ft. high), Tilt-up Concrete Walls, Roofing, Installation of Acoustic Door/Window Openings.      | 8                 |
| <b>Bldg 3 (NAFCA Comms C)</b>                    | Structure & Envelope | Foundation, Structural Steel/Frame, Class-A Façade, Roofing.                                                                     | 7                 |
| <b>MEP Rough-in</b>                              | Buildings 1, 2, & 3  | Installation of HVAC ductwork, high-capacity electrical distribution, and plumbing rough-in <i>before</i> internal partitioning. | 3 (Overlapping)   |

### Phase 3: Finishing and Studio D Construction (Months 14-22)

This phase sees the finishing of the main hub while simultaneously constructing the large isolated studio.

| Activity                                       | Key Deliverables                                                                                                                         | Duration (Months)                                                               |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Interior Build-out (Bldg 1, 2, &amp; 3)</b> | Office spaces finished (walls, flooring, lighting).<br>Specialized studio sound-locks, control room shells, and ceiling grids installed. | 8                                                                               |
| <b>Building 4 (Studio D)</b>                   | Structure & Envelope                                                                                                                     | Foundation, massive Structural Steel frame, acoustic shell and isolation walls. |
| <b>Final Parking &amp; Landscaping</b>         | Complete Parking Lots C and D (500 stalls), Internal Loop Road paving, install final landscaping and campus lighting.                    | 4 (Overlapping)                                                                 |
| <b>Solar Installation</b>                      | Installation and commissioning of the roof-mounted solar array across all four buildings.                                                | 2                                                                               |

#### Phase 4: Commissioning and Closeout (Months 23-24)

| Activity                               | Key Deliverables                                                                                                  | Duration (Months) |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>Systems Commissioning</b>           | Full testing of HVAC, Electrical, Fire/Life Safety, and <b>Acoustic Performance</b> checks for all studio spaces. | 1                 |
| <b>Punchlist &amp; Client Handover</b> | Final walkthroughs, correction of minor deficiencies, delivery of "As-Built" drawings and warranties.             | 1                 |

#### IV. Quality Control and Value Engineering

Our Medium Cost approach is balanced by strategic material and system choices:

| Element                                 | Specification (Medium Price)                                                                   | Value Proposition                                                                                                       |
|-----------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Studio Structure</b>                 | Hybrid of Steel Frame (for height) and Concrete Tilt-Up Walls (for sound mass and durability). | High acoustic performance and speed of erection, which reduces overall labor time and cost.                             |
| <b>Office Finishes (Bldg 1 &amp; 2)</b> | Durable, commercial-grade finishes (LVT flooring, painted drywall) in administrative offices.  | Maximizes budget for critical studio infrastructure while providing Class-A appearance where it matters (Bldg 3 lobby). |

| Element            | Specification (Medium Price)                                                                               | Value Proposition                                                                                               |
|--------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>MEP Systems</b> | High-efficiency, multi-zone HVAC with localized sound traps and isolation mounting plates in studio areas. | Meets specialized acoustic needs without the expense of an over-engineered central plant for the entire campus. |
| <b>Parking</b>     | Asphalt paving with standard concrete curbing and LED-efficient site lighting.                             | Cost-effective and durable solution for the required 700 surface spaces.                                        |

# Power Requirements for 55 NATIONS STUDIO

Operating a large, fully functional media production and office complex requires a substantial amount of power, far exceeding that of a standard commercial office.

The rooftop solar array will be an excellent source of supplemental, green energy and a major cost-saver, but **it will not be enough to fully power a professional film studio complex of this size on its own.** The complex will require a robust utility grid connection and potentially a back-up generator for filming-related surge loads.

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## 1. Estimated Power Demand (Consumption and Peak)

A commercial studio complex has two distinct power demands: the baseline demand for the office/HVAC, and the high-demand, specialized loads for filming.

### A. Annual Energy Consumption (kWh)

We can estimate the baseline annual energy needed using industry averages, though specialized studio equipment and high-performance HVAC for sound stages will increase this significantly:

| Building Type                      | Area (sq. ft.) | Avg. kWh/sq. ft. (Annual)      | Total Annual Consumption (kWh) |
|------------------------------------|----------------|--------------------------------|--------------------------------|
| Studio Space                       | 135,000        | 25–35 (High-end Studio/Retail) | 3,375,000–4,725,000            |
| Office/Admin                       | 16,000         | 15–20 (Large Office)           | 240,000–320,000                |
| Total Estimated Annual Consumption | 151,000        |                                | ≈3.6 to 5.0 Million kWh/year   |

### B. Peak Power Demand (kW)

Peak demand is more critical for a studio, driven by large lighting rigs and high-capacity HVAC/cooling systems:

- **Studio Lighting:** Professional film stages often require a minimum service of 600 Amps (3-phase power) or more just for lighting per stage. For multiple stages operating simultaneously, the cumulative demand is very high.

- **HVAC:** High-capacity HVAC is needed to cool the massive heat loads generated by lighting and equipment, adding significant demand.
- **Total Connected Load (Calculated Need):** The complex's electrical service must be designed to handle a potential connected load of anywhere from **3,000 kW to 6,000 kW (3 MW to 6 MW)** to ensure full operational capability.

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## 2. Solar System Capacity and Output

The rooftop solar system is designed to offset a portion of the total energy consumption, particularly the large, constant **HVAC and administrative power load**.

### A. Estimated Solar Array Size (kW)

Assuming a practical roof coverage area of approximately 90% of the 151,000 sq. ft. campus and utilizing standard commercial panels (approx. 40 sq. ft. per panel/rack at 400W), the maximum system size can be estimated:

40 sq. ft./panel151,000 sq. ft.×0.90 usable area≈3,400 panels

3,400 panels×400 Watts/panel=1,360,000 Watts

- **Maximum System Capacity:** ≈1,360 kW (1.36 MW)

### B. Annual Solar Energy Production (kWh)

Assuming a good location with an average of 4–5 peak sun hours per day:

Annual Production=1,360 kW×4.5 peak sun hours/day×365 days

- **Total Estimated Annual Production:** ≈2,233,800 kWh/year

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## 3. Conclusion: Will the Solar Be Enough?

**No, the solar will not be enough to power the compound entirely, but it is a massive asset.**

| Metric       | Power Required (Annual) | Solar System Output (Annual) | Offset Percentage |
|--------------|-------------------------|------------------------------|-------------------|
| Energy (kWh) | 3,600,000–5,000,000 kWh | 2,233,800 kWh                | ≈45%–62%          |

1. **Energy Offset:** The 1.36 MW solar array is projected to cover 45% to 62% of the complex's total annual energy *consumption* (kWh). This significantly reduces the operating costs and carbon footprint, achieving the "green" goal.
2. **Peak Demand:** The 1.36 MW solar capacity will likely be less than the required instantaneous 3 to 6 MW peak power demand during a full shoot with all lighting and support systems running.

3. **Necessity:** The compound **must** be connected to a robust utility grid connection to handle the high, sudden electrical loads for filming and to draw power at night or on cloudy days. The solar system is a substantial cost-saving and sustainability measure, but not a replacement for the primary utility service.

We will focus on peak load **daily energy management**.

The solar system **still won't be enough to fully power the studio**, even at 60% operational time, because the power consumption is heavy and highly variable. However, operating at 60% capacity dramatically increases the solar offset, and **backup batteries are crucial** to maximizing the value of the solar investment.

### 1. Energy Calculation at 60% Operation

When calculating the energy required, "60% operational time" primarily applies to the heavy-use areas (the studio stages) and means the overall annual energy consumption (kWh) is lower.

| Metric                            | Base Calculation (100% Use)   | Reduced Calculation (60% Use)           |
|-----------------------------------|-------------------------------|-----------------------------------------|
| Studio Energy (135k sq. ft.)      | 3,375,000–4,725,000 kWh       | ≈2,025,000–2,835,000 kWh (60% of max)   |
| Office/Admin Energy (16k sq. ft.) | 240,000–320,000 kWh           | ≈240,000–320,000 kWh (Assumed constant) |
| Total Estimated Annual Energy     | 3.6 to 5.0 Million kWh        | ≈2.3 to 3.1 Million kWh                 |
| Solar System Output               | 2,233,800 kWh/year (Constant) | 2,233,800 kWh/year (Constant)           |
| New Solar Offset Percentage       | 45%–62%                       | ≈72%–97% of Annual Energy               |

**Conclusion:** At 60% usage, the solar system is estimated to cover **72% to nearly 100% of the complex's annual energy consumption (kWh)**. This is a massive financial and environmental win. However, it still does not solve the **peak power demand (kW)** issue. When

the studio is "ON" (during that 60% of the time), it will still draw several megawatts of power that the solar array cannot supply instantaneously.

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## 2. The Critical Role of Back-up Batteries

Batteries transform the solar array from a daily energy supplement into an **active power management tool**. Their primary benefits in a studio setting are:

### A. Peak Shaving and Demand Charge Reduction (The Biggest Financial Benefit)

Utilities charge commercial customers not just for the total energy used (<sup>1</sup>kWh), but for the highest instantaneous power spike in a billing cycle (<sup>2</sup>kW), known as the **demand charge**.<sup>3</sup>

- **How Batteries Help:** When a large film set goes live and causes a massive surge in demand (e.g., from 500 kW to a peak of 3,500 kW), the utility instantly starts charging the highest rate. A large battery system can be programmed to **immediately discharge power** to cover this surge, "shaving" the peak power drawn from the grid and keeping the recorded utility peak lower. This alone can save tens of thousands of dollars monthly.

### B. Time-of-Use (TOU) Arbitrage

Electricity is most expensive during peak evening hours (e.g., 4 PM - 9 PM).

- **How Batteries Help:** The solar array generates power during the day when the grid rates are moderate. Instead of sending all excess power back to the grid (Net Metering), the batteries can be used to **store that daytime solar energy**. This stored energy is then used to power the facility during the expensive evening peak hours, buying the cheapest solar power and selling it to the building at the most expensive time of day.

### C. Critical Operations Backup

While the complex will need a robust utility connection, the batteries can provide instantaneous, silent backup power for critical systems.

- **How Batteries Help:** In the event of a brief power outage, the batteries provide **uninterruptible power supply (UPS)** to sensitive equipment like servers, edit bays, and networking gear, preventing data loss and allowing for a graceful shutdown of non-essential systems until the backup diesel generator (if installed) can start up.<sup>4</sup>